



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular Size Full Proposal

Country/Region:	Zambia	
Project Title:	Climate Change Adaptation of Livelihoods through Rural Finance (CALRF)	
Thematic Focal Area:	Agriculture	
Implementing Entity:	International Fund for Agricultural Development (IFAD)	
Executing Entities:	Ministry of Finance and National Planning / Ministry of Green Economy and Environment	
AF Project ID:	AF00000280	
IE Project ID:		Requested Financing from Adaptation Fund (US Dollars): 10,000,000
Reviewer and contact person:	Imèn Meliane	Co-reviewer(s): Saliha Dobardzic
IE Contact Person:		

Technical Summary	<p>The project “Change Adaptation of Livelihoods through Rural Finance (CALRF)” aims to increase the climate resilience of rural populations through access to finance for investments in adaptation solutions and best practices, enhanced by institutional and financial innovation mechanisms. The overall objective of the project is to build and enhance resilience and adaptive capacities of 43,400 people (8,680 households) to cope with extreme weather events through promoting diversified, resilient and sustainable community livelihood options and facilitating access to finances for investments in climate-sensitive sectors. This will be done through the three components below:</p> <p>Component 1: Building and promoting diversified, resilient and sustainable community livelihood options (USD 6,260,000);</p> <p>Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors (USD 1,390,000);</p> <p>Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building (USD 692,000).</p> <p><u>Requested financing overview:</u> Project/Programme Execution Cost: USD 874,590</p>
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	<p>Total Project/Programme Cost: USD 9,216,590 Implementing Fee: USD 783,410 Financing Requested: USD 10,000,000</p> <p>The initial technical review raised several issues, such as the need to further define the project activities, cost-effectiveness and sustainability of the project, lack of duplication, full cost of adaptation reasoning and compliance with the Fund's Environmental and Social Policy and Gender Policy, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.</p>
Date:	1 February, 2023

Review Criteria	Questions	Comments	
Country Eligibility	1. Is the country party to the Kyoto Protocol or the Paris Agreement?	Yes.	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	<p>Yes.</p> <p>The ND-GAIN index ranks Zambia in the 137th position, being the 41st most vulnerable country and the 53rd least ready country to face climate change.</p> <p>Climate change impacts include extreme events hazards including droughts and prolonged dry spells, seasonal and flash floods and extreme temperatures.</p> <p>Climate change is also impacting important economic sector, especially agriculture, which supports roughly 85% of the country's population, employing 52% of the country's working-age population. Other sectors include human and animal health, land, forestry, infrastructure development and water resources.</p>	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	<p>Yes.</p> <p>As per the Endorsement letter dated 10 January 2022.</p>	
	2. Does the length of the proposal amount to no more than One hundred (100) pages for the fully-developed project document, and one hundred (100) pages for its annexes?	<p>Yes.</p> <p>The length of the proposal amounts to 101 pages, inclusive of annexes.</p>	
	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?	<p>Unclear.</p> <p>The project seems to support concrete adaptation actions that are intended to address the climate change challenges in the target area and of benefit to the targeted communities. However, the activities are not detailed to a sufficient level for a fully-developed proposal.</p> <p>As stated, most of the activities -and a significant part of the budget- constitute Unidentified Sub-Projects (USPs) (e.g. 1.2.1 (under both outputs 1.1 and 1.2), 1.3.2, 1.3.3; 2.1.2 etc). The use of USPs is neither acknowledged nor justified in the proposal. Please note that</p>	<p>CAR1: Additional text has been provided to explain all the activities that have been proposed under each output see pages ...</p>

		<p>the use of USPs is on an exceptional basis. Many of the activities could and should be further defined at this stage of the proposal.</p> <p>CAR1: Please provide more details and description under each activity, including the particular modalities or options that will be used, target groups, locations, expected results etc. Please further define the activities to a level where they are not USPs (please refer to the updated guidance on USP - https://www.adaptation-fund.org/wp-content/uploads/2021/05/Updated-guidance-on-USPs-.pdf), and</p> <p>CR1: Activities under Component 2 will involve partners and financial service providers. Please clarify which financial service providers are expected to be involved, and if there has been initial consultation on their disposition for such services, or any initial assessment of the sector. Please add these details under component 2.</p> <p>CR2: Section E in Part II of the proposal refers to activities to be financed through the revolving funds. Please provide a detailed description of the revolving funds that will be developed by this project, including their structure, governance, modalities and criteria.</p> <p>CR3: Please note that the activities under Output 1.1 are numbered wrongly (same as activities under output 1.2). Please correct the numbering.</p>	<p>CR1: The service providers have been indicated and confirmed engagements noted under component 2 on page 29.</p> <p>CR2: The aspects related to the revolving fund (RF) have been deleted. RF was considered in the earlier version of the document, and not the submitted version of the document.</p> <p>CR3: numbering corrected with components having first level, outcomes second, output third and activities fourth level.</p>
	<p>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 Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Partially.</p> <p>Section II-B outlines a number of social and environmental benefits, which are mostly qualitative with only few quantified estimated benefits. There is no description or quantification of the economic benefits of the project.</p> <p>CAR2: Please outline the economic benefits of the project including quantitative estimates.</p> <p>CR4: Please also provide better quantitative estimates of the social and environmental benefits.</p> <p>The proposal includes general information on the expected</p>	<p>CAR2: A list of envisaged estimated economic benefits has been included on page 36, as they are applicable to what the project seeks to achieve.</p> <p>CR4: Please, refer to CAR4 above.</p>

		<p>beneficiaries. It states that “<i>the beneficiaries of the different project activities will be identified at the start of the project</i>” and that “<i>beneficiary eligibility criteria for each activity will be defined and validated with communities involving young people, women and the most vulnerable.</i>” Please note that such consultations and definition of the criteria are expected to be outlined in a fully-developed proposal.</p> <p>CR5: Please provide more detailed information on the expected beneficiaries, with particular reference to the equitable distribution of benefits to vulnerable communities, households, and individuals.</p> <p>CR6: Please specify the marginalized and vulnerable groups that have been identified in the project areas and specify the particular benefits provided by the project to those groups.</p> <p>The gender assessment provided in Annex 2 is the exact initial gender assessment provided in the concept stage of the proposal. No detailed gender assessment has been undertaken, and the proposal does not include a gender action plan in compliance with the Gender Policy (GP) of the Adaptation Fund.</p> <p>CAR3: Please include a detailed gender assessment and gender action plan in compliance with the Fund’ GP. Please refer to the guidance for Implementing entities on compliance with the GP. https://www.adaptation-fund.org/wp-content/uploads/2017/03/AF_GenderGuidanceDocument_Final_15Aug-2022_clean_16Aug-clean-3.pdf</p>	<p>CR5: Additional information provided regarding expected beneficiaries, inclusion criteria and mechanisms for benefit sharing – understanding that these have been developed based on consultations with communities. Contexts might and are bound to change, so it might not be very useful to get to the granular level of specific households because between consultation and project implementation start date, household contexts may have changed.</p> <p>CR6: Additional information included on page 36 regarding women, youth and differently abled as the marginalized and most vulnerable groups. Vulnerable in the context of this project for benefit sharing has been considered at two levels: biophysical vulnerability (environmental degradation and exposure to extreme weather events) and household or individual vulnerability due to lack of assets.</p> <p>CAR3: A detailed gender assessment and action plan have been included under Annex 2</p>
	<p>5. Is the project / programme cost effective?</p>	<p>Unclear.</p> <p>It is hard to assess the cost effectiveness of the project given the level of details of the activities. This section needs to be revised after addressing CAR1.</p> <p>In addition, the details provided in Section C of Part II is insufficient to assess cost-effectiveness.</p> <p>CAR4: Please revise this section to:</p>	<p>CAR4: Under section C, a table has been included to provide additional information. The preventive rather than the curative approach of the project will ensure cost-effectiveness because it is cheaper to invest in adaptation measures than to respond to repairing damages, some of which are</p>

		<ul style="list-style-type: none"> - provide a logical explanation of the selected scope and approach; - include a clear description of alternative options to the proposed measures; - include a table outlining comparison to other possible interventions that could have taken place to help adapt and build resilience in the same sector, geographic region, and communities; with quantitative estimates; 	irreparable such as loss of human and animal lives.
	<p>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?</p>	<p>Yes.</p> <p>The proposal provides an overview of the project's alignment with key national strategies and plans including the National Climate Change Response Strategy; the Nationally Determined Contribution (NDC); the National Policy on Climate Change (NPCC) and Zambia's National Agriculture Policy, among others.</p> <p>The proposal highlights alignment with the National Adaptation Programme of Action of 2007. However, Zambia is developing a National Adaptation Plan (NAP) which is expected to be finalized in the first quarter of 2023.</p> <p>CR7: Please clarify if a draft NAP exists and if the project aligns with its priorities.</p>	<p>CR7: Zambia is currently going through the NAP process – consultations with stakeholders are underway, but the process is not yet complete.</p>
	<p>7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Not clear.</p> <p>The proposal provides an overview of 4 high-level national policies related to finance and of the Environmental Impact Assessment procedures, and makes references to the environmental and social risk assessment procedures under IFAD policies. It does not however provide information on the technical standards that would be applicable to the project activities.</p> <p>CAR5: Please clearly identify all national standards or regulations that are relevant for the project activities (e.g., any specific agriculture regulations, any regulation or standard that would be applicable to the ecosystem restoration, pest and soil management techniques, infrastructure (building codes) and water sanitation (water regulations), land use or tenure regulations, or any other sector-specific regulation of relevant to the adaptation option/measure mentioned in the project description etc). Please explain in detail how the project will comply with them, including the steps taken to ensure compliance it and the nature of the authorization/clearance granted for the project to be implemented.</p>	<p>CAR5: Information has been added on page 47 - and where processes included for recourse to national authorities for clearances of any required standards. For example, irrigation systems will have to be cleared by the Water Resources Management Authority (WARMA) through the service provider.</p>

	8. Is there duplication of project / programme with other funding sources?	<p>Not Clear.</p> <p>This fully-developed proposal presents the same information presented at concept stage. At fully-developed project stage, it is expected that more detailed information is provided in particular on how the project will ensure linkages and synergies with all relevant potentially overlapping projects or programmes, with more detailed information regarding areas of overlap and complementarity, and how the project design has and will continue to draw lessons from past or ongoing initiatives, and what specific framework for coordination will be implemented during implementation. Such coordination framework should also be reflected in the implementation arrangements as needed.</p> <p>CAR6: Please provide more information in this section according to the details provided in the paragraph above.</p> <p>CR8: The proposal states that “<i>CALRF will complement resources being requested from the Global Agriculture and Food Security Programme</i>”. Please include this programme in the list of projects. Please also add a column to specify the funder and implementing agency for each project listed.</p>	<p>CAR6: On page 52, information has been provided. The information provided shows how CARLF is related to the identified projects, and where lessons have been drawn. In terms of continued engagement with partners, the idea is welcome. It is noted in the document that engagements will continue and the partners will be invited to important meetings such as steering committee meetings, inception workshops and review/evaluation meetings. Including them in the implementation arrangement, implies commitment and formalize their engagement in the project.</p> <p>CR8: The project is added to the table, and information regarding the implementing agency is added to the table (page 52).</p>
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	<p>Not clear.</p> <p>Component 3 of the project is largely dedicated to knowledge management. However, Part II Section G of the proposal includes a section that refers to the M&E framework (including in its title). Please note that the title of this section should be “If applicable, describe the learning and knowledge management component to capture and</p>	<p>CAR7: The section is corrected and information provided for knowledge management on page 53.</p>

		<p>disseminate lessons learned” And the section should focus on knowledge management across the project and not on M&E.</p> <p>CAR7: Please correct the title of the sections and ensure that you use the correct template of the AF proposals available here: https://www.adaptation-fund.org/wp-content/uploads/2022/06/Single-Country-Fully-Developed-Proposal-template-Oct-26-2022.docx</p> <p>CAR8: Please include a section on knowledge management that provides more information on the activities related to knowledge management and dissemination of lessons learned that will be undertaken by the project. In particular, please provide more detail on the methods and products of knowledge management, as well as scope of dissemination of the knowledge produced by the project and how it would help scaling up.</p>	<p>CAR8: As noted under CAR7, a section has been added on page 53.</p>
	<p>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?</p>	<p>Yes, but more information is needed.</p> <p>A consultation has taken place following the approval of the project concept and the process is summarized in section H with a brief summary of the inputs received. Some evidence of gender consideration is included in the proposal, however, there’s still no clarity whether particular vulnerable and marginalized groups have been identified and consulted in the project target areas. Please see CR6.</p> <p>Para 171 of the proposal identifies the vulnerable as “<i>women, the youth, the differently-abled and the poor with no socioeconomic survival capital in communities.</i>” Para 175 states that “<i>the outcomes of the consultations have been integrated in the project, and relate to the proposed activities, community benefits, the role of women and other vulnerable groups and how the project will be deliberate in ensuring their inclusion in project implementation.</i>”</p> <p>CR9: Please provide more details on the role of the vulnerable groups, the particular concerns they raised and the specific considerations that will be taken onboard by the project to address their concerns and ensure their inclusion in the implementation and.</p> <p>CR10: Please clarify if the consultations addressed the safeguard process and outcomes and what specific issues were raised on that.</p> <p>CR11: Given the role that the private sector would play, especially in Component 2, please summarise specific issues raised in the</p>	<p>CR9: Under the description of project activities, references have been made to community voices, and proposed activities are consistent with concerns raised (please, refer to information provided on activities). Under socioeconomic benefits (page 36) additional information has been provided on criteria for inclusion of vulnerable members of communities, acknowledging the heterogeneity among them.</p> <p>CR10: Issue raised regarding benefit sharing mechanism, and this is noted on page 58.</p> <p>CR11: Concerns raised by both communities and the private sector have been included on page 59.</p>

		consultations with this sector and how they were taken into consideration in the project design.	
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	<p>Not clear.</p> <p>The proposal demonstrates that the project activities are relevant in addressing its adaptation objectives. However, it is not clear that, taken solely, without additional funding from other donors, they will help achieve these objectives.</p> <p>CR12: Para 146 states that “<i>CALRF will complement resources being requested from the Global Agriculture and Food Security Programme</i>”. Please clarify if the project has co-financing, and if so, please demonstrate that the Adaptation Fund project would be able to deliver its outcomes and outputs regardless of the success of the other project(s).</p>	CR12: The Adaptation Fund will be able to deliver its outcomes and outputs – because the project referred to, funded by the Global Agricultural Food Security Program (GAFSP) – will build on CALRF. In other words, CALRF is a precursor of the GAFSP. This is also mentioned in the table of projects synergizing with this project.
	12. Is the project / program aligned with AF's results framework?	<p>Yes.</p> <p>The proposal specifies the alignment with Adaptation Fund revised strategic results framework in Part-III Section D.</p>	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	<p>Not Clear.</p> <p>The project proposal addresses the following key areas of sustainability: economic, financial, institutional and environmental. Given the lack of details on the project activities (See CAR1), the sustainability of the project cannot be fully assessed.</p> <p>The proposal does not provide details of the arrangements through which sustainability and maintenance of any infrastructure or installations to be developed will be ensured.</p> <p>CAR9: Please provide details on the maintenance and sustainability of all infrastructure and installations to be undertaken under the project, after addressing CAR1 above.</p>	CAR9: Information on maintenance has been added on page 66, last paragraph before section K
	14. Does the project / programme provide an overview of environmental and	Not Clear.	CAR10: A detailed environmental and social impact analysis has been provided in Annex 3

	<p>social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Firstly, it is unclear if the project contains USP, and this cannot be assessed until CAR1 is addressed.</p> <p>The proposal only provides an overview of the potential environmental and social impacts and risks are provided. The proposal does not provide requisite assessments of the environmental and social risks and impacts, nor does it provide a detailed justification of the risk findings in full compliance with the Environmental and Social Policy.</p> <p>The proposal states that “An Environmental and Social Impact Analysis (ESIA), and CRA (Climate Risk Analysis), will be available at implementation phase in compliance with the Zambia Environmental Management Agency (ZEMA) that provides policy guidance regarding ESIA based on the proposed development to the land and ensures compliance to environmental standards.”</p> <p>Please note that at this stage of the proposal development, a detailed analysis of the environmental and social risks in compliance with the Adaptation Fund’s Environmental and Social Policy is expected.</p> <p>CAR10: Please provide a detailed environmental and social impact assessment that (i) considers all potential direct, indirect, transboundary, and cumulative impacts that could result from the proposed project; (ii) identify possible measures to avoid, minimize, manage or mitigate environmental and social impacts of the proposed project.</p> <p>The proposal does not include sufficient supported documentations or annexes including a gender assessment and action plan report. Please see CAR3.</p>	
Resource Availability	<p>1. Is the requested project / programme funding within the cap of the country?</p>	<p>Yes.</p>	
	<p>2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?</p>	<p>Yes.</p>	
	<p>3. Are the Project/Programme</p>	<p>Yes.</p>	

	Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?		
Eligibility of IE	1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes.	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?	<p>Not Clear.</p> <p>The implementation arrangements do not include a clear description of the roles and responsibilities of the implementing entity (only a brief paragraph is provided – para 211) as well as the executing entities and the implementing partners that are involved in the project. In addition, it is unclear whether the implementation arrangements incorporate gender-responsive elements as appropriate.</p> <p>CAR11: Please revise this section and provide a detailed description of the roles and responsibilities of all entities involved in the implementation, including specific details on the roles of the executing entities (and the difference between them), as well as a detailed list of the implementation partners and their roles.</p> <p>CAR12: Please specify the gender-responsive elements included in the implementation arrangements, including specific gender expertise that will be within the project management unit, gender balance of the various bodies, etc.</p>	<p>CAR11: Additional information has been added to different paragraphs on pages 71, 72 and 73 to explain the roles of different stakeholders who will be involved in the project. Please, also note that additional information has been provided for the IE.</p> <p>CAR12: Additional information has been added explicitly highlighting the fact that the project will have a full time Gender Specialist in the Project Coordination Unit, but also that the Project Steering Committee will have members with gender equality and social inclusion expertise to support gender causes for the project</p>
	2. Are there measures for financial and project/programme risk management?	<p>Partially.</p> <p>The proposal identifies some major risks and includes some mitigation actions. However, it is unclear how these risks will be monitored.</p>	<p>CAR13: Additional risks related to extreme weather events and financial service providers under component 2 have been included</p>

		<p>CAR13: Please consider additional risks of environmental nature (potential extreme events), also please identify potential risks related to component 2.</p> <p>CR13: Please clarify how these risks will be monitored during the project implementation.</p>	<p>CR13: Under each risk in the mitigation column, the monitoring aspect has been included.</p>
	<p>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?</p>	<p>No.</p> <p>No Environmental and Social Management Plan (ESMP) is included in the proposal.</p> <p>CAR14: Please include an ESMP that identifies credible measures to manage the impacts for all environmental and social risks that have been identified in section II, and the corresponding impacts that have been assessed (Please See CAR10). Please ensure that the ESMP:</p> <ul style="list-style-type: none"> - contains clearly allocated roles and responsibilities for its implementation - includes opportunities for consultation and adaptive management - contains credible budget provisions, as needed, for its implementation - outlines clear arrangements for the IE to supervise executing entities for its implementation - includes monitoring and evaluation arrangements for ESP compliance 	<p>CAR 14: An ESMP has been elaborated under Annex 3 with clearly allocated roles and responsibilities, budget provisions and supervision arrangements</p>
	<p>4. Is a budget on the Implementing Entity Management Fee use included?</p>	<p>Partially.</p> <p>The budget table includes a rough breakdown of the Implementing Entity Management Fee.</p> <p>CR 14: Please provide a more detailed breakdown of the implementation fee, including the specific provisions for M&E functions.</p>	<p>CR 14: The table titled, 'The IE Fees Breakdown' breaks down enough detail regarding the Implementing Entity Management Fee</p>
	<p>5. Is an explanation and a breakdown of the</p>	<p>Yes.</p>	

	execution costs included?	The budget table includes a breakdown of the Execution costs.	
	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?	No. CAR 15: Please include a budgeted M&E plan, that is in compliance with the AF M&E guidelines and compliance with the Gender Policy, including provisions for mid-term and terminal evaluations, and addressing management of the environmental and social risks identified.	CAR 15: As recommended, a budgeted M&E table has been added with a total budget of \$120,000 on page 75. Please, also note that the amount in Table under section G, the Inception Workshop, mid-term and terminal evaluations (M&E) amount has been adjusted upwards to \$120,000.
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	No. CAR16: Please include a budget of the M&E Plan with breakdown of IE fees for supervision of M&E function.	CAR16: Please, refer to the response to CAR15. IFAD's fees for supervision will be covered by the IE fee, planned at \$23,000 in the IE fee breakdown table.
	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. Please note that the project's results framework would need adjusting, and will be reviewed more thoroughly after addressing CAR1.	
	10. Is a disbursement schedule with time-bound milestones included?	Yes, but the table contains errors. CAR17: Please correct the totals I the disbursement table. There is a 2 dollars discrepancy in the totals of the Project execution costs and the IE fee. The total of the project requested funding sums to 10,000,004 USD, which is \$4 above the maximum amount that can be granted to a single-country project. Please ensure all totals are correct.	CAR17: The totals that increased by \$4 due to rounding off have been corrected. The total is now exactly \$10,000,000



FULLY DEVELOPED PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT INFORMATION

Title of Project/: Climate Change Adaptation of Livelihoods through Rural Finance (CALRF)

Country: Zambia

Thematic Focal Area: Agriculture

Type of Implementing Entity: Multilateral Implementing Entity

Implementing Entity: International Fund for Agricultural Development (IFAD)

Executing Entities: Ministry of Finance and National Planning / Ministry of Green Economy and Environment/[Ministry of Agriculture](#)

Amount of Financing Requested: 10 M (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes No

NOTE: The LOE should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>

Stage of Submission:

This proposal has been submitted before including at a different stage (concept, fully-developed proposal)

This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: 9/7/2022

Please note that fully-developed proposal documents should not exceed 100 pages for the main document, and 100 pages for the annexes.

Project/ Background and Context:

1. Climate Vulnerability Context

1. The climate vulnerability context covers socio-economic and environmental context; climate historical trends and projections; and the impacts of climate variability and change in Zambia. It rationalizes and contextualizes the project objective to enhance resilience while building adaptive capacities of the poor and vulnerable communities in five provinces in Zambia.

1.1 Socio-economic and environmental context

2. With a population estimated at 19.3 million,¹ Zambia's economic progress has been unsteady. After 15 years of significant socio-economic progress and achieving middle-income status in 2011, the Government of the Republic of Zambia's (GRZ) economic performance has stalled in recent years. Between 2000 and 2014, the annual real gross domestic product (GDP) growth rate averaged 6.8%. The GDP growth rate then slowed to 3.1% per annum between 2015 and 2019, mainly attributed to falling copper prices and declines in agricultural output and hydroelectric power generation due to insufficient rains, and insufficient policy adjustment to these exogenous shocks. The debt situation in Zambia has far-reaching consequences on reaching SDG targets. Further, Zambia is burdened with external public debt of USD11.1 billion (54% of GDP), a fiscal deficit of 11.7% - that deprived the poor of resources for social services.
3. The economy of Zambia fell into a deep recession due to the adverse impact of the COVID-19 pandemic. Real GDP contracted by an estimated 4.9% in 2020, after growing by 4.0% in 2018 and 1.9% in 2019. The output contraction results from an unprecedented deterioration in all the key sectors of the economy. Manufacturing output fell sharply as supply chains were disrupted, while the service and tourism sectors were hurt as private consumption and investment weakened due to measures taken to contain the spread of COVID-19. Inflation has been rising, mainly driven by the pass-through effects of the kwacha depreciation and elevated food and transport prices. Following the outbreak of COVID-19, inflation rose to 17.4% in 2020 and is projected to remain above the target range of 6-8% in 2021.²
4. The economic impact of COVID-19 across the country has constrained GDP growth, and resulted in an increase in poverty. In addition, the COVID-19 pandemic pushed into contraction an economy that was already weakened by recent persistent droughts, falling copper prices and unsustainable fiscal policies. Economic activity through Q3 of 2020 contracted by 1.7%, as declines in industry and services outweighed growth in agriculture, mining, and services suffered from lower global demand and COVID-19 restrictions earlier in the year, respectively.
5. Within this economic volatility, Zambia's HDI value for 2019 is 0.584 - which puts the country in the medium human development category - positioning it at 146 out of 189 countries and territories.³
6. Poverty levels remain stubbornly high. The Country remains one of the world's poorest countries with close to 64% of Zambians living under \$2 a day with over 40.8% of them considered to live in extreme poverty (under \$1.25 a day) which is disproportionately high in female-headed households (56.7%). As the population grows, the country faces a widening gap between the richest and poorest - it is one of the world's most unequal societies with, 2021 data showing an income Gini coefficient of 0.57. Rising inequalities across the country have become a defining challenge of the Zambian development agenda. Inequalities faced by the poor, children and adolescents, youth, women, and people with disabilities are putting sustainable development at risk of undermining social progress, threatening economic and

¹ Worldometer: [Zambia's](#) population

² AfDB (2022). [Zambia](#) Economic Outlook

³ UNDP (2020). The Next Frontier: Human Development and the Anthropocene Briefing note for countries on the 2020 Human Development Report: [Zambia](#)

political stability, stirring social disharmony, and undercutting human rights. Accessing health services is a challenge, more so, in rural settings. The number of health facilities in rural areas is far too low than desired. The country also faces other social, economic, and political challenges including limited access to safe water, youth unemployment (17.9%), and child marriages, which has shown that 29% of women aged 20-24 years married by the age of 18.

7. Climate-induced changes are already exerting considerable stress on the country's vulnerable sectors, hauling particularly the poor into further poverty.⁴

8. The ND-GAIN index ranks Zambia in the 137th position, being the 41st most vulnerable country and the 53rd least ready country to face climate change. Zambia's high vulnerability score and low readiness score place it in the upper-left quadrant of the ND-GAIN Matrix (see **Figure 1**)⁵. Consequently, it has both a great need for investment and innovations to improve readiness and a great urgency for action to respond to the impacts of extreme climate change-related events. This is particularly concerning because the country has to contend with territorial and demographic disparities in wealth distribution and economic development that have left rural poverty stubbornly high. Additionally, Zambia's external financial position worsened in 2020, with dwindling reserves (averaging 1.6 months import cover), remaining depressed in 2021 due to copper price and output fluctuations, rising public debt payments, and elevated non-oil imports. Despite falling revenues, government's expansionary fiscal policy for public investments resulted in widening fiscal deficits (8.3% of GDP in 2019 and 11% of GDP in 2020).



Fig. 1 Zambia ND-GAIN Index

9. While there is economic instability, the natural resource base keeps being eroded. According to the Global Forest Watch, in 2010, Zambia had 22.4Mha of tree cover, extending over 30% of its land area. In 2020, it lost 163,000 ha of tree cover, equivalent to 59.7Mt of CO₂ emissions.⁶ Deforestation in the medium and long terms erodes the productive capacity of land to maintain or enhance the stocks and flow of ecosystem services that underpin livelihoods but also contribute to several other environmental benefits. As ecosystem services erode, so does the ability of communities to adapt to the impacts of climate variation and change.

10. In Climate Change Adaptation of Livelihoods through Rural Finance (CALRF) target provinces (Western, Southern, Central, Northern and Luapula – see **Figure 2**); the rate of deforestation differs in some specific way: the rate in Western and Southern provinces is comparatively lower than in Central and Luapula provinces. This is because Western and Southern are already generally denuded, and lie in the country's first agro-ecological zone that receives the least amount of annual rainfall. On the other hand, Central and Luapula provinces lie in the second and third agro-ecological zones, respectively. Deforestation rates are comparatively higher in these provinces than in Southern and Western provinces. Between 2001 and 2020, Luapula and Central

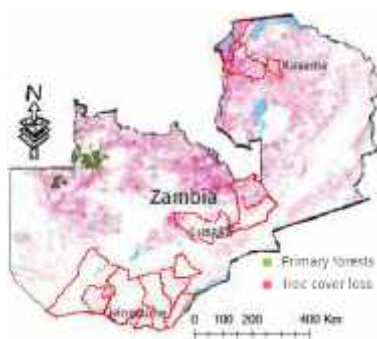


Fig. 2 Tree cover loss in Zambia (2010-2020) and CALRF target districts

⁴ Irish Aid (2018). Country Climate Risk Assessment Report: [Zambia](#)

⁵ The ND-GAIN Country Index: [Zambia](#)

⁶Global Forest Watch (n.d). Tree cover loss in [Zambia](#)

provinces lost 277,000 ha and 212,000 ha of trees, respectively.⁷ Unsustainable production systems such as chitemene system (slash and burn); fuelwood including charcoal production and expansion of agricultural farms which have all increased due to population growth but also limited access to electricity continues to contribute to deforestation in the provinces. It should be noted that charcoal production is demand-driven, particularly in urban centres. The electricity access rate for urban and rural areas is approximately 67% and 4.4%, respectively.⁸ During drought years, the country experiences power-outages, increasing charcoal demand, particularly in urban centres. Therefore, limited access to electricity, lack of accessible alternative energy sources and power outages are important contributing factors to the country's deforestation rate.

11. Other environmental threats in Zambia include: habitat transformation; encroachment; genetically modified organisms; uncontrolled wild fires; climate change; invasive species; unsustainable utilization of natural resources; pollution; and diseases and pesticides⁹ – given the country's low readiness and economic instability as indicated above, all these factors exacerbate the socioeconomic and environmental vulnerable context of the poor who are already vulnerable in rural areas.

1.2 Historical trends and projections in Zambia

12. Climate change is responsible for numerous environmental hazards, including more frequent and intense seasonal droughts, increased valley temperatures, prolonged dry spells, and flash flooding.¹⁰ Over the past few decades, Zambia has experienced an increasing number of extreme climatic events (droughts, floods, extreme temperatures and dry spells), many of these with increased intensity and frequency. Their impacts are evident in climate-induced changes to physical and biological systems, which increasingly exert considerable stress on the country's vulnerable sectors, particularly agriculture.



Fig. 3 Overview of the most frequent natural disasters in Zambia and number of affected people

13. Evidence shows that Zambia has over the past years, experienced several extreme events hazards including droughts and prolonged dry spells, seasonal and flash floods and extreme temperatures.¹¹ Some of these, especially droughts and floods, have increased in frequency and intensity over the last two decades and have adversely impacted on food and water security, energy and livelihoods of communities. From 2000-2007, the intensity and frequency of droughts and floods and the number of people affected changed with a trend towards increased number of floods (see **Figure 3**).¹²
14. Zambia's development thrives on three principal economic pillars: agriculture; mining and tourism. Of these, agriculture and tourism are more highly influenced by the impacts of climate variation and change. For agriculture, it should be remembered that the sector supports roughly 85% of the country's population, employing 52% of the country's working-age population - a majority of whom are women and rural-

⁷ Global Forest Watch (n.d). Tree cover loss in [Zambia](#)

⁸ Government of Zambia (2021). [Report](#) of the committee on energy, water development and tourism on the report of the auditor general on the promotion of renewable energy sources in rural areas in Zambia, 2015-2019 for the fifth session of the twelfth National Assembly

⁹ Government of Zambia (2015): [Zambia's](#) Second National Biodiversity Strategy And Action Plan (NBSAP -2) (2015-2025)

¹⁰ Rosen, J.G., Mulenga, D., Phiri, L. et al (2021). "Burnt by the scorching sun": climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia. [BMC Public Health](#)

¹¹ National Policy on Climate Change 2016

¹² WB Portal for Climate Change.

dwelling residents.¹³ This turns the spotlight on the socioeconomic implications of climate change impacts on the agriculture sector.

15. Other equally important sectors affected by climate variation and change include human and animal health, land, forestry, infrastructure development and water resources. All these sectors are climate-sensitive and vulnerable to the vagaries of climate variability, particularly changes in precipitation and temperature distribution in the country. On average for the period 1950-2016, precipitation has been decreasing by 1.1 mm yr⁻¹, while temperature has been increasing by 0.01 °C yr⁻¹ in Zambia (Libanda et al., 2020).¹⁴ With constrained asset portfolios, the impacts of climate change on livelihoods are more significant for rural households that depend on rain-fed agriculture (Hamududu and Ngoma, 2020).¹⁵ With

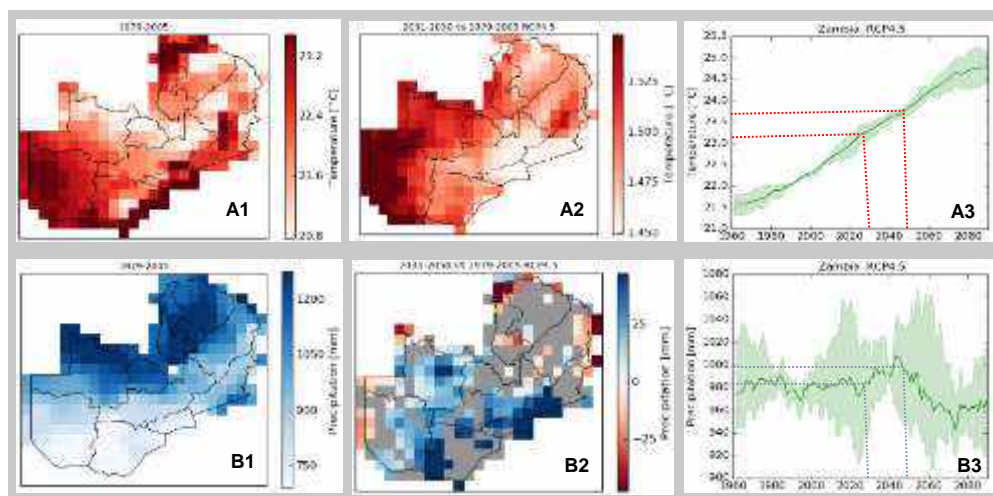


Fig. 4 Under the RCP4.5 scenario 1979-2005 (A1) period is projected to get warmer in the 2031-2050 (A2) period, with temperature projected to continue to rise (A3). Across the country, the temperature variation will be between +1.45°C and +1.52°C. Under the same periods, rainfall pattern is projected to decline (B1 compared to B2), and this decline ranging between -25mm and 25mm is projected to be steeper after 2044 (B3).

a projected significant increase in the number of consecutive dry days over Zambia, especially beginning from the year 2050 to the end of the century, the agriculture sector, ecosystem services and water resources management will negatively be impacted (Libanda and Ngonga, 2018).¹⁶ A closer look at Climate Analytics data shows that, overall, temperature is increasing on the one hand, while precipitation is declining on the other (Figure 4), with a steep decline in precipitation beyond around 2044 (Figure 4. B3).

16. In other simulations, over the whole country, the number of wet days is likely to decline. In the near future, the number will reduce by 5 and 6 days, while in the far future it will decrease by 7 and 11 days for RCP 4.5 and RCP 8.5 respectively. The reduction in wet days will be stronger towards the south-west regions

¹³ Rosen, J.G., Mulenga, D., Phiri, L. et al (2021). "Burnt by the scorching sun": climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia. [BMC Public Health](https://doi.org/10.1186/s12916-021-02000-0).

¹⁴ Libanda, B., Bwalya, K., Nkolola, N.B., Chilekana, N., 2020. Quantifying long-term variability of precipitation and temperature over Zambia. *J. Atmos. Solar-Terrestrial Phys.* 198, 105201. <https://doi.org/10.1016/j.jastp.2020.105201>

¹⁵ Hamududu, B.H., Ngoma, H., 2020. Impacts of climate change on water resources availability in Zambia: implications for irrigation development. *Environ. Dev. Sustain.* 22, 2817–2838. <https://doi.org/10.1007/s10668-019-00320-9>

¹⁶ Libanda, B., Ngonga, C., 2018. Projection of frequency and intensity of extreme precipitation in Zambia: A CMIP5 study. *Clim. Res.* 76, 59–72. <https://doi.org/10.3354/cr01528>

of the country. On average, for both RCP scenarios, there will be a general reduction in the annual precipitation, but with an increase in the northern and a decrease in the southern-western regions. In future projections, there was a reduction of precipitation in the onset of rain season and increase towards end of the season (**Figure 4 (A)**).¹⁷ Taking maize as both a political and staple food crop in Zambia as an example, the implications of these projections will lead to low yields under water stress (Figure 3 (B)) and further lower yields under water and nutrient stress (Figure 3 (C)) - threatening food security, production landscapes and the ecosystem services and disease outbreaks.

17. The risk of crop failure in western and southern regions increases due to dry spells and heat stress, while crops in the northern regions will be threatened by flooding or waterlogging due to heavy precipitation. The simulated decline in the water-limited and water- and nutrient-limited maize yields varied from 15 to 20% in the near future and from 20 to 40% in the far future, mainly due to the expected temperature increases.¹⁸ The failure of maize will lead to prices soaring, threatening civil strife.
18. At agricultural field level, the consequences of this scenario will lead to waterlogged fields, water shortages, destruction of crops and higher incidences of crop and livestock diseases. The increased incidences of adverse weather events lead to lower and less predictable incomes from agriculture due to production declines and variations, and as the alternative employment options are limited, climate change may lead to increased poverty and vulnerability for those who lack the capacity to adapt, and the resilience to rise and overcome the constrains. Climate resilient agriculture, supported by improved access to rural finance, which is targeted at investments that respond to changing climatic conditions, may become the main driver of sustainable rural development.
19. Overall, climate change is projected to affect the southern parts of Zambia more than the northern and on average, rainfall is expected to be more variable and rainy seasons are likely to shift.¹⁹ Further, Zambia has witnessed crop failure in the western and southern parts, electricity rationing of up to 15 hours per day due to rainfall variability, and high volatility in the staple maize crop and maize meal prices due to supply shortfalls and limited irrigation.²⁰ Climate change scenarios typically result in a decline in Zambia's real annual GDP growth rate. Under unconstrained emissions, growth in GDP is projected to reduce much more at about 2% by 2050 compared to a 1% reduction under strict global mitigation by 2050. Another source has projected a \$5 billion GDP deficit over a 10–20-year period due to the impact of climate change on agricultural productivity, poverty, energy production, healthcare costs, and loss of natural environments.²¹

¹⁷ Siatwiinda, M.S. et al. (2021). Climate change impacts on rain-fed maize yields in Zambia under conventional and optimized crop management. *Climatic Change* 167: 39

¹⁸ Siatwiinda, M.S. et al. (2021). Climate change impacts on rain-fed maize yields in Zambia under conventional and optimized crop management. *Climatic Change* 167: 39

¹⁹ Ngoma et al., 2017; Hamududu and Ngoma, 2019; Mulenga et al., 2017

²⁰ Mulenga et al., 2019b; Chisanga et al., 2018

²¹ Rosen, J.G., Mulenga, D., Phiri, L. et al (2021). "Burnt by the scorching sun": climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia. *BMC Public Health*.

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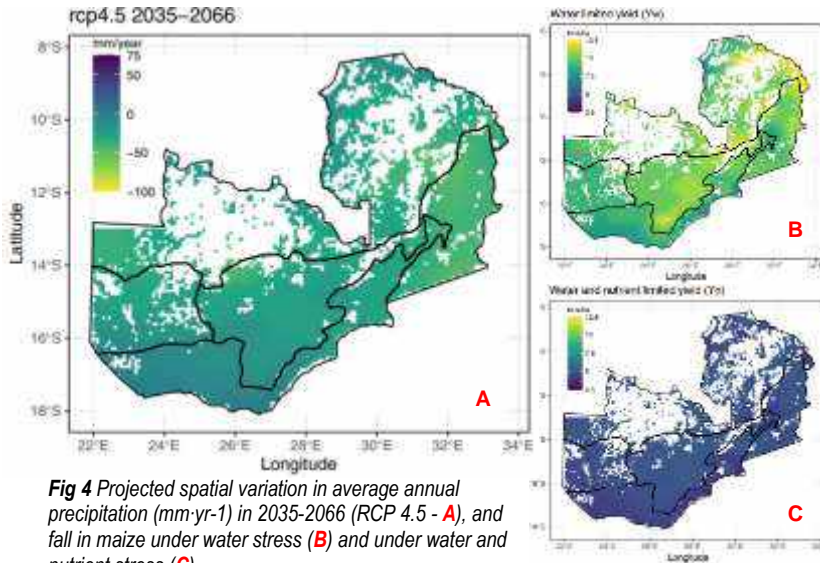


Fig 4 Projected spatial variation in average annual precipitation (mm-yr-1) in 2035-2066 (RCP 4.5 - **A**), and fall in maize under water stress (**B**) and under water and nutrient stress (**C**)

20. Under the 1.5°C and 1.3°C temperature pathways, the percentage differences between GDP per capita are about 11% and about 18%, respectively (see **Figure 5**).²² Over the past 30 years, floods and droughts have cost Zambia US\$13.8 billion – equivalent to 0.4% of annual GDP growth. Climate variability could cost Zambia US\$4.3 billion in lost GDP over the next decade, reducing annual growth by 0.9%.²³

21. The place of the agriculture sector in the country's economy is crucial. It provides employment to nearly 87-90% of the rural population,²⁴ and contributes between 16 to 20% to the country's GDP. The sector directly underpins livelihood of at least 50% of the population. Being sensitive to climate change, and almost entirely dependent on rain-fed agriculture, the resultant adverse impacts on water, crops, livestock and fisheries lead to reduced agricultural productivity – raising concerns about food and nutritional insecurity and food prices – and consequently, peace and calm in the country. Despite the centrality of agriculture in the national economy and rural development, the potential of the sector remains untapped owing to various factors which, among other challenges, include:

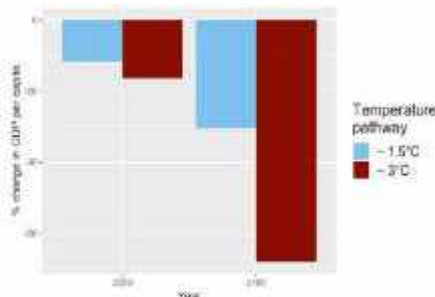


Fig 5. Impact of climate change on GDP Zambia's GDP

- Gaps between climate change existing related policies and their implementation owing to inadequate policy coordination, inadequate technical capacity, resource mobilisation skills and effective decentralization;
- Poorly coordinated extension services in some cases, and their complete lack in others – including lack of meaningful institutionalization of climate change;

²² Climate Analytics: The economic damages of 3°C warming for SIDS and LDCs - [Zambia](#)

²³ Makondo et al. 2014, MTENR 2007, Sishekanu 2013

²⁴ Aid Irish, 2017. Zambia Climate Action Report 2016 1–20

- Lack of financial services to enhance the ability of farmers to invest in more lucrative but also environmentally sustainable production systems per unit area;
 - Lack of investments in land restoration/rehabilitation (given the poor fertility status of soils, high level of deforestation rates); and
 - Poor infrastructure to support rural communities' access to markets and other services; market illiteracy exacerbated by low levels of formal education of most smallholders in rural areas; Generalized vulnerable context of rural communities with constrained livelihood options to adapt to climatic events such as floods and crop and animal disease outbreaks that have increased in frequency – among other challenges.
22. Since over 90% of smallholder production is rain-fed and the market conditions are poor, Zambian agriculture is vulnerable to climate shocks.²⁵ The impact on food security and nutrition in Zambia will be high because of already high poverty levels and low diversification in food production, particularly in rural areas.²⁶ Currently, about 63% of human energy requirements in Zambia come from cereals and yet cereals like maize – the staple food – are vulnerable to climate change and yields are projected to dwindle (see Fig 3). Thus, disruptions in cereal production and supply will impact food access.²⁷ Heavy reliance on maize compromises the country's efforts to build climate resilience and ensure sustainable food and nutrition security, as exemplified by Zambia's low ranking on the global hunger scale.²⁸

1.3 Impacts of climate change and climate variability

23. Due to climate change, Zambia has been experiencing more variable precipitation and temperatures. Weather patterns are characterized by events such as heavy rains, floods, droughts and prolonged dry spells, which are becoming more intense and frequent. Climate change has affected living conditions, especially on groups such as women and the poor. In the year 2020, Zambia experienced two extreme weather events, the El Nino Oscillation (ENSO) which significantly contributed to the increase in food insecurity and the flooding, which was experienced in some parts of the country that negatively affected the crop production as well as food security.
24. Agriculture constitutes 13% of Zambia's GDP. It is estimated some 1.5 million smallholders who rely heavily on rain-fed maize production, which is the country's staple food and is particularly vulnerable to infestations. The smallholder farmers produce around 90% of the domestic food supply. However, they continue to face serious constraints. Over-reliance on rain-fed agriculture makes them particularly vulnerable to increased occurrence of climate-induced shocks such as floods, drought, prolonged dry spells and extreme temperatures. Diversity of household crop production is limited, with around 80% of households cultivating three or fewer crops. These largely, have made farmers (particularly female farmers who, in most cases are not able to quickly adapt to the changing environment) livelihoods more fragile, further compromising their adaptive capacity to climate-induced shocks and subsequently reducing their resilience to climate risks.
25. For most farmers, agricultural productivity and revenues are low, mainly due to exposure to climate-induced risks and limited access to improved inputs. The vast majority of agriculture has in the previous years, been vulnerable to shocks, such as drought, hydro-meteorological hazards (e.g. tropical cyclones) and their effects. Natural and climate-related disasters has increased in recent years, disproportionately affecting poor people. The impacts of climate change, such as floods and droughts, have led to persistent structural problems that account for, in part, poverty and food insecurity.
26. Recurring droughts, floods and topsoil erosion exacerbate the vulnerability of smallholder farmers to the adverse effects of climate change, reducing their adaptive capacity and making them more vulnerable to environmental and livelihood shocks. Pest infestations and livestock disease outbreaks compounded the situation. Unsustainable land use practices, such as "slash and burn" agriculture is seen as one of the

²⁵ GRZ, 2016a; GRZ, 2016b

²⁶ Verhage et al., 2019; Alfani et al., 2019

²⁷ Mwanamwenge and Harris, 2017

²⁸ Mwanamwenge and Cook, 2019; von Grebmer et al., 2019

root causes. The impact of climate-related disasters has a disproportionate effect on women and girls, leading to negative coping strategies, which tend to be more prevalent in households headed by women. Women constitute 64% of the rural population and approximately 80% of food producers.

27. Zambia is now anticipating further reverberations on agricultural productivity due to the impact of the COVID-19 pandemic and the Russia-Ukraine crisis, which has distorted agricultural markets and food systems.
28. Efforts at transforming smallholder farming as a business have been constrained by lack of organization capacity of the producers, inadequate access to productive assets, modern technology and market services. The input market needs to be better organized be more cohesive with farmers needing more capacity and information to respond appropriately. Access to adequate financing from financial institutions remains a challenge for farmers due to absence of considerable collateral, which jeopardizes their ability to expand production, increase yield and attract additional services from major players particularly private sector within value chains. This is an even higher challenge for women, who tend to have limited access and control over productive assets such as land than men, which makes it harder for women to secure loans or financial support.
29. It is important to note that key to improving the food security situation in the country entails reviewing and adopting hybrid methods of increasing agricultural productivity. This includes partnering with farmers to find ways to sustainably intensify the production of key food crops in smallholder farming systems.
30. The most recent Integrated Phased Classification has shown that in 2022, over 1.3 million Zambians are experiencing severe food insecurity, classified in IPC Phase 3, Crisis due to high food prices and climatic shocks representing an estimated 10% of the population. Overall, the current vulnerability in Zambia has been driven by a high incidence of poverty, the impact of the COVID-19 pandemic, macroeconomic instability, and exposure to climatic shocks. This has resulted in an increase in food insecurity and has primarily been worsened by prolonged dry spells, flooding, reduced livelihood opportunities due to restrictions linked to COVID-19, pests and diseases, and high input and food prices.
31. At the national level, Zambia will continue to be adversely affected by the Ukraine–Russia crisis. The prices of various commodities and services, including agricultural commodities, will be negatively affected. In the near term, the disruption of trade from the Black Sea region. Recent forecasts have shown that the conflict will likely to impact the imports of key commodities, mainly wheat sourced from Russia and agricultural inputs. For the 2022/2023 consumption year, there is a wheat deficit of about 95,000MT, which will need to be imported from elsewhere. This is not expected to be imported from South Africa as it also imports about half of its annual wheat needs. Global cereal supplies are expected to decline in 2022, with expected massive declines as a direct result of the Ukraine-Russia conflict. Global Cereal Price Index went down by 4.1% in June from May, but 27.6% above June 2021 levels, and global wheat prices were down 5.7% in June but 48.5% above June 2021. Consequently, the supply chain for commodities will be affected. The price of substitute goods such as soya beans and ground nuts for vegetable oil is expected to increase due to global shortages impacted by the crisis.
32. Despite the preponderance of agriculture in the Zambian economy, the sector's role and contribution to reducing rural poverty and increasing the adaptive capacity of communities remains insignificant. The increase in temperatures has complicated the control and management of pests and diseases. Droughts and flooding have also resulted in water insecurity, crop failure, reduced livestock production and the consequent food insecurity. Climate variability has kept a proportion of the population dependent on subsistence agriculture, below the national poverty line²⁹.
33. Changes in rainfall have been substantial with the north experiencing more intense rainfall, while the

²⁹ National Policy on Climate Change

south has had decreased amounts.³⁰ The combined effect of increasing temperature and increasingly erratic rainfall imposes a severe challenge for the predominantly rain-fed crop and livestock production across the country – with impacts more severe in rural community where communities are poor.

34. A recent assessment of the vulnerability context of Zambia highlights the gravity of the country's vulnerability following droughts in some parts of the country and floods in others. About 2.3 million people between October 2019 and March 2020 were estimated to be facing the Integrated Food Security and Phase Classification (IPC) Phase 3 or worse food security situation (**Figure 6**). About 16% of the rural population is already in IPC Phase 3, marginally able to meet minimum food needs but only by depleting essential livelihood assets or through crisis-coping strategies. About 3% are in IPC Phase 4 and facing significant food gaps. Malnutrition is also expected to increase.³¹

35. The devastating effects of erratic rains, dry spells, water logging, false and late start to the 2018/2019 rain season on agriculture production were the leading causes of reduced crop production contributing to the acute food insecurity conditions across the country. The 2020/2021 rain season has been same. Prolonged dry spells affected Southern, Western and parts of Lusaka, Eastern and Central provinces, while flash floods, water logging and leaching were in the northern and eastern parts of the country. Building on the Rural Finance Expansion Programme (RUFEP) that has been supporting community access to financial services across Zambia, implementation of the Climate Change Adaptation of Livelihoods through Rural Finance (CALRF) project will target the Central, Luapula, Southern and Western provinces.

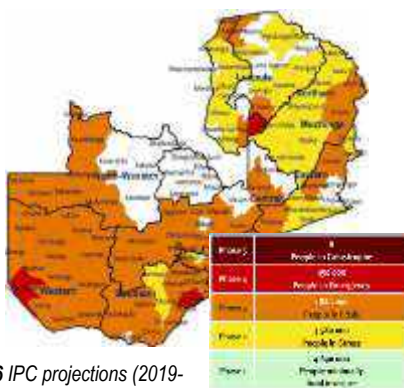


Fig. 6 IPC projections (2019-2020)

36. In these provinces, there have been: i) drought conditions and dry spells that have led to a marked decrease in crop production; ii) erratic rains mostly in the south that resulted in reduced crop production; and iii) flooding that led to water logging and leaching of nutrients for crops; iv) poor quality of grazing land which affected not only domestic animals but also wild animals in some national parks, such as in Mosi-oa-Tunya in Southern Province; and iv) crop, animal and human disease outbreaks attributed to changing rainfall patterns and temperature regimes.

37. Climate change constitutes a significant and serious threat to sustainable development for Zambia with projections indicating increased poverty, increased incidents of crop failure, change in the length of the

³⁰ Climate Service Center, 2016; IFAD/WFP 2016

³¹ Vulnerability Assessment Committee Results (2019): [Zambia](#)

growing season, and a 13% reduction in water availability by 2050 relative to the 1960-2000 period.³² According to the Climate Adaptation in Rural Development (CARD) assessment tool, these changes will significantly lead to reduction in yields of most crops in the country, including maize (>65% of cropped land and is the main staple crop), cassava, sorghum, millet and groundnuts – crops, which are mostly grown by smallholder farmers in rural Zambia (see **Figure 7**).³³

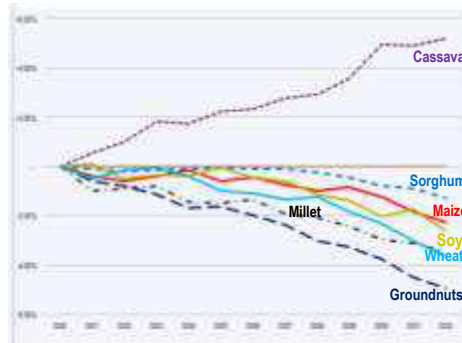


Fig. 7 Reduction in yields of selected crops

38. Consistent with CARD (**Fig 7** above), another study³⁴ indicates that the production of various crops, particularly cereals (maize, millet, sorghum), legumes (beans, cowpeas, and groundnuts), and root crops (cassava) across Zambia is expected to be negatively impacted by increased temperatures and reduced or delayed rainfall, thereby causing a reduction in the extent of suitable production areas as well as reducing the productivity of remaining areas.
39. Production of maize, one of the most climate-vulnerable of Zambia’s staples, is predicted to undergo minor or moderate decreases depending on the choice of varieties. Long-maturing varieties are predicted to undergo particularly negative impacts resulting from climate change, where it is predicted that annual production may decrease from ~33- 35% (Luapula, Northwestern) up to ~80-90% (Copperbelt, Muchinga). Production of beans, one of the most important subsistence crops, is predicted to undergo a decrease in annual production in all provinces, ranging from ~20 – 28% (Northwestern, Muchinga, Northern, Copperbelt, Luapula) up to 50 – 65% (Eastern, Southern, Western). Conversely, certain climate-resilient species such as finger millet, sorghum, cowpeas and groundnuts are comparatively less affected by the predicted climate changes. They may serve as appropriate alternative staples to be promoted in areas where production of traditional staples is expected to become marginal or unsustainable. Valuable oil crops such as sunflowers and soybeans are anticipated to maintain widespread areas of good or excellent suitability, while in the case of cassava, results indicate that some provinces may experience positive changes to potential production of cassava.³⁵
40. In addition to the size of the population affected increasing (from about 1.23 million in 2004/05 and 1.44 million in 2006/07), the affected areas have changed – the 2006/07 flood affected 41 districts of the nine provinces. Recent years have also seen droughts within the rainy seasons, particularly in 2000/01, 2001/02 and 2004/05 and 2018/19.³⁶ The 2017/2018 rainfall season had prolonged dry spells, affecting mainly the southern half of the country. The intense drought in 2015/2016, due to a strong El-Niño, affecting most countries in Southern Africa, weakened the coping capacity and lowered many farmers’ resilience towards ongoing dry spells. In Zambia, there have been floods in some places and droughts in others (see **Figure 8**).

³² Ngoma et al., 2019; Hamududu and Ngoma, 2019; Verhage et al., 2018; Mulenga et al., 2017

³³ All data is based on the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP) Fast Track output. Simulations use the greenhouse gas emission scenario RCP8.5, an emission scenario that leads to around 4°C global warming by 2100. The graph shown uses a no-irrigation scenario, with 2020 as the baseline year.

³⁴ Hunter et al. 2020. Research Highlights – Climate Change and Future Crop Suitability in Zambia. University of Cape Town, South Africa, undertaken in support of Adaptation for Smallholder Agriculture Programme’ Phase 2. IFAD, Rome.

³⁵ Hunter et al. 2020. Research Highlights – Climate Change and Future Crop Suitability in Zambia. University of Cape Town, South Africa, undertaken in support of Adaptation for Smallholder Agriculture Programme’ Phase 2. IFAD, Rome.

³⁶ <https://climateknowledgeportal.worldbank.org/country/zambia/vulnerability>



Fig. 8 Examples of impacts of extreme weather events in target provinces

Barriers to Climate Change adaptation in the Context of Climate Vulnerability

41. In the context of this project, the principal challenges and barriers that communities face to adapt to the challenges of climate variability and change are bifurcated into: i) lack of livelihood options evidenced through community reliance and specialisation in the exploitation of natural resources for their livelihoods, and ii) lack of innovative financing systems to build capacities to address challenges in climate-sensitive sectors.

Limited livelihood options and community reliance on the exploitation of natural resources

42. As has been noted, territorial and demographic disparities in wealth distribution and economic development in Zambia have left rural areas lagging behind. Additionally, rural livelihoods, including socio-cultural and traditional activities, almost entirely revolve around exploiting natural resources, principally land and forests and associated resources. In the words of Dewees et al,³⁷ Zambian forests are a pharmacy, a supermarket, a building supply store, and a grazing resource, providing consumption goods not otherwise easily available, particularly in subsistence economies. All these environmental affordances hinge on the integrity of forests to maintain or improve the stocks and flows of ecosystems that underpin livelihoods.
43. It should be noted that the relationship between land and forest resources and rural livelihoods is socioeconomic that is intimately engraved in the cultural and traditional context of the people – built over years of interaction with the environment and structured and organized in traditional knowledge.³⁸ Therefore, the disruption of the socioecological context due to rising temperatures, floods in some areas and droughts in others, poor soil fertility status and human and animal disease outbreaks, among other factors, seriously threatens communities socioeconomically, culturally and traditionally. The overreliance on the exploitation of natural resources for survival is inevitable for rural communities

³⁷ Dewees, P.A et al (2010). Managing the [Miombo](#) Woodlands of Southern Africa: Policies, incentives and options for the rural poor. Journal of Natural Resources Policy Research, 2(1), 57–73.

³⁸ Chilombo, A. (2021). Questioning the narrative of [land marginality](#) in large-scale land acquisition deals: case study of Nansanga Farm Block in Zambia, Journal of Land Use Science

because communities have lean asset portfolios. In other words, they have specialized in natural resources-based livelihood income streams in the face of a climate change context that demands diversification to survive. Given the frequency and intensity of extreme weather events together with animal and crop (associated with changes in temperature rise and delays in rainfall onsets) and human disease outbreaks, it has become increasingly a matter of 'specialise and die, or diversify and survive'³⁹ the effects of climate variability and change – considering that diversification of livelihood activities is a survival strategy.⁴⁰

44. Adaptation is neither free nor does it happen in a vacuum. Rural communities, isolated from centres of power with limited and unpredictable government support in terms of social services, do not have options and means to adapt to the impacts of climate change sustainably. The Government of Zambia does, in some cases, respond to emergencies such as floods through the Disaster Management Unit. However, it should be noted that the Unit works on a lean budget. The support to affected communities tends to be a one-time intervention without sustainability strategies – which is left to communities themselves to essentially figure out how they will cope with climate change related shocks beyond the government emergency support in the form of emergency food packages and tents. The approach is more reactive than proactive to ensure a broadened economic base with diversified livelihood income streams and capacities to enable affected communities cope better with the ever-changing vulnerable context.

Limited financing systems to build community adaptive capacities in climate sensitive sectors

45. Linked to limited livelihood options and community reliance on the exploitation of natural resources is the limited financing systems to build community adaptive capacities in climate-sensitive sectors. Access to financial services, is one of the biggest challenges that smallholder farmers face in rural Zambia. Smallholder farmers produce on customary land that cannot be collateralized to access financial services. Additionally, credit availability is a challenge in some geographically isolated rural communities. Therefore, smallholders cannot afford up-front cash outlays (e.g., input costs) and investment costs (e.g. seedlings, improved climate tolerant seeds, labor costs for construction of soil conservation structures, machinery and tools, vaccinations and pest control) associated with the implementation of climate-resilient farming practices, adoption of adapted varieties and improved breeding, crop diversification and agroforestry options. Plant and animal breeding is a powerful instrument but requires large investment over very long periods – beyond the reach of most smallholder farmers. Smallholders are increasingly aware of the impacts of climate change on their productivity and in some cases have some knowledge, albeit limited, of potential climate change adaptation options. The lack of financial resources and limited access to these resources by most smallholders is, therefore, a key constraint to building their resilience to climate change.
46. Zambia's financial sector provides opportunities for climate resilient agriculture investments including development and dissemination of services oriented to supporting various actors in climate risk management. Currently, the financial sector is dominated by the banking sector, but it consists of a broad array of financial institutions. The banking sector holds nearly 70% of financial sector assets, of which over 80% are held by subsidiaries of majority foreign-owned banks. Other major financial sector institutions include pension funds, microfinance institutions, insurance companies and building societies. Of the 18 licensed commercial banks, the government jointly owns five. (World Bank AgriFin Diagnostic Report, 2019).
47. Past interventions of IFAD in Zambia, other funders' experiences, and from a sectoral analysis of constraints/ opportunities show that progress on building sustainable rural finance access can only be achieved through a holistic approach, involving several actors at different points in both the financing and product value chains. In this regard, it requires: (i) a flexible approach, through which financial

³⁹ Chilombo, A. & van der Horst (2021). [Livelihoods](#) and coping strategies of local communities on previous customary land in limbo of commercial agricultural development: Lessons from the farm block program in Zambia. *Journal of Land Use Policy*

⁴⁰ Tesfaye, Y. et al (2011). [Livelihood](#) strategies and the role of forest income in participatory-managed forests of Dodola area in the bale highlands, southern Ethiopia. *Journal of Policy Econ.* 13, 258–265.

institutions will be supported to try out and test new, promising avenues for expansion of services to the un- and under-banked rural population; (ii) addressing knowledge gaps through capacity building over time; (iii) addressing existing gaps in regulation and supervision through capacity improvement over time (iv) documenting and scaling up of innovative practices existing in Zambia and elsewhere and (v) providing international expertise to share best practices with the local counterparts. Experience has shown that thematic interventions are desirable, feasible and profitable in agricultural term finance. Such interventions may include supply/value chain finance, climate change financing, savings-based credit schemes and linkages with development programmes, mobile phone transactions, community-based finance, insurance, and others. In addition, the infrastructure of deposit-taking financial institutions in under-served rural areas is worth support, given the very good returns of such investments for the rural economy and the rural poor. The instruments and tools used to advance access to finance in the above areas may include, but not be limited to well-defined matching grants, selective capacity development, and strategic knowledge management.

48. This means that rural finance can play an important role in strengthening the adaptive capacities of rural communities isolated from steady and predictable government services. Improved financial services offer communities the ability to invest in more sustainable production systems, including investing in better sustainable land management systems. A more innovative, integrative, and participative approach to rural development therefore, needs to be designed to improve the identification and selection of suitable climate change adaptation action, which should in turn improve rural livelihoods. Such an adaptation measure must contribute to stabilizing and improving agriculture yields through rural finance available to smallholder farmers, enabling them to invest in appropriate technologies and know-how – leading to improving incomes.
49. It should be mentioned that where financial service providers exist or are accessible by smallholders, they lack the relevant knowledge and mechanisms to integrate climate change risk management in their agricultural and rural development portfolios. Therefore, there needs to be a more connection between needs of smallholders and what financial service providers are seeking to provide. However, there are also potential opportunities that lie ahead. There are many benefits associated for e.g. with taking a “value chain approach” to climate resilience because climate change affects companies beyond corporate fence lines and national borders and presents important opportunities for lifecycle thinking and creative collaborations. This approach, may give special focus to local communities and the natural environment because of their essential roles within “business” value chains. Community risks are business risks because communities provide key resources to value chain providers, as well as a “social license to operate.” Though rarely quantified, ecosystems provide natural goods and services of considerable economic value to businesses, such as flood protection, water treatment and circularity. CALRF uses the ADAPT (**A**nalyze current baseline conditions, **D**evelop new approaches and technologies, **A**ssess feasibility, **P**rioritize solutions, approaches and practices, and **T**ackle existing barriers and risks) tool as a conceptual framework to guide the development of the project to ensure that all key processes are adhered to and support the coherence between what the project seeks to achieve and the climatic and socioeconomic contexts of priority districts.
50. In the context of land and associated resources, access to financial services is further constrained: i) by prevailing land tenure system – where, as mentioned above, customary land is viewed as too risky for financial service providers and cannot be collateralized (institutional and policy challenge); ii) lack of market literacy attributed partly to high illiteracy levels in rural areas; (technological and institutional gaps); and iii) extreme rural poverty and high unemployment in rural areas, which stifle the ability and limit the possibility of rural communities to access appropriate technologies and financial services – women, particularly bear the brunt of this challenge (linked to economic and social challenges).
51. One important element to solidify community adaptive capacities in climate-sensitive sectors constitutes local-level institutional arrangements – which in rural areas, are built on mutual trust, respect and loyalty, particularly to one’s identified community leadership. There is need to improve the governance of community common pool resources, which play a critical role in community adaptive capacities –

otherwise, the tragedy of the ungoverned common pool resources such as grazing grounds, fishing grounds and water points become imminent. However, meaningful social organization to strengthen community based organisations and farmer groups or associations, water user associations need financial support and capacity development. In fact, service provision to communities needs to be accompanied with capacity development so that beneficiaries are supported to invest in climate-resilient agricultural production systems, including sustainable land management and integrated water management and fishing practices – critical areas that underpin rural livelihoods but also which are highly sensitive to climate change. Local institutional capacity development is important because financial services to invest in improving the management of both common pool and individual resources strengthens the people's abilities to service borrowed money – including bridging the gender-divide that keeps women from accessing financial services and resources. This approach is holistic but also helps to simultaneously address local institutional, socio-cultural and financial challenges that weaken community and individual resilience and the ability to adapt to the impacts of climate change. Overall, community-level investments in rural Zambia are scanty, yet they are less risky for both service providers and individual beneficiaries – and hold potential in building resilience and adaptive capacities - increasing the resilience of communities and individuals to socioeconomic and environmental shocks.

52. The design of CALRF is cognizant of the fact that land and forest associated resources are a lifeline of rural communities. However, the lifeline is under increasing threat from both anthropogenic factors (such as unsustainable agricultural production systems besides expansion of agricultural land, infrastructure development, fuelwood, illegal logging of high value tree species such as *Pterocarpus chrysothrix* – locally known as *Mukula*) and natural factors associated with climate change such as droughts, floods, temperature and diseases. Therefore, ecosystems services that underpin livelihoods are being modified due to anthropogenic and natural factors. Within this compromised ecological and socioeconomic context, communities are highly constrained, principally because of their specialisation in their livelihood income streams, which are tied to the integrity of natural resources.
53. In the Zambian context, it should be noted that climate-sensitive sectors are at the core of the socioeconomic struggles of the rural poor –sectors that have untapped potential and hold promise for reducing rural poverty, build resilience and increase people's adaptive capacities. Thus, Zambia's approach to climate change adaptation and mitigation needs to be holistically multisectoral to include, *inter alia* ecosystems, agriculture, water resources and health (Libanda, 2020).⁴¹
54. The project's approach will therefore, reflect this complex interdependence between human wellbeing and the environment to continue providing the services to humans. The approach will account for the socioecological vulnerability to propose a suite of interventions that will build resilience and improve people's ability to adapt to the impacts of climate change in a sustainable manner – by targeting concrete actions in sectors that are climate-sensitive, coupled with financial and technical capacity development as enabling environments to support community investments in transformative sectors. As mentioned above addressing the uncertainties created by a changing climate requires robust risk management strategies. Adaptation need not be laborious or expensive, and there will be "low-hanging fruit," opportunities to increase resilience through low-risk and low-cost measures. Responding to the effects of a changing climate will also provide opportunities for climate resilient products and services and new markets.

Project Area and Target Group

55. As has already been alluded to, CALRF will be implemented in districts in five provinces, representing three agro-ecological zones. With varying degrees, agriculture is the main socioeconomic activity common to all the provinces – highlighting the dependence of rural communities on land and forests for their livelihoods. These agricultural activities involve crop and animal production and fishing. Maize, being Zambia's staple food, is grown in all the five provinces.

⁴¹ Libanda, B., 2020. Multi-model synthesis of future extreme temperature indices over Zambia. *Model. Earth Syst. Environ.* 6, 743–757. <https://doi.org/10.1007/s40808-020-00734-9>

56. Zambia has been hailed as one of the countries besides Mozambique and Nigeria with enormous potential to establish herself as an agricultural economy to compete on regional and international markets as did the Cerrado region in Brazil (using commercial agriculture approach) and the North Eastern region of Thailand (using smallholder farmer approach).⁴² However, realizing this potential remains a herculean task, given the different challenges ranging from symbolic funding of the agriculture sector, institutional and policy gaps, impacts of climate change, and land and forest degradation – leading to impoverishing soil fertility status, among others.

57. Poor soils make it more expensive to produce because producers have to use more artificial fertilizers. **Figure 9** shows the Zambian soils – highlighting dominant soils in the target districts for the project. With the exception of Luapula that is dominated by moist good soils and sub-humid good soils (see description of agro-ecological zones below), Western, Southern and Central Provinces are characterised by dry poor, moist moderate, patches of moist poor and sub-humid good soils.

58. Western and Southern lie in the agro-ecological zone I. The mean annual rainfall in the agro-ecological zone I ranges from 600 to 800 mm. The growing season is relatively short (80-120 days) and risky for crop production, as poorly distributed rains result in crops enduring frequent dry spells. Region I contains a variety of soil types, ranging from slightly acidic loamy and clayey soils with loam topsoil, to acidic sandy soils. Characteristics of these soils, which have significant constraints for crop production, include: erosion, limited soil depth in hilly and escarpment areas, poor physical properties that

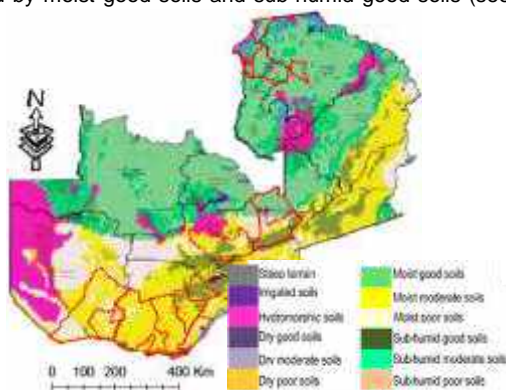


Fig. 9 Zambian soils and CALRF target districts

make it difficult to till especially on cracking clay soils, crusting and low water holding capacities in sandy soils. Maize, sorghum, groundnuts, sunflowers and cowpeas are cultivated, cattle rearing, and fishing industry (though in decline) are the main socioeconomic activities in this zone. In this agro-ecological zone lie Mwandi, Sesheke (of Western Province), Kazungula, Kalomo, Sinazongwe, Choma and Monze districts (of Southern Province) that have been targeted for CALRF implementation.

59. The agro-ecological zone II contains the most fertile soils and most of the country's commercial farms. Annual rainfall in Region II averages 800-1000 mm, and the growing season is 100-140 days long. Distribution of rainfall is not as erratic as in Region I, but dry spells are common and reduce crop yields, especially on the sandier soils. Average mean daily temperatures range from 23- 26°C in the hottest month October to 16-20°C in the coldest months of June and July. The most common soils in this zone are red to brown clayey to loamy soil types that are moderately to strongly leached. Physical characteristics of the soils that affect crop production include low water holding capacity, shallow rooting depth, and top soils prone to rapid deterioration and erosion. These soils also have low nutrient reserves and retention capacity, are acidic, have low organic matter and nitrogen content, and are phosphorus-deficient. The zone has ample irrigation potential, which allows for a diverse mix of crop and livestock enterprises. Maize is the principal crop, but a wide variety of other crops are grown; including beans, groundnuts, sorghum, cassava, millet, sweet potato, sunflower, cotton, rice, tobacco, paprika along with vegetables and fruits. In this agro-ecological zone lie Mkushi, Luano and Chibombo districts (of Central Province) that have been targeted for CALRF implementation.

⁴² World Bank (2009). [Awakening Africa's sleeping giant: Prospects for commercial agriculture in the Guinea Savannah Zone and beyond.](#)

60. The agro-ecological zone III, the high-rainfall area, lies in a band across northern Zambia, including the Northern, Luapula, Copperbelt, Northwestern provinces and some parts of the Central province. This region receives over 1000 mm of precipitation yearly, and the growing season ranges from 120-150 days. Soils in Region III are highly weathered and leached, and characterized by extreme acidity. Consequently, the soils have few nutrients available for plant growth, and are high in exchangeable aluminum and manganese, both of which are toxic to most crops unless soils are limed to increase pH. The major crops produced are cassava, maize, groundnuts, millet, sorghum, beans and sweet potatoes; and small-scale fishing and fish trading is also a source of income. Given the abundance of water in this area, there is potential for irrigation, and for fishing. In this agro-ecological zone lie Chiengi, Nchelenge, Mwansabombwe and Kawambwa districts (of Luapula Province) and Lunte (Northern Province) that have been targeted for CALRF implementation.
61. It should be emphasised that the lack of alternative and diversified income streams in the face of climate change, particularly extreme weather events and the erosion of ecosystem services through deforestation and land degradation – weaken the adaptive capacities and resilience of particularly rural communities with lean asset portfolios. It should be noted that the climate-related risks to agricultural households in each province are a function of both the impact of climate change on crop production, as well as the adaptive capacities of each community to manage and respond to climate risks.⁴³
62. Rural communities have a vulnerable context that needs to be addressed through broadening their socioeconomic base by diversifying livelihood options, but also improving their access to financial services and capacity to make better informed investment decisions in climate-sensitive sectors. These include agricultural production systems, land restoration and rehabilitation, infrastructure, among others. Other areas of interventions include the promotion of off-farm livelihood opportunities to lessen the reliance and overexploitation of natural resources – which lead to their degradation in some cases, and depletion in others.
63. The design of CALRF has largely been informed by lessons from RUFEP, particularly component 2 on improving the financial situation of communities to enhance their ability to invest in climate-sensitive sectors. RUFEP has set the foundation on which CALRF will build – riding on RUFEP’s institutional arrangements at national and sub-national levels, including project partners that include community based organisations and financial service providers in 15 districts. The map in **Figure 11**⁴⁴ shows how CALRF’s and RUFEP’s districts overlap to synergize in some cases, and scale-up best practices in others.
64. In this regard, the choice of CALRF’s districts has been underpinned by:
- The vulnerability of the socioecological systems in the districts and poverty levels that constrain people’s ability to cope with the extreme weather events that Zambia has been experiencing in the past years;
 - The viability and sustainability of alternative and diversified livelihood options that CALRF is proposing to build adaptive capacities and strengthen people’s resilience;
 - The gravity of experienced and projected level of floods and droughts – evidenced by the number of affected people, the spatial and temporal scale of the impacts on land, food security, water supply and disease outbreaks; and
 - The existence and or proximity of financial service providers and other partners to support the delivery of services and activities of CALRF.
65. **Target group:** The project seeks to support the diversification of livelihoods of rural communities in vulnerable socio-ecological contexts triggered by climate change (extreme weather events, animal and crop disease outbreaks associated with changing temperatures and rainfall patterns), anthropogenic factors (deforestation, land degradation, unsustainable production systems, poor and or non-

⁴³ Hunter et al. 2020. Research Highlights – Climate Change and Future Crop Suitability in Zambia. University of Cape Town, South Africa, undertaken in support of Adaptation for Smallholder Agriculture Programme’ Phase 2. IFAD, Rome.

⁴⁴ Based on various data sources including: Harris, I. et al (2020) Version 4 of the [CRU TS](#) monthly high-resolution gridded multivariate climate dataset. Sci Data 7, 109 & DIVA-GIS Country shapefile [data](#).

infrastructure development), and generalized lean asset portfolios, which do not enable them to adapt to the impacts of extreme weather events and devastations of animal and crop disease outbreaks.

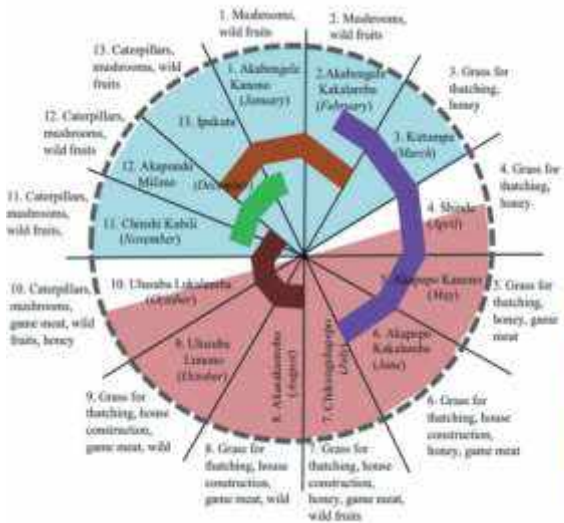


Fig. 10 Community use of land and forest resources January - December

66. The target rural populations almost entirely depend on the use of natural resources, which are under immense pressure from both natural factors and anthropogenic impacts. Figure 10⁴⁵ shows a typical calendar of rural communities in central Zambia during the year (from January to December) -highlighting the lack of alternative livelihood income streams. This overreliance also reveals limited or non-existence of socioeconomic opportunities to diversify and depend less on the use of natural resources through agricultural activities – lack of diversified and off-farm livelihood opportunities locks vulnerable and poor communities in further socioeconomic doldrums.

67. It should be emphasized here that the specialisation in the use of natural resources in a rural context of economic scarcity characterizes people's vulnerability. The natural resources on which they almost depend for their survival are the mercy of the vagaries of extreme weather events, particularly droughts and floods. Droughts negatively impact productivity per area cultivated (and the sizes of land cultivated are already small, barely more than 2 ha – cultivated using primitive tools such as hoes and axes and only during the season which has also begun shrinking due to climate change) and availability of wild fruits which play a critical role as food in times of scarcity. It should be noted also that selected districts in the northern region of Zambia are regions of caterpillars – which are a locally available and cheap important source of proteins. Drought has had a negative impact on the life cycle of caterpillars, and communication with communities during stakeholder consultation revealed that caterpillars are becoming rarer and rarer in terms of frequency and quantity.
68. Regarding floods, rebuilding life after property has been destroyed due to flash floods is a far-fetched dream for rural communities in CALRF's selected districts. The asset portfolio of selected districts as rural communities is too lean to enable people to rebound from extreme weather events easily. Therefore, building and increasing their resilience to unlocking vulnerability, it is important to support diversified and resilient livelihoods options. Diversification is key to avoid 'having all their eggs in one basket', which is their reliance on the exploitation of natural resources, which are also subjected to both climate change and anthropogenic pressures.
69. Generally, livelihoods in the prioritized districts are largely agricultural, and reduced rainfall has led to crop shortages in recent years. For example Western (where Mwandi and Sesheke, CALRF's districts are) and Southern Provinces (where Monze, Choma, Sinazongwe, Kalomo and Kazungu CARLF's districts are) are located in semi-arid regions, with mean annual rainfall ranging between 600 mm– 800

⁴⁵ Chilombo, A. (2021). Questioning the narrative of [land marginality](#) in large-scale land acquisition deals: case study of Nansanga Farm Block in Zambia, *Journal of Land Use Science*

mm. Western Province, Zambia's largest administrative jurisdiction (with 14 districts), is where the country's logging and rice industries are concentrated. Southern Province is a maize- and sugar-producing region of Zambia and home to the country's premier tourist attraction, Mosi-oa-Tunya (Victoria Falls), which is shared with Zimbabwe. As throughout Zambia, a majority (~ 85%) of households employed in the agriculture sector in these districts are smallholder farms, with maize being the dominant agricultural crop, grown by over 82% of households. Both provinces have experienced rainfall anomalies over the last decade, including a particularly profound drought beginning in 2018–2019 that has persisted through 2020–21. Limited infrastructure and support for climate-responsive agricultural practices have also rendered these districts particularly susceptible to poorer crop yields in times of drought. Fewer than half (45%) and 40% of Zambian farmers do not use fertilizer on their fields and plant hybrid maize seeds, respectively, rendering agricultural outputs particularly vulnerable to rainfall anomalies.⁴⁶

⁴⁶Rosen, J.G., Mulenga, D., Phiri, L. et al (2021). "Burnt by the scorching sun": climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia. [BMC Public Health](#)

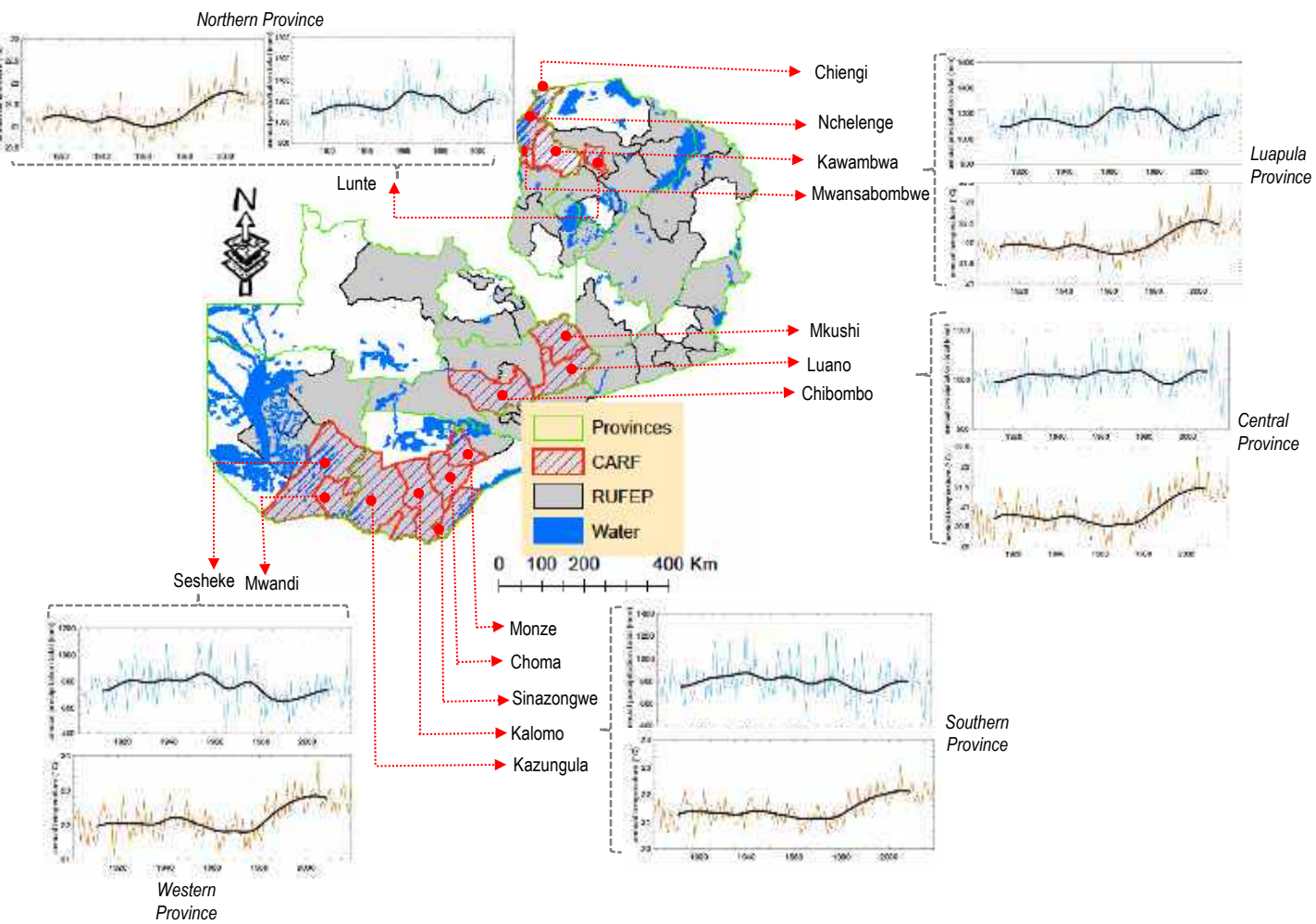


Fig. 11 Map showing CALRF and RUFEP districts and historical trends in temperature and precipitation patterns.

70. The project recognizes the differential access to socioeconomic opportunities between rural communities and urbanites, but also cultural biases that limit women's access to building their resilience and adaptive capacities through equitable access to natural resources, financial services and decision-making processes regarding the management and governance of resources and livelihood options. In a similar vein, the project is cognizant of the role of the youth so that rural areas can reap the demographic dividend – however, opportunities for them to participate in socioeconomic activities are extremely limited, and in some cases, simply non-existent. Therefore, acknowledging the challenges of women and the youth, the project will be deliberate about engaging rural communities to ensure women and the youth get a fair share of the socioeconomic benefits of the project while playing their role in the implementation of the project to achieve its development objective. This will particularly be critical to ensure financial inclusion of women and the youth, and build their financial capacities and literacy alongside men. It should be mentioned that women have been shown to be more likely to make long term investments than men and lessons learnt in financial inclusion, show that women are more likely to repay debt than men.

71. All IFAD programmes in Zambia have targeted the rural poor and those adversely affected by climate change. As has been noted, CALRF will ride on the institutional arrangements of RUFEP while drawing lessons from it as well as from other IFAD-implemented projects in Zambia, particularly the following: Enhanced Smallholder Agribusiness Promotion Programme (E-SAPP); Enhanced- Smallholder Livestock Improvement Programme (E-SLIP); and Smallholder Productivity and promotion Programme (S3P). In this regard, the project will prove to be more cost-effective. In terms of the number of beneficiaries per province and district, the project will directly impact 43,400 people or 8,680⁴⁷ households as detailed in the table below:

Province	District	Est. beneficiaries		Total per province (% of pop.)	# of households	District population	Provincial head count poverty ⁴⁸
		Male	Female				
Central	Chibombo	4,500	4,500	9,000 (2%)	1,800	250,702	57%
	Luano					36,082	
	Mkushi					182,171	
Northern	Lunte	1,200	1,200	2,400 (25%)	480	9,480	83%
Luapula	Chiengi	6,000	6,000	12,000 (2.3%)	3,200	150,892	83%
	Mwansabombwe					57,879	
	Nchelenge					203,432	
	Kawambwa					113,881	
Southern	Monze	8,000	8,000	16,000 (1.6%)	2,400	224,680	59%
	Choma					217,385	
	Kalomo					277,172	
	Sinazongwe					127,053	
	Kazungula					154,995	
Western	Mwandi	2,000	2,000	4,000 (4.7%)	800	31,265	84%
	Sesheke					54,717	
Total	15	21,700	21,700	43,400	8,680	2,082,306	Av. 73.2%
		Grand total					

Project Objectives:

72. It has been shown that Zambia has experienced several extreme weather events, including droughts and prolonged dry spells, seasonal and flash floods and extreme temperatures - droughts in some areas and floods in others and temperature rise are projected to increase in frequency and intensity; potentially

⁴⁷ Estimates based on Zambia Statistics Agency, Ministry of Health (MOH) Zambia, and ICF. 2019. 2018 Zambia Demographic Health Survey Summary Report. Lusaka, Zambia: Zambia Statistics Agency, MOH, and ICF – who have estimated that the average household size in Zambia is 5.0 persons

⁴⁸ Estimates based on Mphuka, C. et al (2017). Economic growth, inequality and poverty: Estimating the growth elasticity of poverty in Zambia, 2006-2015

threatening food and water security, energy sources and livelihoods of communities. Almost entirely dependent on degrading natural resources, these rural communities hardly have any adaptive capacities to cope with extreme weather events owing to their lean asset portfolio. It should be reminded that the situation has been even direr given the COVID-19 pandemic to which the already meagre national financial resources were allocated at the expense of ensuring preparedness programs against climate change-related events. With an average poverty level as high as 73.2% of the population in the five target provinces, communities can hardly cope with external shocks on their already vulnerable and precarious socioecological context. The projects primary objective is to increase the resilience and build adaptive capacities of rural populations through access to finance for investments in adaptation solutions and best practices, enhanced by institutional and financial innovation mechanisms (products, systems). Empowering people in communities with relevant knowledge to shift towards investment in climate change adaptation is integral to the primary objective.

73. Within this complex vulnerable context, the overall objective of the project is to build and enhance resilience and adaptive capacities of 43,400 people (8,680 households) to cope with extreme weather events through promoting diversified, resilient and sustainable community livelihood options and facilitating access to finances for investments in climate-sensitive sectors.

Specific objectives

74. Building on the overall objective, the project has two specific objectives that reinforce each other to enhance the resilience and build community adaptive capacities to extreme weather events in five provinces in Zambia. These objectives are:
- *Building diversified and sustainable socioeconomic livelihood opportunities for vulnerable and poor people in five provinces in Zambia.* This objective will be achieved through a holistic approach that will seek to address the key challenges that stifle people's ability to be more resilient to the extreme weather events – the challenges that also weaken people's adaptive capacities to external shocks linked to climate change phenomenon, such as droughts, floods, disease outbreaks, rise in temperature – and internal shocks such as unsustainable production agricultural systems, land degradation, deforestation, lack of access to markets and other social services due to lack of storage facilities or roads, among others. Interventions will improve the productive capacities of smallholders to ensure food and nutritional security, but also surplus to broaden and diversify income base and income streams, respectively. To be able to build and diversify livelihood opportunities, the project will invest in strategic concrete activities that will include the development of value chains that are appropriate to the different ecological zones in the country – focusing on fisheries and fruit trees.
 - *Supporting innovative financing opportunities for vulnerable community members in five provinces in Zambia.* This objective will focus on facilitating community access to financial services to capacitate them to invest in climate-resilient sectors, including sustainable production systems or technologies. It builds on the first objective, and rationalised on the basis that financial resources can create multiplier effects that contribute to i) improving the management of natural resources with the right informed investment decisions (e.g. irrigation systems, climate resilient seed varieties and animal species); ii) increasing the levels of production and reap the benefits of the economies of scale; and iii) offering alternative means to fall back on should there be external shocks. Another rationale would be that responding to the effects of a changing climate will also provide opportunities for climate resilient products and services and new markets. *There are already many worldwide examples of the private sector, 'businesses and value chain providers' embracing such opportunities.* Financial leaders are developing innovative climate-insurance products for communities at increased risk of weather-related natural disasters; engineers are working on more-resilient construction materials and design standards, ICT (information, communications, and technology) suppliers are starting to offer equipment and smart networks to monitor and manage climate-related impacts, and new technologies are being developed and deployed to address increased water stress. Financial and value chain providers that have engaged early on with government on

climate change impacts are positively influencing policy and developing new services. The economic possibilities for innovative, forward-looking communities and companies are extensive.

Project Components and Financing:

Project/ Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
Component 1: Building and promoting equitable diversified, resilient and sustainable community livelihood options	1.1.1: Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.). 1.1.2: Targeted individual and community livelihood strategies of the vulnerable members in the target districts established focusing on fish and fruit tree value chains - strengthened in response to the impacts of climate change and extreme weather events. 1.1.3: Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change - associated extreme weather events and impacts	Outcome 1.1: Promoted and diversified livelihood options strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events	6,260,000
Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors	2.1.1 Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards climate change adaptation 2.2.1 Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out: 2.3.1 Catalytic financing established 2.2.4 Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans	Outcome 2.1 Vulnerable communities in target provinces access financial services and increase their investments in key climate-sensitive sectors.	1,390,000
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building	3.1.1 Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building:	Outcome 3.1 Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level	692,000
4. Project activity cost (A)			8,342,000
5. Project Execution costs (including M&E) (B)			874,590
6. Total Project Costs (A+B)			9,216,590
7. Project Cycle Management Fees charged by the Implementing Entity (if applicable) (8.5%) (C)			783,410
8. Total Amount of Financing Requested (A+B+C)			10,000,000

75. Using a broad set of practices, climate resilient agriculture sustainably increases productivity and resilience, reduce and/or remove greenhouse gas emissions where possible and enhances the achievement of food security and development goals.⁴⁹ It leads to sustainable food production, improved food security and income for small-scale farmers and agro-pastoralists in disaster-prone

⁴⁹ Jost, C. (2014). Climate Resilient Agriculture [Module](#)

areas. Agricultural producers become more resilient to climate related hazards and are able to contribute to restoring degraded natural resources that underpin their critical livelihoods. In this regard, adaptation options in the agriculture and forest sectors need to focus on interventions related to: afforestation and reforestation as adaptation opportunities; use of adapted crops and varieties; conservation agriculture; improvement of the functional connectivity of ecological networks; improvement of irrigation efficiency; rehabilitation and restoration of rivers and floodplains; adaptation of groundwater management; adaptation of fire management plans; adaptive management of natural habitats; agro-forestry and crop diversification; adaptation of drought and water conservation plans; establishment of early warning systems; monitoring, modelling and forecasting systems; adaptation of integrated land use planning; and water sensitive forest management. Infrastructure development including climate-resilient roads and storage facilities are part of practical interventions to ensure enhanced resilience to the impacts of climate change and variation.

76. The afore-going adaptation measures constitute a suite of grey, green and soft adaptation interventions to: i) avoid or reduce exposure to climate risks (such as building new flood defenses, or changing location or activity); and ii) exploit new opportunities (such as engaging in a new activity, or changing practices to take advantage of changing climatic conditions that are exacerbated by anthropogenic activities such as unsustainable agricultural production systems, infrastructure development, fuelwood) – all these contribute to the elevated levels of deforestation in the country, estimated at 250,000 – 350,000 ha per year.⁵⁰

Projected Calendar:

Milestones	Expected Dates
Start of Project Implementation	June, 2023
Mid-term Review (if planned)	September, 2025
Project/ Closing	June, 2028
Terminal Evaluation	September, 2028

PART II: PROJECT JUSTIFICATION

77. The project is designed to build the resilience and adaptive capacities of rural populations in a complex vulnerable context characterised by lean asset portfolios, continued resource degradation, isolation from political powers, limited financial resources to invest in socioeconomic climate-sensitive activities – and areas experiencing extreme weather events in terms of floods in some areas and droughts in others – and these are projected to continue in terms of frequency and intensity. To address the complex context in five provinces, the project proposes both concrete interventions, primarily meant to build the so much required socioecological resilience and adaptive capacities of affected poor communities. Additionally, the project is cognizant of the role of multi-stakeholder engagement, particularly the private sector, with their financial capacities and investment priorities to support building resilience in climate-sensitive rural enterprises. Finally, the project acknowledges the critical role of community capacities and institutional arrangements as enablers to sustain the transformative impacts of concrete interventions.

78. Consistent with the barriers that have already been identified, the project is designed around the following three components:
- o Component 1: Building and promoting diversified, resilient and sustainable community livelihood options;
 - o Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors; and
 - o Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building

⁵⁰ Government of Zambia (2014). National Forest Policy

79. The strategic orientations of the afore-mentioned components to address the climate variability and change resilience and adaptation challenges in the target districts are described below:

Component 1: Building and promoting equitable, diversified, resilient and sustainable community livelihood options

80. The project is proposed in 15 rural districts where communities almost entirely rely on rain-fed agriculture for their livelihoods. As has already been noted, the districts face important climate change related extreme weather events. This further worsens peasantry agricultural and pastoral activities that are highly dependent on climatic conditions. Therefore, aspects of food security are threatened, including its availability, access, utilization and stability. Component 1 is built on the understanding that the ability of livelihood systems in the target districts to respond to shocks through various coping strategies is a key determinant of livelihood resilience and vulnerability – ensuring and allowing the spreading of risks over multiple activities, acknowledging that as diversification increases, vulnerability (should) declines because resilience and adaptive capacity are built. The project will therefore, support agricultural households in rural economies of target districts to adopt diversification that will lead to better risk-management and more resilient income streams. It is noted here that livelihood diversification strategies are implemented by households in rural environments as a response to threats and opportunities to manage risk and increase or stabilize income and consumption.⁵¹
81. Additionally, the project will deliberate on differential access to resources based on socioeconomic vulnerability and gender. In building, promoting equitable, diversified, resilient, and sustainable community livelihood options, the project will therefore embed gender thinking; addressing challenges related to input supply, production and market linkages – all of which will help to address differential access to markets and expanding livelihood opportunities. This will further include facilitating market linkages between women farmers and markets, brokering links between women and traders (e.g., marketing cooperatives)
82. For impact at scale that will build on social capital that exists within communities, the project under this component will seek to work with groups such as cooperatives. Also, the project recognises that community groups such as cooperatives function as social platforms for knowledge exchange and learning. Indeed, social capital can be a vehicle through which the accumulation of different forms of capital can be achieved and contribute to sustainable environmental management.⁵² To this end, the component activities will support the clustering of smallholder farmers into viable farmer groups and or strengthening existing ones to facilitate effective and seamless capacity building and strengthening of individual targeted farmers on the different risk management elements the project will bring forth. Consequently, public and private sector partners will utilize the farmer groups to enhance their respective supply chains, and increase their ability to create stronger market linkages. The farmer groups will also be used to capacitate women and men, smallholder farmers, with agribusiness skills in order to increase their ability to negotiate supply contracts with agro-dealers and processing firms, and forge linkages with financial institutions. It is envisaged that this linkage will help address key inefficiencies along value chains and facilitate the provision of incentives to smallholder farmers to manage risks that inhibit inclusive growth and agriculture diversification. To complement this, there will be more emphasis on supporting and application of a gender-sensitive value chain development approach that will seek to identify inherent market-based challenges that prevent smallholder farmers and other entrepreneurs from being competitive in their preferred value chains.
83. Broadly, the component will focus on supporting interventions that will improve water use, availability and efficiency; changing and or improving farming practices to conserve more soil moisture and nutrients, reduce runoff and control soil erosion; adjust timing of farming operations; support

⁵¹ FAO. 2016. Diversification under climate variability as part of a CSA strategy in rural Zambia, by Aslihan Arslan, Romina Cavatassi, Nancy McCarthy, Leslie Lipper, Federica Alfani and Misael, Kokwe. ESA Working Paper No. 16-07. Rome, FAO

⁵² Regis Musavengane & Danny Mulala Simatele (2016) Community-based natural resource management: The role of social capital in collaborative environmental management of tribal resources in KwaZulu-Natal, South Africa *J. Dev Southern Africa*

institutional arrangement to manage equipment and machinery hires for precise and prompt agricultural operations; promote drought tolerant varieties; promote early maturing crop varieties; improve soil conservation practices/technologies; improve sustainable land management; rain water harvesting; increase irrigation efficiency, among others. These will be consistent with component 2 on financial support systems to promote and sustain investments in these interventions.

84. The decision regarding specific livelihood options will partly be informed by asset portfolios (including infrastructure development, crop and animal production systems, among others) in the target districts, level of community awareness of the climate risks in their areas and the potential of the options to enhance the resilience and build adaptive capacities. Regarding asset portfolio, the project will support hardware interventions in infrastructure to support the diversification process of livelihoods by looking at both on and off-farm opportunities. Off-farm livelihoods can spur a non-farm rural economy with important positive knock-on effects that can trigger a more rapid poverty reduction than focusing on farming alone – further strengthening people’s resilience and adaptive capacities. The project will support infrastructure development and raise awareness – the rationale is embedded in the understanding that rural adaptation cannot be separated from dealing with existing rural development problems, since the causes of those problems are also highly likely to be barriers to successful adaptation, especially for poor people.⁵³
85. *Value chains*: Under this component, the project will collaborate with partners, notably the Copperbelt University, HODI and RESELI in two important value chains that are relevant to addressing the impacts of climate change and extreme weather events in the selected districts. These value chains are related to aquaculture and fruit tree production.
- **Aquaculture**: Luapula is the poorest province in Zambia, with 80% of the population in the poverty bracket, of which 62% are in extreme poverty^{54,55}. Fishing is the main economic activity from which over 50% of the population earn their living^{56,57}. However, several studies have shown that capture fisheries are facing challenges ranging from depletion of fish stocks resulting from unsustainable fishing practices to the threats of climate change, which are driving fluctuations in fish stocks, with major economic consequences for capture fisheries-dependent communities⁵⁸. For example, a significant shift in temperature can have deleterious effects on fish^{59,60} by degrading fish breeding sties, modifying its distribution and the productivity of other freshwater organisms⁷, leading to reduced fish production and undermining fishing effort.

The highlighted impacts of reduced fish catches are likely to leave the local people socio-economically vulnerable to the risks of climate change. For example, the projected impacts of climate change on fisheries will lead to low fish catches, undermine household incomes and exacerbate the already high poverty levels. Household incomes are further compromised by reduced market value of the fish due to poor post-harvest handling. Given the proportion of people that depend on the fishing industry in the province, there is an urgent need to increase the resilience of these communities to the shocks of climate change by building their capacity in fish farming as an alternative source of fish. Unfortunately, lack of access to fingerlings remains a major problem among fish farmers in the province. To address this problem, the support initiatives such as the establishment of a fish-hatchery (to be implemented in Kawambwa, Mwansabombwe, Nchelenge and Chienge districts). This will help to increase the resilience of the local fishing communities to climate change by promoting (1) community-driven fish farming as an alternative

⁵³ Terry Cannon, T. (2013). Rural livelihood diversification and adaptation to climate change, in Jonathan Ensor, J. et al (eds), Community Based Adaptation to Climate Change: emerging lessons, Practical Action Publishing.

⁵⁴ World Bank (2012). Zambia Poverty Assessment: Stagnant Poverty and Inequality in a Natural Resource-Based Economy. Report No. 81001 – ZM

⁵⁵ Central Statistics Office (2015). Living Conditions Monitoring Survey Key Findings, Lusaka, Zambia

⁵⁶ FAO (1992). Tilapia Culture by Farmers in Luapula Province, Zambia. ALCOM Field Document No.9

⁵⁷ Civil Society for Poverty Reduction (2018). <http://www.csprzambia.org/programs/luapula-province> (Accessed on 21 November, 2020)

⁵⁸ Roessig, Julie & Woodley, Christa & Cech, Joseph & Hansen, Lara. (2004). Effects of global climate change on marine and estuarine fishes and fisheries.

Reviews in Fish Biology and Fisheries. 14. 251-275

⁵⁹ Charles Nyanga (2016). Combating Climate Change. Fisheries and Aquaculture in Zambia. GRIN Verlag, 2020. ISBN 3346208192

⁶⁰ GRZ (2012) Technological Needs Assessment for Climate Change Adaptation in Zambia

and more sustainable source of their nutrition and income (2) fish restocking, sustainable fishing practices and management of fish breeding sites.

- Fruit tree value chain Zambia's climatic conditions are fairly favourable for the production of fruits. For example, Mango (*Mangifera Indica*) is a fruit that is widely produced in all rural districts of Zambia, yet over 80% of the fruit goes to waste every year due to its highly perishable nature and the lack of appropriate technologies to preserve, process, add value to the raw fruit and commercialize it across the prioritized districts. It is estimated that rural small-scale farmers in Zambia produce about 19,000 tons of mango annually. Of this, less than 2,000 tons are sold every year due to lack of market linkages despite the high demand. In addition, there is a growing market for mango juices, nectars and snacks in Zambia and in Southern African Region. Others include macadamia nuts and Hass avocado trees that will be focused more in Luano Valley in Luano district. The project will therefore support plantations, processing, and market development, among other targeted interventions.

86. Under this component, to promote and diversify livelihoods options to strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia, the project will focus on the following outputs and activities:

Outcome 1.1: Promoted and diversified livelihood options strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events

86.87. Output 4.1 Sustainable 1.1.1 Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.): Addressing impacts of climate change needs to be systemic, and the approach needs to focus on both humans and their production landscapes. Part of this requires valorizing the role that communities can play in coping with extreme weather events, including the ability of communities to identify adaptation pathways. This is important because though communities experience impacts of climate variability and change in their production landscapes such as crop failure, disease outbreaks, identification of the adaptation pathways and owning the strategies and processes of doing so are serious challenges. This output will focus on sustainable crop and animal production systems and practices that will have ~~have~~ positive impacts on the crop and animal production landscapes. Key activities will include:

- Activity 1.21.1.1: Promoting diversification of livelihood strategies beyond farm level interventions (promotion of off-season production using irrigation-rainwater harvesting systems - agro-forestry – linked to nurseries at community level on 1,000 ha; Smallholder farmers depend entirely on rainwater. During stakeholder consultations, including with communities, the need to support farmers with irrigation and rainwater harvesting systems was expressed to improve water availability for agriculture – given the shortening length of the rainy season. Five districts in southern, two in Western and three in Central provinces will be targeted for irrigation systems considering rainfall patterns. In the same districts, taking advantage of fast growing multi-purpose tree species, communities will be supported with plants nurseries for agroforestry practices on 1,000 ha for land rehabilitation, fuelwood and building materials to lessen communities' cutting of indigenous trees, which would accelerate land degradation.
- Activity 1.1.22-2: Investments in climate smart agriculture on 1,000 ha, focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts, including improving capacity of smallholder farmers through trainings in climate smart agriculture around selected value chains (promote climate resilient varieties, soil fertility management, water use efficiency, Integrated Pest Management etc.) entrepreneurship and market literacy, group business management, group governance, and advocacy; The project will collaborate with the Zambia Agricultural Research

Institute (ZARI) and Seedco company that produce climate resilient seeds for different crops based on climatic eco-regions in Zambia to facilitate community access to the seeds, prioritizing maize and cassava because of their role in national food security but also local and national economy. This will target all the districts. For successful production using climate resilient seed varieties, beneficiaries will be supported with crop husbandry practices through training sessions. These sessions will include IPM, agricultural entrepreneurship, market literacy, good business management – the idea is that with improved production, producers will have the ability to sell the surplus, therefore, they need to be equipped with basic business management skills beyond crop management. It should be noted that smallholders in the project's areas hardly receive adequate extension services, including improved seed varieties.

- Activity 1.1.1.32-3: Land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha. One of the challenges of smallholders is their inability to invest in sustainable production systems, including sustainable resource management. During consultations, it was revealed that once soil fertility is depleted, yields dwindle and the households get threatened with food insecurity – prompting them to engage in charcoal burning or shifting cultivation - both of which lead to land and forest degradation. This also triggers rural-urban migration of the young people. This activity will target ANR of indigenous species, intercropping of food crops with acacia species while planting fruit trees to contribution to nutrition but also sell the surplus of fruits. Production of fodder seeds will focus on Velvet beans, Cowpea and Red Sunhemp, Rhodes grass and Panicum maximum.

87-88. Output 1.1.2 Targeted individual and community livelihood strategies of the vulnerable members in the target districts established focusing on fish and fruit tree value chains and strengthened in response to the impacts of climate change and extreme weather events: Effective adaptation strategies consider specific contexts to build on existing practices while filling in the gaps – recognizing the nature of existing resource (individual vs common pool resources) and prevailing institutional arrangements – to propose interventions that respond to individual and community-level needs. This output will focus on key concrete livelihood needs that require diversification to enhance resilience and build adaptive capacities. Under this output, the project will address the insufficient supply of climate resilient inputs particularly legumes and small grains such as cowpea, groundnuts, and sorghum. To this end, this activity will facilitate the formation of Community Seed Banks within the seed producer groups to enhance the accessibility and availability of diverse inputs to smallholder farmers in drought-prone areas. Community Seed Banks will play a vital role in ensuring seed security and ultimately food and income security. Further, the community seed banks will also address the aspect of timely input provision at an affordable cost to smallholder farmers. A mechanism will be put in place where targeted farmers will pay back a portion of their harvest to the community seed banks to maintain seed stock, which can be used to support more farmers in a time of need. To ensure that the intervention has a lasting impact, the activity will leverage on key partnership mainly the Seed Control and Certification Institute (SCCI) and Zambia Agriculture Research Institute (ZARI) to ensure capacity enhancement of the community seed breeders to improve the supply chain of seed. This will be accompanied by capacity development of targeted extension services.

88-89. Additionally, under this component, the project will develop two important value chains that are responsive to the ecological zones in the selected districts of the project. These value chains will focus on fish production and fruit trees as they hold potential to strengthen the adaptive capacity of rural communities in the target districts.

89-90. Key activities will include:

- Activity 1.12.2.14: Adoption of sustainable agricultural practices in mixed crop and livestock systems (including procuring more productive and drought-tolerant seeds, support community seed groups/banks and stocking of climate resilient livestock packages) on 1,500 ha; aquaculture; crop

diversification; install composting and mulching facilities; provide soil testing services; bee-keeping; among others to benefit 1,000 households (50% of which will be female-headed); This activity is informed by the agricultural systems in the project districts. Building on the production systems and socio-cultural context, the activity will support mixed crop and livestock systems to manage better possibility of climate and extreme weather-induced risks, spreading labour and re-utilizing resources. The focus will be on on-farm mixing within crop and/or within animal systems, diversified and integrated systems based on specific cases of households. The rationale will be to reduce risks by not 'putting all eggs in one basket' as they produce.

- Activity 1.1.2.2.2: Build capacities to improve extension services in target districts of 150 staff to support veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general); management of post-harvest losses; crop disease outbreaks (crop husbandry services in general and aquaculture); and: The Ministry of Agriculture is a key ministry in Zambia and has offices at national and subnational levels. However, due to financial constraints, the subnational offices are understaffed and therefore, communities have little access to extension services. It should be mentioned also that staff need refresher trainings, particularly to support agricultural communities to adapt to climate change and extreme weather events. This activity will train 10 technical staff to bridge this gap.
- Activity 1.2.1.2.3: Conduct detailed value chain mapping and development of fruit tree and fish value chains. There is potential to increase the adaptive capacity of communities through fruit trees and fish production – however these value chains are not well understood – which limits interest but also ability to engage in them. Therefore, this activity will be conducted in all the 15 districts. This will inform linkages to better markets and contribute to more financial resources, jobs and food security.

90-91. Output 1.1.3 *Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change -associated extreme weather events and impacts:* This output will support and enhance diversified livelihoods to ensure that the livelihood options become more socioeconomically lucrative with improved systems of production and access to markets. Key activities will include:

- Activity 1.1.3.1: Support local level processing and marketing (branding and labelling) of selected crop and animal products, including enhancing phytosanitary services. This activity will focus on groundnuts, maize and rice, as well as chickens, goats and beef that are locally produced in the rural areas. Local chickens fetch better prices than broilers – and they could even sell for more if they could be better packaged, produced at scale and phytosanitary services provided. This activity will be implemented in the 15 districts of the project because local processing and marketing will be an empowering interventions to the local communities.
- Activity 1.1.3.2: Support the procuring and installation of small crop processing and storage facilities, smallholder irrigation systems, water supply and sanitation infrastructure, among others: This activity will be linked to activity 2.1.2.2 regarding production alliance model so that when smallholders produce small quantities, the produce is aggregated processed and stored in a facility in readiness for transportation to better markets. This will be done in all the districts, prioritizing those more isolated but with potential for more production.
- Activity 1.1.3.3: Identify and prioritize to repair five critical crossing points to facilitate market linkages between producer groups and buyers. Following floods in the southern province and already crumbling bridges in the 15 districts, five strategic crossing points will be prioritized under this activity – strategic in terms of number of beneficiaries and scale of production. This will be linked to the production alliance model under output 2.1.2. One crossing point will be in Luano district (central province), one in

Nchelenge (Luapula province), one in Kalomo, one in Choma and one in Monze (southern province) – to facilitate transportation of agricultural produce to markets, but also to facilitate community access to other social services such as schools and health facilities.

Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors

92. Lack of financial resources reduces communities' resilience and their ability to respond to the challenges of climate change. Lack of financial resources is tantamount to lack of access to socioeconomic livelihood options, beyond non-monetized and non-marketed non-wood forest products. The project will therefore engage with financial institutions, specifically ZANACO, AGORA, Vision Fund Zambia, UBA and NASCO. These financial institutions were involved in RUFEP on which this project is building. They have been engaged, and having with them in RUFEP will smoothen the transition and engagement with communities.

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92-93. Financial inclusion in rural areas is low at 55.9% with the national financial inclusion at 69.4%, up from 59.3% in 2015. The growth is mainly attributed to increased uptake of mobile money services (Finscope, 2020). Access to formal credit for small-scale agricultural producers is, however, extremely low. The cost of credit is very high; most of the available credit is short-term and credit is not yet extensively distributed as a digital financial service, which would lower its cost. De-risking market entry, cost sharing, market research, capacity building; and piloting new products and delivery mechanisms remain important areas to improve the current context of financial inclusion.

93-94. Increased incomes from agriculture also lead to investments in other sectors in rural areas and support the ability of households to make strategic long-term decisions and improve their overall resilience to external shocks by investing in both on and off-farm socioeconomic opportunities.

94-95. In this regard, component 2 complements component 1 by focusing on a very socioeconomically debilitating aspect of vulnerable people's coping strategies, resilience and adaptive capacities to the challenges of climate change – innovative financing to invest in climate-sensitive sectors that underpin livelihoods. CALRF recognises the importance and role of designing, developing, piloting and rolling-out of financial services such as insurance, savings, and credit, lease financing and refinancing to support businesses to adapt to climate change risks. In the context of the target districts, the project is cognizant of the need for cost-effective digital finance technologies that eliminate the need for users to travel long distances, frequently cycling or walking and then using motor vehicles with a huge carbon footprint to access financial services.

95-96. Through this component, the project will seek to support households to build a stronger financial base for investing in their livelihoods and link them to financial institutions to access formal credit. These will continue to act as buffers against short-term food security needs and increase households' ability to cope with idiosyncratic shocks. The intervention will focus on strengthening the informal savings activities of participants to ensure they graduate to formal financial platforms, through the introduction of branchless banking services such as mobile money transfer and agency banking technologies. Activities to promote savings group will act as an entry point and platform for discussing gender and HIV /AIDS and creating awareness around the importance of nutrition and diverse diets for the farmers during their weekly debriefs. The Component activities will leverage relevant community volunteers to promote financial inclusion for smallholder farmers in target districts by linking them to a variety of financial tools such as traditional microfinancing. The promotion of informal Agricultural Savings Group will lead to not only address the short-term food and nutrition security challenges and increase the beneficiaries' drive to access secondary products such as access to products insurance but also more so build the sufficient financial collateral required to access formal credit. It should be noted that provision of financial services will be on a need-basis following an in-depth assessment and appraisal by a financial service provider.

96-97. Additionally, the project will integrate lessons from other partners to support SMEs to have access to affordable finance options through blended products that considers the portfolio of the target segment of entrepreneurs. Key to this will be an analysis of the income cycles of the smallholder farmers that will guide in the design and development of tailor-made products that take into consideration movable assets in alignment to the legal framework. These will include rural development and rural finance systems that resonate with the needs of smallholder farmers. The project will draw on WFP work and partner network including government and private sector actors to formulate trade finance products as enablers to a sustainable and growing agriculture sector in Zambia. The project will leverage financing options such as Savings for Change and Warehouse Receipt Systems (WRS) for smallholder farmers to access desired inputs and functional output markets through a network of aggregators. The network of aggregators will provide a key channel for supporting smallholder farmers to access to trade finance .Furthermore, to guarantee off-taking through the commodity aggregation and WRS, WFP in partnership with relevant stakeholders such as banks, MFI will facilitate provision of affordable trade through access to viable markets. The project will generate improved appetite for smallholder investment into agricultural products and access to other.

97-98. The target districts and communities are in remote areas with poor quality and degrading natural resources, limited communication facilities and transportation networks and weak institutions. The areas are also highly underserved - with formal financial institutions avoiding failing to offer sustainable services in rural areas (e.g., rural or agricultural development banks). Land tenure issues where customary land cannot be collateralized to access financial services compound the vulnerability of rural communities. It should be reiterated here that while rural communities in the target districts live below the poverty datum line, they are also faced with extreme weather events that are erode even the meagre means of livelihoods they have. In this context, it is impossible for them to (re)build their resilience and adaptive capacities by investing in production landscapes and other sectors sensitive to climate change and climate variation.

98-99. Under component 2, in consideration of the context of the target districts, this project will support innovative financing tools acknowledging that people living in rural areas need access to financial services to capitalize on critical livelihood strategies, purchase agriculture inputs; obtain veterinary services; maintain infrastructure; contract labour for planting/harvesting; transport goods to markets; make/receive payments; manage peak season incomes to cover expenses in low seasons; invest in education, shelter, and health; or deal with emergencies – all of which are critical in enhancing community resilience and building adaptive capacities. The project could thus support apex level, capital-intensive investments in commonly owned adaptation assets such as water systems, cold chain facilities, community livestock health management and artificial insemination facilities to accelerate livestock production and agro-processing facilities that harness economies of scale and can be invested in collectively.

99-100. Following up on component 1, the project under component 2 recognises that building and diversifying livelihoods should happen within an enabling institutional arrangement, particularly when investments are in common pool resources that involve the interests of communities as a whole – or resources that are contested by different stakeholders with different interests. Under this component, therefore, the project will support creating an enabling environment for investing in climate-resilient sectors –to diversify livelihoods, build resilience and adaptive capacities. The components fully acknowledge that an enabling environment is required to channel financial, information and technological, leadership, and policy interventions into rural areas to enhance resilience and build community adaptive capacities.⁶¹

100-101. Embedded in component 2 is the need to increase the capacity and knowledge of farmers to access relevant and additional financial services (insurance) needed to protect their livelihood gains from climate-related impacts. This is particularly important given the increasing frequency of floods, droughts, changing rainfall conditions and other unpredictable events that will threaten the crops of vulnerable farmers. Most of these farmers do not have the knowledge or resources to access the types of products that provide the safety net needed to cope with changing climate conditions. Access to finance is also critical for

⁶¹ Arun Agrawal (2008). The Role of Local Institutions in Adaptation to Climate [Change](#)

adaptation, as it provides farmers with the additional capital needed to invest in adaptive changes that will only show returns after the growing season.

~~404-102.~~ Awareness and Literacy campaigns: Using Agriculture aggregators in livestock insurance plays a vital role in achieving economies of scale and increasing access. To be most effective, aggregators need to be locally established or at least well known and trusted by the local community, co-opting primary cooperatives and members of farmers' unions to explain insurance and by using opinion leaders and radio broadcasters to raise awareness among farmers.

~~402-103.~~ Support creation of a sustainability structure: Savings and Insurance Layering (SAIL) is an approach that can be established to increase farmers' ability to manage weather/climate risks. Considering that, there exists the lack of accurate weather data and potential resulting in basic risks, and the possibility of lack or small pay-outs during the year, farmers should be able to increase the level of their savings. The SAIL is designed to strengthen i) self-sufficiency through digital and financial literacy; ii) the capacity and willingness of farmers to save with the intent to manage losses brought about by less severe but more frequent weather events; and iii) the capacity and willingness of farmers to purchase insurance which is designed for more severe and less frequent events.

~~104.~~ Under component 2, to facilitate vulnerable communities' access to financial services and increase their investments in key climate-sensitive sectors in the target districts, the project will focus on the ~~following~~ outputs and associated activities below.

Outcome 2.1. Vulnerable communities in target provinces access financial services and increase their investments in key climate-sensitive sectors.

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~~403-105.~~ **Output 2.1.1** *Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards:* Lack of financial resources to invest in production systems is one of the most serious hurdles that rural poor people face. This output will focus on bridging the gap between financial service providers and rural communities that need financial services to enhance their resilience and build adaptive capacities – particularly by investing in viable agricultural systems that can improve both animal and crop production in terms of quality and quantity. Key activities will include:

- Activity 2.1.1.1: Conduct financial value chain analysis and risk assessment, including engaging financial service providers and providing technical and financial support in the design, development and testing/piloting and scaling of financial products, platforms, alternative distribution channels, credit enhancement mechanisms and financing instruments that speak to producer groups, SMEs and low income earners; This activity will aim at bringing financial services to communities, to make financial service providers more easily accessible to communities. Through the financial value chain analysis and risk assessment, the activity will build confidence in both the service providers and communities to engage in financial transactions. During consultations, communities were clear that service providers don't trust them, and so they can't lend us money. The idea is to demonstrate that rural communities can provide market and are a market for financial services – this will then inspire finance-based innovations to empower communities in socio-ecologically vulnerable contexts.

- Activity 2.1.1.2: Provide tailored financing solutions for agro dealers and other larger businesses working in the rural finance space (such as credit guarantees including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance) and for agricultural mechanization and climate smart technologies (e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units); During consultations, communities across all the 15 districts expressed the gap that exists between smallholder producers and agro-dealers and large scale agribusiness entities. To close

this gap, this activity will be strategic in that it will provide an incentive to agro-dealers and other larger businesses to support smallholders decentralized renewable energy sources, solar irrigation systems, solar cooling systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units – factors that will help smallholders to produce better thereby building their adaptation capacity and be able to bounce back should extreme weather events strike – which will happen because even as this revision is being done, most of the southern region and some parts of central Zambia are under water due to flooding. -

~~404.~~**106. Output 2.1.2** *Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out:* This output will focus on developing financing engagement tools that will bring service providers and beneficiaries together to support viable investment in climate-sensitive sectors. These tools will ensure that investments are viable, but also that communities are not disadvantaged in their engagements with financial service providers. In this regard, the project will serve as a broker between service providers and communities.

- Activity 2.1.2.1: Establishing the blended finance options to benefit 2,500 individuals: This activity will be an option to strengthen the ability of smallholders producing in socio-ecologically vulnerable districts to adapt better when hit by extreme weather events. This blended financing will therefore, offer an opportunity to viable smallholders to access this blended financing – benefiting 2,500 across all the 15 districts.- and
- Activity 2.1.2.2: Enhancing access to market systems and partnerships (production alliance model) that facilitate for climate resilient agricultural value chains and enhance access to finance to benefit 3,000 people. Smallholders produce smaller quantities, which limits economic viability. This is particularly critical in the context of poor road networks. Post-harvest losses are also a big problem where communities lose up to as high as 40% of their produce. Across the 15 districts, the production alliance model will support aggregation of produce and through market linkages, ensure that communities get better revenues from their produce. Aggregation of produce will ensure production at scale for economic viability. Because the goal will be to improve access to better markets, 3,000 viable smallholder producers will be identified and benefit from the production alliance model.

~~405.~~**107. Output 2.1.3** *Catalytic financing established:* Building on output 2.2, the project under output 2.3 will support the creation of two catalytic funds; one to support community-level investment initiatives, and the second for emergency food security and livelihood recovery to respond to urgent needs of particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts. The following will be the key activities:

- Activity 2.1.3.1: Digitalization of Savings Groups and Savings and Credit Cooperative Societies (SACCOs) considering the current technology architecture in the project's priority districts;- The activity will identify qualifying SACCOs to improve their systems to limit financial risks. Limiting financial risks for SACCOs in rural vulnerable contexts of the selected 15 districts means strengthening their ability to bounce back in case of extreme weather events. Also, it is easier for them to be linked to other markets outside their districts. It gives more opportunities do business and participate in financial markets for their agricultural products.
- Activity 2.1.3.2: Finance market driven- profitable climate resilient business solutions of viable producer organizations, including digitizing their accounting, financial management and reporting systems; During consultations in all the districts, communities indicated that cooperatives have a better multiplier effect of interventions than individuals. Through cooperatives, there is strong social capital which strengthens people's sense of commitment. This activity will therefore capacitate producer groups;- and to build and strengthen their business financial skills, digitizing their systems to increase transparency and accountability and ability to report, particularly when they need to make investments or access financial services. Viable organizations will first be identified from across the 15 districts, and then support given.

- Activity 2.1.3.3: Establish an emergency food security fund to respond to urgent needs particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts to support 4,000 households. Extreme weather events are a common phenomenon across Zambia, and food is the most critical emergency. Floods have become more common in the southern part of Zambia, and they are more difficult to respond to than droughts which tend to be in central and northern regions. Therefore, this activity will focus on seven districts (five in Southern and 2 in Western Provinces), covering 4,000 households.

~~406.108.~~ **Output 2.41.4** *Adaptation options based on district-level development plans supported, prioritized and funded through the revolving investment plans:* Institutionalizing climate-resilience strategies in development plans powerfully ensures sustainability and coordinated approach in responding to the impacts of climate change – particularly at local level where, despite experiences of extreme weather events, responses can be piecemeal to a perennial phenomenon. The key activities under this component will be structured around:

- Activity 2.41.4.14: Support the development of 15 strategies at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement; ~~and: Weak institutional and policy gaps at subnational levels limits the ability of communities to receive the support they need to adapt to particularly extreme weather events which tend to be sudden and unforeseen (due to limited warning system in many places). This activity across all the districts will therefore ensure enabling policy and institutional environment to mainstream climate change priorities in district level development planning, including in the use of Community Development Funds.~~
- Activity 2.1.4.2: Establish a Climate Adaptation Fund to facilitate blended financing structures to support the operationalization of the Digital Financial Services Collaborative Framework in CALRF's 15 target districts to ensure sustainability post-CALRF. This activity is based on the fact that vulnerable communities have little access to financial services, partly because of geographical isolation but also because they simply have no capital. In some cases, when they have it, they have no means to keep it safely or invest it – therefore, no long term perspectives to inspire investments in adaptation measures. This will be implemented in all the 15 districts to ensure access to financial services strengthens the adaptive capacity of vulnerable communities.

Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building

~~407.109.~~ Vulnerable communities in the target districts experience floods, droughts, change of rainfall season onsets, disease outbreaks – and are able to tell the frequency and intensity of these phenomena. However, this community-level knowledge of climate related changes is based on past experiences of the different phenomena. In terms of planning and improving people's ability to cope, community-level knowledge is not informing enough partly because it is limited to the specific areas of immediate experience. Cognizant of this limitation and the impact that this has on planning, resilience and building adaptive capacities, the project under component 3 will develop key aspects of knowledge required to support well-informed, systematic, evidence-based adaptation activities, raise awareness among the target populations on the impacts of climate change, production landscapes (for both crop and animal production), and food security and nutrition. The project will also support enhancing capacity for understanding climate change risks, responses and planning approaches, for systematic and effective sub-national planning in the targeted 15 districts.

~~408.110.~~ Additionally, in light of the importance of information to cope with the impacts and or extreme weather events, the project under this output will support incorporation of climate information services in the programming to mitigate the impact of shocks, by transferring knowledge and information to smallholder farmers. This will enable them to make –well-informed easily accessible, timely and relevant decisions to cope with negative effects of increased climate variability, which will ultimately limit the

economic and social damage caused by shocks. Access to early warning systems such as climate information is a critical risk reduction strategy that allows vulnerable smallholders to manage climate risks through better choices on inputs and practices. To achieve this, the Ministry of Green' Economy will at the core of the implementation of this activity in close collaboration with Ministry of Agriculture in providing a comprehensive farmer tailored agro-met advisory messages, seasonal weather and crop forecast to smallholder farmers which is key especially for seed multiplication. Part of this process will include installation of rain gauges to augment the national system, not just for weather information collection but for training farmers in the recording, interpretation, and dissemination. This will form part of the Community Agrometeorological Participatory Extension System that will enhance farmer-to-farmer extension support done through producer groups.

111. To ensure that relevant project stakeholders, particularly the target population have improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at sub-national levels the project will focus on the ~~following~~ output with its associated activities ~~below~~:

Outcome 3.1 Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level

~~409-112.~~ Output 3.1.1 Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building: This output will build on output 1.1.1 to ensure community awareness of the challenges and risks of climate change, including building the capacities climate change impact communication by relevant stakeholders to more effectively respond to impacts, and easy access to information systems. Key activities will include the following:

- Activity 3.1.1.1: Strengthen climate change and extreme weather-related information systems in 15 target districts, including training in climate change and systematic adaptation planning and policy process to reach target audience and train them in using the information to prioritize adaptation options in component 1: This activity focuses on the delivery of weather, climate and hydrological, and early warning services to ensure users have access, understand, and use these information services for decision making and risk preparedness. The objective is to deliver user-friendly and tailored weather, climate, and early warning services for climate adaptation, resilience, and disaster preparedness. During consultations, it was clear that most community members recognize that weather patterns have changed, including late yet short rainy seasons, extreme temperatures and frequency in floods. Traditional knowledge for reading seasonal changes can't be relied upon anymore. Therefore, more versatile and easily accessible information systems are required to inform community members with simple phones. Information will be spread through meteorological departments in collaboration with the Ministry of Agriculture and Environment Department – ensuring information on weather changes according to district geographical locations is accurate and reliable;
- Activity 3.1.1.2: Establish crop and livestock production and environmental data hub in target provinces; Each province will have an environmental hub within the Provincial Administrative Office of the Ministry of Agriculture, department of agricultural marketing and information as a one stop-shop for project implementation within the province. Thus, there will be ~~and~~ five hubs under the project, one in each province.
- Activity 3.1.1.3: Develop tools for knowledge generation, management and dissemination mechanisms: The project will generate knowledge about best practices and lessons that can be used by future investments. These will relate to community mobilization and community-level adaptation capacities through various concrete interventions of which communities will be beneficiaries in this project. The project will have a website to showcase its implementation. It will also produce information at midterm to disseminate achievements. Finally, it will periodically run programs on radio and national TV stations to disseminate best practices and lessons learnt.

B. Economic, social and environmental benefits

113. The design of CALRF is informed by socioeconomic and environmental vulnerable contexts of target districts – paying particular attention to marginalized and vulnerable members who constitute women, the youth and those living below the poverty datum line. The exclusion of women and youth is partly a socio-cultural phenomenon – women are ascribed certain statuses and roles that keep them away from accessing and using resources for their socioeconomic prosperity. Typically, in rural Zambia, leadership positions largely remain a privilege of men to the exclusion of women and the youth. In this regard, they are socioeconomically marginalized. This exacerbates the vulnerability of women and the youth in rural areas where poverty levels already are stubbornly high. To ensure the vulnerable and marginalized groups access benefits, CALRF will employ participatory approaches and will continue, during project implementation, to engage these groups in decisions regarding the choice and prioritization of activities, monitoring systems and grievance mechanisms. The project will strive to ensure vulnerable groups will equitably benefit from all proposed project activities and reflect context-specific eco-zonal characteristics, local institutions and individual and community asset portfolios.

CALRF will have the following Social and Economic and Environmental benefits:

Socio-economic~~a~~ benefits

114. The project will continue to be inclusive and will ensure that the different categories of beneficiaries participate, are included and benefit from the project activities. Communities have been part of consultations that have informed the design of this project – and therefore, they will also be part of the benefit sharing mechanisms of socioeconomic and environmental benefits. It should be noted that the project will work with producer groups/cooperatives. Therefore, the project will strengthen existing benefit sharing mechanisms in groups. In other cases, direct financial compensation and access to employment (e.g value chains) or training opportunities (stakeholder and government personnel at subnational levels) will be used. The project notes that effective benefit sharing requires clear communication and transparency in decision-making, as well as the involvement of community members in the design and implementation of mechanisms. By promoting inclusivity and collaboration, benefit sharing in this project helps to build trust and foster a sense of ownership among community members, leading to more sustainable and equitable resource management practices but also the sharing of socioeconomic benefits. Establishing clear benefit mechanisms in groups will be part of social safeguard screening criterion in vetting cooperatives/producer groups.
115. It should be noted that due to their limited access to resources, decision-making power, and economic opportunities, women, the youth and the differently abled tend to be more vulnerable in the target districts. Despite their significant contributions to the conservation and management of natural resources, they often face discrimination and marginalization in accessing these resources. Women, in particular, face gender-based violence and cultural norms that restrict their mobility and decision-making power. Youth face high unemployment rates, limited education opportunities, and a lack of representation in decision-making bodies. To address these issues, it is important to promote gender-sensitive mechanisms to include and engage women and youth in decision-making processes of project activities, and create economic opportunities that are inclusive and empowering. For this project, this will be in all project activities so that they have access to food, financial resources, jobs (even those that do not require formal skills), markets, capacity and training programs and extension services as well as climate-resilient varieties. They will be supported to join existing cooperatives though some are already members in producer groups.
116. During consultations, beneficiary groups (women, youth, differently abled) have been identified as priority groups based on their socioecological vulnerabilities. Through consultations, priority intervention areas have been informed in the development of the project. In the section under activities, references have been made to community reflections on their pressing challenges. The actual beneficiaries within the target districts of the different project activities will be identified at the start of the project. Building on observations during community consultations, in a context of rapidly changing socio-economic dynamics,

~~beneficiary eligibility criteria for each activity will be defined and validated with communities involving young people, women and the most vulnerable. The criteria will be discussed objectively focus on factors related to (land size or number of animals, type of housing, level of education, etc.) and associated with assessments of maturity, residence or motivation. The vulnerability criteria will be at two levels: ecological vulnerability (households in degraded production landscapes but also more exposed to extreme weather events); and socioeconomic (asset portfolio of the individual/household). This is very critical because, based on field observation during community consultations, no homogeneity can be among community members. Therefore, the triaging process is critical. These levels of screening will ensure inclusion of the most vulnerable and most deserving. Overall, the implementation of this project will have positive socio-economic impacts associated with the implementation of the project including (i) increased capacity of stakeholders for the development and implementation of resilient approaches to the adverse effects of climate change; (ii) job creation; (iii) contribution to food security; (iv) Improvement of women's incomes and development; (v) Improving the nutritional health of populations; (vi) Improvement of farmers' production and incomes; (vii) reducing rural-urban migration; and (viii) enhancement of social capital and improvement of community life. The quantitative estimates are tabulated below:~~

- ~~• 4,000 households (or 46% of the target household) are food secure during extreme weather events in 7 districts.~~
- ~~• About 1,200 jobs through the support towards value chains.~~
- ~~• 29% of target population access financial resources through blended financing which will reduce their vulnerability by 30% with potential to invest climate resilient production systems.~~
- ~~• At least 4,000 smallholders (or 46% of the target households) within the target districts have their production improved, and 50% of them qualify to access financial resources through the Climate Adaptation Fund to help them insure their crops.~~
- ~~• 8,680 households have access to early warning systems, preparing them to take adaptive measures, including changing geographical locations to avoid floods – thereby avoiding loss of property, animal life and crops. Access to warning information will can help communities to bounce back since it helps to avoid loss of the assets.~~
- ~~• Assessment of financial value chains leads to the creation of market products that benefit at least five producer groups to access financial resources from financial service providers – thereby enabling 100% crop insurance scheme against the impacts of climate change or extreme weather events (floods and droughts). For participating householders, this will ensure 100% return from their production costs in the event food crops fail due to extreme weather events.~~

~~444-117.~~ *Solid Targeting strategy based on participatory community mobilisation, engagement – CALRF is anchored on participatory approaches, and as such, the dynamism of targeting will be dependent on the community mobilisation and engagement under component 1. The combination of social inclusion strategy, beneficiary selection criteria and community engagement technique will ensure that all views are given due consideration. CALRF will work with community members and associations including representatives of various community organisations from the districts for orientation sessions to (i) inform the communities about the objectives and criteria for participation; (ii) seek community consensus about the relevance of the planned activities and ascertain their interest in participating in the different interventions; (iii) hold separate consultations with different target groups, including women, youth and persons with disabilities to collate their experiences and expectations of the programme and (iv) identify key issues and determine how the concerns will be addressed through the various project components.*

~~442-118.~~ The project will put several measures in place to minimize risk of elite capture. This will be achieved through close supervision and monitoring through community facilitators, beneficiary feedback and a grievance redress system. Furthermore, the economic homogeneity of members will provide insulation against elite capture. Additional measures will include rotation of leadership to ensure the village poor are equally represented in leadership positions within the participating community organisations. The Gender

Action Learning System (GALS) approach, which gives individuals a strong sense of agency and empowerment, will further help to mitigate against this risk. GALS, is an innovative community-led methodology that comprises a series of tools enabling household members to negotiate their needs and interests, and find innovative, gender-equitable solutions, in livelihoods planning and value chain development.

443-119. The project will adopt a gender sensitive approach and will ensure that women participate in and benefit as much as men benefit from the project intervention. A gender strategy is under development to support the targeting mechanisms under the RUFEP IFAD funded project; a gender assessment and action plan will be advanced under this CALRF project. The main factors of exclusion of women and young women will be taken into account throughout the project implementation, including the weight of customs and traditions, early marriage, and the lower level of education, which weakens their access to socio-economic opportunities. In addition, the GALS will enable both the most disadvantaged and minorities to be included in the dynamics of the project, while addressing the root causes of gender inequalities and fostering collaboration between the generations. The project will also ensure that women are represented in the project decision-making processes.

444-120. The purpose of the GALS methodology is to give women more control over their lives and to catalyze and support a sustainable movement for gender justice. GALS promotes equality in rights and opportunities by:

- Empowering the most vulnerable women and men to develop, negotiate, implement and monitor their own plans for increasing productivity/quality and incomes, reducing livelihood risks and increasing gender equality within households;
- Bringing about significant changes in property rights, gender-based violence and participation in economic decision-making;
- In the context of value chain development, engaging with and gaining commitment of more powerful private-sector actors (particularly for mango and rice) at the local and national levels to develop win-win strategies for value chain development that address gender issues and promote inclusion of the most vulnerable.

445-121. *Community ownership, including vulnerable groups of adaptation processes associated with climate change:* Knowledge is power. Through the capacity building activities, the project will empower vulnerable community members to make their own decisions about the investments in enhancing the resilience of their livelihoods. The end line investments are expected to ensure increased land under climate resilient practices, sustainable land and water resources development, soils fertility improvement, improved ecosystems and services, reduced post-harvest losses and diversification of livelihoods thus reducing vulnerability and any potential negative impacts from agricultural activities.

446-122. *Gender inclusion:* Zambia is in the medium category with a SIGI gender index value of 35% - and women score as low as 0%, 25% and 25% on legal framework access to non-land assets, to land assets and to financial services, respectively – compared to men.⁶² The project will be deliberate about gender inclusion in the project activities, including strategic decision-making processes that will ensure equitable representation of both men and women and the youth in accessing socioeconomic benefits from the project activities – particularly, access to financial services and support. This will be consistent with Zambia's National Gender Policy of 2014 and the Gender Equity and Equality Act of 2015 that aim at gender equality in the development processes by redressing existing gender imbalances, and promoting gender equity and equality, respectively. Additionally, guided by IFAD's mainstreaming agenda for gender and youth as well as IFAD's targeting policy, the project will aim to reach at least 50% women among the beneficiaries and 30% youth. Social inclusion, particularly of vulnerable and marginalized groups will be

⁶² OECD (2019). Social Institutions and Gender Index (SIGI): [Zambia](#) country profile

part of the targeting strategy for the project.

417-123. It should be mentioned that the design of CALRF has considered the fact that Zambia is still emerging from the COVID-19 pandemic. The pandemic has resulted in the loss of human lives and rural livelihoods across Africa, and Zambia has not been exempted. The way in which COVID-19 affects men and women is, however shaped by intersecting vulnerabilities and social differences in socioeconomic status, sex, and gender identity. COVID-19 pandemic has heightened or sharpened labour burdens for household more generally, and for women specifically. Some of these relate to care burdens and labour market engagement. Female-headed households face unique challenges than their male counterparts and that there might be pre-existing conditions that shape their vulnerability beyond the pandemic.⁶³ Additionally, there are problems to do with access to productive and livelihood resources such as land, which further constrains women's ability to cope with the impacts of extreme weather events within the COVID-19 pandemic context. Stay-at-home orders and social restrictions have increased unpaid care workloads, which have fallen disproportionately on women. As has already been alluded to, the CALRF will be deliberate about its equitable approach in supporting diversified, resilient and sustainable livelihood options so that the benefits pay gender dividends.

418-124. *Improving food security and nutrition:* CALRF will support intensification of food crop and pasture production in target districts as well as climate-smart agriculture, including the use of climate-resilient varieties to boost agricultural production and more effective use of agricultural inputs. These activities will positively impact 8,680 households in 15 rural communities in ways that will avert food insecurity and poor nutrition linked to climate change extreme events. The project is posed to secure people's livelihoods by providing support to farmer groups so that they are able to better adapt to climate change and improve their agricultural practices. This will ensure more availability of food crops with surplus for sale, which will improve the purchasing power of households. Increased agricultural yields, diversification of income generating activities and the establishment of catalytic financing will equally contribute to enhancing the purchasing power of households, enabling them to buy other foods thereby rendering households more food and nutritionally secured.

419-125. *Increased access to improved financial services and enhanced incomes:* Limited access to financial services of any form in rural areas limits vulnerable people's ability to cope with the impacts of climate change. To the benefit of 4,000 households, CALRF will support food security and livelihood recovery through counter-cyclical financing. The project will also finance market driven- profitable climate resilient business solutions to insulate communities from complete socioeconomic collapse in case of extreme weather events such as droughts and floods or disease outbreaks, which can decimate fields of crops. Furthermore, the project will facilitate improved access to agricultural loans and the procurement and installation of small crop processing and storage facilities. These will enhance and diversify incomes of beneficiaries to improve their ability to cope with impacts of extreme weather events.

Through the knock-on effects of improved livelihood income streams, communities will potentially have more investment options into off-farm enterprises/activities - which limit the exploitation of natural resources. In this regard, the Adaptation Fund investments in the selected districts will yield socioeconomic benefits and contribute to protection of land and associated resources from over-exploitation.

Environmental benefits

Land rehabilitation and restoration of modified ecosystems: These two processes can have immense benefits to communities and the environment that might have been modified by natural or human factors. It should be noted that ecosystem restoration as a nature-based solution, can help address global challenges of biodiversity, climate change, and sustainable development.⁶⁴ Given the role and reliance on land and associated resources, healthy ecosystems can contribute to ending poverty, combat climate change while supporting biodiversity conservation. CALRF will use mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds to ensure land rehabilitation and land

⁶³ Manda, S. (2022). Impact of COVID-19 Pandemic on Rural Livelihoods in Zambia: A Gender and Wellbeing Perspective. Working paper, IDRC-Oxfam

⁶⁴ UN Ecosystem Restoration, UNEP & FAO (n.d). Preventing, halting and reversing the degradation of [ecosystems](#) worldwide

restoration and avoid forest and degradation on 1,000 ha that would otherwise lead to the loss of the socioeconomic and environmental productivity of land – thus leading to carbon emissions and loss of biodiversity loss.

Support towards climate and biodiversity-positive sustainable agricultural production systems: CALRF will support food crop production systems that do not impose any harm to environment, biodiversity, and quality of agricultural crops. Producing crops sustainably increases the ability of the system to maintain stable levels of food production and quality for long term without increasing the demand and requirements of agricultural chemical inputs to control the system. CALRF's approach will ensure support to production systems that keep the soil alive with organic matter, integrated pest management and reduction in usage of pesticides, protecting biodiversity, ensuring food safety and food quality, improving nutrient quality, and fertilizing the soil with organic fertilizers. It should be noted that sustainable agricultural production leads to lowering of greenhouse gas emission and overall carbon footprint. Sustainably produced crops and food are more beneficial to consume by humans as compared to commercial crops. Sustainable usage of resources ensures the pollution-free environment for our future generations.⁶⁵ The project will support sustainable crop and animal production systems on at least 3,000 ha of land under the stress of extreme weather events in the target districts. The project's support towards Integrated Pest Management, rainwater harvesting systems and agro-forestry – linked to nurseries at community level on 1,000 ha, and climate smart agriculture on 1,000 ha, focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts, and land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha will have positive benefits on the environment. Finally, CALRF will support the adoption of sustainable agricultural practices (including procuring more productive and drought-tolerant seeds, crop diversification, composting and mulching) on 1,500 ha. The combined effect of these interventions will have an overall positive impact on the environment while broadening the socioeconomic base of communities in the target districts – thus, having double impact on social and environmental wellbeing.

420-126. *Mechanisms for equitable distribution of benefits:* The project has been designed to address challenges related limited livelihood options that amplifies community reliance and exploitation of natural resources, and limited financing systems to build community adaptive capacities in climate sensitive sectors in target districts. CALRF will therefore, target vulnerable communities. To ensure more effective and equitable distribution of benefits, the project has employed geographical targeting mechanism considering the climatic challenges and the socioeconomic context of communities (see section on Project Area and Target Group). CALRF's geographic targeting mechanism will ensure (a) identification of eligible priority zones of intervention; (b) continued coherence with national priorities; (c) development of context-specific pro-vulnerable household and individual resource allocation targets; and (d) orientation and facilitation of efforts, particularly to identify 'benefit-deserving and eligible' communities, households and individuals that may require additional training to access benefits. Point (d) will also ensure avoidance of 'elite capture' where more privileged members of communities in the target districts take front rows in accessing and using benefits. Linked to geographic targeting, CALRF will also build participatory and inclusive processes at the community level: (a) mobilizing and identifying needs of communities; (b) forming functioning community management committees; and (c) establishing social control mechanisms.⁶⁶

421-127. *Avoiding or mitigating negative impacts:* The implementation of CALRF will ensure the following to avoid or minimise negative social or environmental impacts: i) inclusive and representative community engagement in project activities; ii) continued consultations and engagement with beneficiary communities, including vulnerable groups; iii) collaboration with national and local authorities during the project cycle; iv) technical assistance throughout the project cycle on all technical matters related to the project; v) implementing CALRF's activities in accordance with national standards and safeguards consistent with national strategies; vi) establishing a robust complaints and feedback mechanism; and

⁶⁵ Imad R. S. (2016). Sustainable Crop Production System *Plant, Soil and Microbes* pp 103–116

⁶⁶ Julie Van Domelen. (2007). [Reaching the Poor and Vulnerable: Targeting Strategies for Social Funds and other Community-Driven Programs](#)

vii) screening project activities for environmental and social risks in accordance with the AF and IFAD Environmental and Social Policies.

C. Cost-effectiveness of the proposed project

[422-128.](#) In demonstrating cost-effectiveness, the development of CALRF embeds sustainability and describes a comparison to an alternative scenario that would prove less cost-effective. Additionally, the project design has been done in such a manner as to maximize the benefits from 'concrete' interventions under components 1 and 2 to directly benefit the most vulnerable populations. The project has limited the 'soft' interventions to those activities required to support the appropriate and enabling environment for the implementation of the 'concrete' interventions in components 1 and 2. 'Soft' interventions in component 3 support the planning and climate change awareness-raising processes, which are meant to facilitate the implementation and solidification of concrete activities in components 1 and 2. In this regard, the project has been designed to 'put money where the climate adaptation mouth is.' The choice of proposed activities has been done in consultation with communities and different stakeholders – and therefore, the prioritization of concrete interventions over soft ones with community support will ensure sustainability of what the project will achieve. This approach is strategically cost-effective.

[423-129.](#) As has already been noted, CALRF builds on the successes and lessons of RUFEP that has been working with different partners at national and subnational levels to promote the rural poor and vulnerable people's access to sustainable financial services and products. From the onset, it has a choice from a network of over 50 proven partners to 'ride on and hit the ground running.' This will significantly shorten the learning period and facilitate community mobilisation. Building on RUFEP in this regard, will therefore, prove to be cost-effective in that no additional costs in terms of financial resources and time will be required for identification of partners. Experience has shown that completely new areas require more community mobilization and engagement, advocacy for the project, stakeholder identification and social buy-in and acceptance. To varying levels, these social and participatory processes have financial and time costs. In the case of CALRF, these processes will not have the same level of complexity, thus contributing to project cost-effectiveness. It has already been mentioned that in the consultation processes, stakeholders (e.g. Zambian Rainbow Development Foundation in central province) who were involved in RUFEP have been involved in the design of CALRF – and that has been an opportunity to share experiences regarding community engagement, socioeconomic and ecological vulnerability contexts of target communities, among others. CALRF consolidates the achievements of RUFEP, and scales its interventions to primarily address the adaptation challenges at micro level – communities. The alternative scenario would have been duplicating what RUFEP has done in the target districts and collaborating with a new cohort of partners, some of which may not be based in the target districts. The duplication would be a waste of financial resources, while collaborating with other new partners would have lengthened the learning curve. In project management, controlling for time, knowledge level of partners and financial costs can make a huge difference in cost-effectiveness of the project.

[424-130.](#) Linked to this point is that the project will build capacities of 500 relevant stakeholders using national experts who have been involved in the implementation of RUFEP. These capacities will be used to strengthen policy mainstreaming to support adaptation implementation at local levels. Capacities through awareness-raising will also support rural communities to cope better with risks and develop agile adaptive strategies, including migrating to higher lands to avoid floods which destroy their property, crops and lead to ill health. For example, rebuilding the asset portfolio after floods and or droughts for those who did not have knowledge or any level of awareness and did not take any actions would be more expensive than a household that moved to a higher land. Knowledge is power, and the context of the design of this project, awareness-raising will empower rural communities to risk less and pay less for the impacts of extreme weather events associated with climate variability and change. It should be noted that community access to the information they need in a timely and more easily understandable way will support their ability to make informed decisions regarding their livelihoods and agricultural practices, thus enabling them to adapt to a changing climate. Consequently, communities are expected to increase their yields and reduce the losses and food and nutrition insecurity.

425-131. From the sustainability angle to demonstrate cost-effectiveness, it is reiterated here that CALRF is a people's process and community-level project. The project support towards targeted climate sensitive capacity needs assessment to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members), enhancing knowledge through trainings of smallholder farmers in climate smart agriculture trainings around selected value chains (promote climate resilient varieties, soil management, water use efficiency etc.), formation of commodity based cooperatives/ farmer organisations, facilitate their access to production inputs (linkage to Farmer Input Support Program and agro dealers) and facilitate linkages to larger agro input suppliers and Support bulk purchase of production inputs, and capacity development of individual and farmer groups in entrepreneurship and market literacy, group business management, group governance, and advocacy, and promoting diversification livelihood strategies beyond farm level interventions among others are meant to expand socioeconomic opportunities of local communities – thus, the project will put the resources where it matters the most for local communities. Socioeconomic interventions will be targeted and tailored interventions that will squarely speak to the adaptation challenges of communities in CALRF's catchment districts. Therefore, there is both a social and economic incentive for community engagement, community ownership and sustaining of project outcomes beyond the life of the project – that is, there is enough reason to believe that there will be abundant community care to reduce the cost of project activities.

426-132. As a people's process and community-level project, the project activities will be cost effective compared to larger scale procurement processes that have neither community input and involvement nor local context. CALRF builds on community decision-making, local know-how and networks and facilitation, where the maximum value of every dollar is spent to maximize the socioeconomic benefits of vulnerable community members in vulnerable district - in a transparent decision-making process that reflects community struggles but also aspirations for improved ability to adapt to the impacts of climate change and extreme weather events.

427-133. In addition to the foregoing, CALRF has a deliberate focus on building and strengthening both formal and informal institutional mechanisms to ensure sustainability (for example, innovative financing with linkages among stakeholders, improving capacity of public extension systems to enhance knowledge through trainings of smallholder farmers in climate smart agriculture training around selected value chains, promote climate resilient varieties, soil management, water use efficiency etc.). Building capacities to improve extension services in target districts of 150 staff to support veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general); management of post-harvest losses; crop disease outbreaks (crop husbandry services in general and aquaculture, among others). This level of institutional strengthening and capacity development creates opportunity for stakeholder collaboration and produce more lasting positive impact on the project while minimizing any chances for maladaptation which would otherwise be wasteful of resources. The alternative scenario of only supporting with livelihood opportunities and infrastructure without capacity development of communities and their allied stakeholders would only hold during the life of the project. Beyond the life of the project, all achievements would not be sustained but would simply crumble.

428-134. In the Seventh National Development Plan (NDP), the estimated loss of annual economic growth in Zambia due to climate change is 0.4% of GDP. Rainfall variability alone could lead to a loss of 0.9% of GDP growth.⁶⁷ This is about \$223⁶⁸ GDP per capita that will be lost. For the total number of direct beneficiaries of this project (43,400 individuals or 8,680 households), the loss associated with climate variability would be about \$9,678,200 annually. In this project, addressing climate variability and change focusing on diversifying livelihood options (monetary and non-monetary terms) that will enhance resilience and build community adaptive capacities beyond GDP parameters, the cost is \$5.8 m – building asset portfolios with potential to enhance and strengthen adaptive capacities of the vulnerable and poor

⁶⁷ Makondo et al. 2014, MTENR 2007, Sishekanu 2013

⁶⁸ This is based on the current population estimation of [Zambia](#) (~19.2 million people) and the projected loss in GDP over the next decade.

communities will be direct beneficiaries plus more indirect beneficiaries beyond a decade.

429-135. The project proposes facilitating financial access to enable communities to invest in climate-sensitive areas by creating a catalytic fund. Running the fund to benefit participating members will be far much cheaper and nothing close to commercial banks that charge interest rates in the order of 30 to 35%. The fund will contribute to the community's awareness of adaptation and climate change impacts. This will be complemented and enhanced through training on accessing innovative financing for adaptation.

430-136. Thus, learning from past and on-going interventions, community engagement, capacity and institutional development for sustainability, improved access to financial services, including a catalytic fund, and early interventions in climate change critical sectors are strategic ways to make CALRF more cost-effective.

434-137. In light of the above, by focusing and prioritizing concrete adaptation measures over soft interventions (and this is reflected in the project activity costs allocated to components 1 and 2 compared to component 3 which is focused on soft interventions), the project is overall seeking:

- Avoiding and mitigating future costs associated with damage and loss of property and environmental degradation owing to the impacts of climate change and extreme weather events;
- Identification of priority activities and vulnerable people and their socioecological systems to ensure more targeted interventions that respond to the specific challenges related to climate change and extreme weather events;
- Building on the model of RUFEP, drawing on 'in-house' technical support options and capacity building expertise which will be cheaper than outsourcing and 'starting from scratch' which would lengthen the learning curve;
- Building capacity of direct beneficiaries and district level institutional structures to strengthen partnerships for sustainability – building local level structures and partnerships will reduce the need for additional capacity development in the future to address the impacts of climate change;
- Community involvement in concrete activities for the project will ensure that the technical selection of interventions reflect pragmatism (what communities are capable of managing with minimum or no additional technical support beyond the life of the project), and cost effectiveness. The involvement of communities is cost-effectiveness strategy for this project.

In addition to the points above, the table below includes the cost-effectiveness of the project.

<u>Component</u>	<u>Without project</u>	<u>With AF project</u>	<u>Difference</u>
<u>Component 1: Building and promoting equitable, resilient and sustainable community livelihood options</u>	<u>Limited livelihood options and community reliance on the exploitation of natural resources: Poverty in Zambia is more acute in rural areas where nearly 60% of the people experience food insecurity, particularly during the lean season. This is largely due to a combination of factors, including poverty, low agricultural productivity, climate change, and limited access to markets and services. Food insecurity in rural areas results in malnutrition, particularly among children, women and the elderly, and can exacerbate poverty and contribute to poor health and reduced quality of life. Therefore, there is limited space for communities to have diversified resilient livelihoods to see them through in times of</u>	<u>Through this project, rural community-based organisation groups (women, youth & and other producer groups) will own adaptation processes associated with climate change; 1,000 ha of land will be brought under sustainable crop and animal production systems, livelihood strategies of the vulnerable members in the target districts will be established and strengthened in response to the impacts of climate change and extreme weather events; and infrastructure for crop and animal marketing will be supported to increase 'the buffer socioeconomic' space for rural communities.</u> <u>The approach is preventive than curative, making it cheaper</u>	<u>Through this project, diversified livelihood options will be promoted and strengthened, including building the resilience and adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events.</u>

	<u>extreme weather events, but they are not able to invest in adaptation measures.</u>	<u>compared to repairing and addressing disasters because community ability to adapt have been extremely weak. This approach is likely to reduce the cost of addressing the impacts of climate change by almost 50%.</u>	
<u>Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors</u>	<u>Limited financing systems to build community adaptive capacities in climate sensitive sectors: Accessing financial services in rural Zambia remains a significant challenge for many rural communities, limiting their ability to invest and improve their livelihoods. The major challenges include limited financial infrastructure, low levels of financial literacy and awareness, high transaction costs, and low levels of trust in formal financial institutions. These barriers prevent rural communities from accessing loans, savings and insurance products, and make it difficult for them to invest in their businesses or to diversify their livelihoods. This lack of access to financial services undermines rural communities' ability to cope with shocks and risks, such as those posed by climate change, and limits their potential to grow and develop their communities.</u>	<u>Through this project, financial services will get within the reach of communities in rural areas to enable them make investments in sectors that sustain their livelihoods but which are also sensitive to climate change. Therefore, the ability to invest in strategic sector is key to wealth creation that lessens reliance on the exploitation of natural resources. This has two wins: it lessens the rate of environmental degradation, and second, when resources are degraded due to extreme weather events, financially empowered communities who have invested in other sectors will not be impacted the most in a very direct way. Rehabilitating land and forests that have been degraded in an expensive undertaking compared to interventions that seek to invest in these resources to prevent them from being degraded. For example, investing in agroforestry system in Zambia per ha is about 80 - \$100. Rehabilitating the same size that is degraded is nearly \$250 300.</u>	<u>Vulnerable communities in target provinces access financial services and increase their investments in key climate-sensitive sectors. This ability to make investments in key climate-sensitive sectors is a game changer that will transform livelihoods and production landscapes.</u>
<u>Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building</u>	<u>Limited in some cases and non-existence in others of institutional capacities particularly at sub-national level to implement adaptation measures, including information access to support community ability to prepare for extreme weather events – leading to loss of property, human and animal lives that could have been avoided had people had access to early warning information. This is costing the government and other partners resources to respond to flood victims, diverting already meagre resources from other equally important sectors.</u>	<u>The project will build capacities at different levels, including 150 personnel at district levels in all the target districts. Training local capacity with familiarity with local contexts is desirable for different reasons: extension services can be done with a clear understanding of the sociocultural context and in the language that communities understand (ensuring effective communication – encouraging adoption). Second, local expertise is always cheaper than hiring international expertise. The building of local capacity will be cost-effective by 3 to 5 times that it would be to hire international experts.</u>	<u>Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level</u>

D. Project consistence with national or sub-national sustainable development strategies

432-138. The GRZ has demonstrated its commitment towards achieving the Sustainable Development Goals (SDGs). In the 8th NDP, the GRZ strategic interventions are economic transformation and job creation, human and social development, environmental sustainability and good governance environment. It also reflects the prioritization of Zambia's international and regional commitments under various frameworks, including the last decade of action towards the realization of the Sustainable Development Goals (SDGs) and the African Union Agenda 2063.

433-139. The GRZ national agriculture policy is focused on improving support for small-scale farmers and creating conditions for them to more effectively contribute to the growth of the agriculture sector, this pillar on the Government's commitment to implement a comprehensive agriculture support programme (CASP) beginning in the 2022/2023 farming season. To bridge economic transformation and agricultural production, the Government has prioritized the promotion of value-addition in agriculture and agricultural mechanization. The Government also promotes farm block development with special focus on diversification of crops and expansion of the livestock and fisheries sub-sectors.

434-140. National priorities on climate change have been elaborated through several key documents, between 2007 and 2016. The table below details key national strategies and documents that are more directly relevant to the implementation of CALRF.

Zambia National policies/strategies consistent with CALRF
<ul style="list-style-type: none">• <i>Zambia National Adaptation Programme of Action (NAPA) in 2007:</i> The NAPA highlights that communities are vulnerable to climatic hazards (drought, flooding, extreme temperatures and prolonged dry spells), which precipitate widespread crop failure, negatively impact food and water security and affect the sustainability of rural livelihoods. It recognizes agriculture as one of the five sectors most vulnerable to climate change impacts.⁶⁹ CALRF therefore, is relevant to reducing the agricultural sector's vulnerability through support towards climate-smart agriculture in the target districts, climate resilient varieties, multiplication and dissemination and integrated pest management and soil management, among others.• <i>National Climate Change Response Strategy (NCCRS) in 2010:</i> The NCCRS mission is "to ensure that the most vulnerable sectors of the economy are climate proofed and sustainable development achieved through the promotion of low carbon development pathways".⁷⁰ Key actions planned under NCCRS include: to develop sustainable land use systems to enhance agricultural production and ensure food security; to ensure sustainable management and resilience of water resources; and to develop a less carbon-intensive and climate change-resilient energy infrastructure and grow using a low carbon path.⁷¹ CALRF is relevant to NCCRS through support to activities related to community-level coping and management strategies of climate change adaptation initiatives, land rehabilitation and restoration and adoption of sustainable agricultural practices (including procuring more productive and drought-tolerant seeds); aquaculture; crop diversification; install composting and mulching facilities; provide soil testing services; bee-keeping; among others.• <i>Nationally Determined Contribution (NDC) in 2015 and updated in 2020:</i> The NDC intends to reduce CO₂ emissions by implementing: (i) sustainable forest management; (ii) climate-smart agriculture (CSA); and (iii)

⁶⁹ MTENR 2007

⁷⁰ Overall, NCCRS addresses five focal areas: adaptation and risk reduction, mitigation and low carbon development, cross cutting issues, governance issues and finance/investment framework. The NCCRS further identifies priorities for adaptation and mitigation, and proposes an institutional structure for CC in Zambia (the National Climate Change and Development Council). The planning process also recognizes the efforts being made to establish the National Climate Change Development Council for CC coordination in the country as stipulated in the NPCC. Furthermore, the National Designated Authority (NDA) for the Green Climate Fund has already been designated and is expected to play a key role of "clearing house or entity" for CC projects to be funded from GCF in Zambia. The process is on-going to select a National Implementing Entity (NIE) and establishing a National Climate Change Fund (NCCF).

Zambia National policies/strategies consistent with CALRF

renewable energy and energy efficiency. Measures identified based on vulnerability assessment of seven key economic sectors (agriculture, water, forestry, energy, wildlife, infrastructure and health) comprise three goals that have strong synergies with mitigation: (i) adaptation of strategic productive systems (agriculture, forests, wildlife and water); (ii) adaptation of strategic infrastructure and health systems; (iii) enhanced capacity building, research, technology transfer and finance.⁷² The enhanced finance for adaptation entails looking at different mechanisms including the development of an insurance market against climate change induced risks. CALRF is relevant to the NDC through activities related to intensification of food crop and pasture production in target districts, land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds, sustainable agricultural practices (including procuring more productive and drought-tolerant seeds); aquaculture; crop diversification; install composting and mulching facilities; provide soil testing services; bee-keeping; and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling units, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units.

- *National Policy on Climate Change (NPCC) in 2016*: In line with the Vision "A prosperous and climate resilient economy by 2030", the NPCC aims to provide a framework enhancing coordination between sectoral initiatives while promoting a long-term vision to promote sustainable development. The NPCC also provides a framework for attracting finance and investments to achieve sustainable development goals, guiding principles, policy objectives and implementation framework, which are targeted at reversing the negative effects induced by climate change. The NPCC targets investments in climate resilient and low carbon development pathways in order to generate co-benefits and provide incentives for addressing climate change more effectively, including measures promoting environmentally friendly investments in all relevant sectors and facilitating the acquisition of resources for climate change programmes through innovative financial instruments. CALRF is relevant to the NPCC through activities related to building capacities to improve climate change support and extension services in target districts, improving phytosanitary services, scaling up climate smart technologies, identifying and improving innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments, and strengthening climate change and extreme weather-related information systems to reach target audience and train them in using the information to prioritize adaptation.
- *Zambia National Agriculture Policy (ZNAP - 2013)*: The policy included promotion of sustainable land management technologies, afforestation, community woodlots and agro-forestry, sustainable utilization of rangeland (grassland ecosystem) and pastures for livestock production; and promotion and strengthening of agricultural production methods that are resilient to climate change; promotion of climate change adaptation awareness; integrating climate change adaptation measures in policies, plans and programmes; promotion of environmentally friendly and climate-resilient farming systems. Therefore, CALRF is relevant to ZNAP through activities related to initiatives for boosting community-level adaptation and management strategies of climate change impacts, strengthening sustainable crop and animal production systems under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation), adoption of sustainable agricultural practices (including procuring more productive and drought-tolerant seeds); aquaculture; crop diversification; install composting and mulching facilities, value addition of selected products, establishing crop and livestock production and environmental data hub in target provinces, and developing market linkages for small-scale farm producers (including facilitating improved access to agricultural loans).
- *National Land Policy of 2017*: The National Land Policy provides for the protection of natural resources, environment and landscape management. The policy also provides for the protection of wetlands. The usage of pesticides and other agrochemicals has a potential to cause land contamination if not properly disposed of after usage.
- *2009 National Policy on Environment (NPE - 2009)*: The policy intends to reduce GHG emissions, and CALRF is relevant to this goal through activities related to climate smart technologies, land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit

⁷² GRZ 2015

Zambia National policies/strategies consistent with CALRF

plants and fodder seeds, and those related to the identification of community-level growth production areas and systems that are resilient to climate change.

- *National Forestry Policy (2014)*: The 2014 Policy encourages participatory forest management anchored on the active participation of local communities, traditional institutions, private sector and other stakeholders in the management and utilization of forest resources at all levels of decision making, implementation, monitoring and evaluation. The policy also encourages the definition of stakeholder roles, resource tenure, costs and benefit sharing mechanism related to forest resources management, investments and forest industries development. CALRF is relevant to the National Forest Policy through activities related to supporting towards climate-smart agriculture in the target districts, land rehabilitation and restoration using mixed approaches (including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds), adoption of sustainable agricultural practices (including procuring more productive and drought-tolerant seeds, aquaculture; crop diversification; install composting and mulching facilities); development strategies at district and community-levels incorporating climate change priorities and support capacities for enforcement, establishing crop and livestock production and environmental data hub in target, and development of tools for knowledge generation and management.
- *National Forest Act (2015)*: That Act provides for the participation of local communities, local authorities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management; provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity. CALRF is relevant to the National Forest Act through activities related to supporting towards climate-smart agriculture in the target districts, land rehabilitation and restoration using mixed approaches (including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds), adoption of sustainable agricultural practices (including procuring more productive and drought-tolerant seeds, aquaculture; crop diversification; install composting and mulching facilities); development strategies at district and community-levels incorporating climate change priorities and support capacities for enforcement, establishing crop and livestock production and environmental data hub in target, and development of tools for knowledge generation and management.
- *National REDD+ Strategy 2015*: Guided by effectiveness, efficiency, fairness, transparency, accountability, inclusiveness and sustainability, the strategy seeks to realize a prosperous climate change resilient economy by 2030, anchored upon sustainable management and utilization of Zambia's natural resources. Relevant to the CALRF are the following strategic objectives:
 - By 2030, good agricultural practices that mitigate carbon emissions adopted;
 - By 2030, threatened and unsustainably managed national and local forests are effectively managed and protected to reduce emissions from deforestation and forest degradation and contribute with ecosystem services across selected landscapes;
 - By 2030, selected high value forests in open areas are effectively managed and monitored;

CALRF is relevant to the National REDD+ Strategy through activities related to supporting climate-smart agriculture, land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, adoption of sustainable agricultural practices, strengthening climate change and extreme weather-related information systems, training in the use of climate change data to prioritize adaptation options but also adaptation planning, including support towards policy, legal and regulatory environment for innovative financing, and establishment of a crop and livestock production and environmental data hub in target provinces.

E. Relevant national technical standards

435-141. In addition to details that have been provided in the table above, CALRF has been prepared to remain compliant with the following policies provisions that are linked to rural financial policies:

- The Water Resources Management Act No. 21 of 2011: The Act further outlines the requirement for the sustainable use of the water resources and ensure that the right to draw or take water for domestic and commercial purposes, without any change in quality of water. The support towards irrigation systems will have to seek clearance from the Water Resources Management Act provides for the establishment of the Water Resources Management Authority (WARMA) – this will be done by the service provider, and the procurement processes will ensure adherence to national procurement

standards overseen by the Zambia Public Procurement Authority.

- The Occupational Health and Safety Act, No. 36 of 2010: The Act requires that health and safety committees are formed at workplaces in order to manage the welfare of workers. The Act also stipulates the requirements that the employer should adhere to in order to manage such risk. The Act also outlines the duties of the manufacturers, importers and suppliers in relation to managing occupation Health and Safety risk. This will be required for the project given works on crossing points and infrastructure development. The service provider will directly ensure safety as a social safeguard issue. The service provider will also ensure that employees respect labour laws, including exclusion of child labour and paying at least minimum wage to employees.
- The Town and Country Planning Act: The Act provides for the preparation, approval and revocation of development plans, for the control of development and subdivision of land, for the assessment and payment of compensation in respect of planning decisions, for the preparation, approval and revocation or modification of regional plans. The project will be compliant for activities related to infrastructure development.
- The Environmental Management Act No.12 of 2011: This Act provides for sustainable management of natural resources and the protection of the environment. The Act further provides for prevention and control of pollution and it establishes the functions of the Zambia Environmental Management Agency (ZEMA) such as screening and providing guidance of environmental and social impact assessment.
- The Environmental Management (Licensing) Regulations, of 2013: This regulation provides for the control of any discharges of water pollutants, air emissions, pesticides and other toxic substances and ozone depleting substances into the natural environment.
- Plant Pest and Diseases Act, Cap 231: This Act provides for the eradication, and prevention of the spread of plant pests and diseases in Zambia and for the prevention of the introduction into Zambia of plant pests and disease, and other matter hereto. The Act further provides guidance for designation of certain pests and diseases vectors that require destruction.
- *The National Strategy on Financial Education for Zambia (2019–2024 NSFE II):* The Strategy sets out a framework for improving financial education in Zambia. The primary objective of the strategy is to empower Zambians with knowledge, understanding, skills, motivation and confidence to help them to secure positive financial outcomes for themselves and their families. The implementation of the Strategy involves the provision of financial education for all age groups, including children, youth, and adults.⁷³
- *The National Financial Sector Development Policy (2017):* The Policy aims at having a well-developed, competitive, and inclusive financial system that supports efficient resource mobilisation and access to financial services and products by all. This takes cognizance that a well-developed and functioning financial sector would support the attraction and mobilisation of savings and investments, allocate resources for development, and build the trust and confidence of a wide and diversified consumer base. The Policy aims to achieve the following as objectives: to develop a competitive and resilient financial sector; to develop and maintain an enabling regulatory environment for the financial sector; to make the financial sector more inclusive and deepen the financial markets; to develop MSMEs and rural finance; to enhance financial infrastructure in accordance with international best practices; to increase financial literacy and strengthen consumer protection, and to facilitate effective and sustainable partnership in the provision of financial products and services.⁷⁴
- *The National Financial Inclusion Strategy (2017–2022):* The vision for financial inclusion in Zambia is to have universal access to and usage of a broad range of quality and affordable financial products and services through widespread and accessible delivery channels; diverse, innovative, customer-centric products; finance for SME and agricultural sector growth, and financial consumer protection

⁷³ Government of Zambia (2019): The National [Strategy](#) on Financial Education for Zambia.

⁷⁴ Government of Zambia (2017): National Financial Sector Development [Policy](#)

and capability. The implementation of the strategy focuses on 'high priority, high impacts' interventions that include: migrating government-to-person and person-to-government payments to digital platforms; issuing agency and mobile banking regulations; designing, test, and launch simplified and tailored products for unserved and underserved consumers, including via mobile-based channels; reviewing and finalizing the credit reporting bill; promoting utilization of the movable property security interest register to increase asset-based lending, especially to SMEs; and building capacity of regulators to undertake financial consumer protection supervision.⁷⁵

- *The Rural Finance Policy and Strategy of (2012)*: The policy acknowledges that increasing access to financial services by rural households in Zambia is cardinal for the country to reduce poverty, create employment and wealth and attract meaningful industrial development in rural areas that can lead to sustainable economic growth for the entire country. Rural financial services in Zambia are underdeveloped, with few rural financial service providers. Most microfinance institutions operate in urban or peri-urban settings only, while cooperatives ceased to play their erstwhile predominant role in rural financing and commercial banks have closed many rural branch offices citing operational costs. With the vision to have a vibrant and well-resourced rural communities that enjoy prospects of sustained socioeconomic development, the policy seeks to: develop and maintain an enabling, predictable and coherent policy, legislative and regulatory environment for rural finance that supports national development priorities; ensure a soundly based regulatory and supervisory system for all financial services; facilitate the provision of affordable and easily accessible rural finance products and services; endure policy coherence with regard to rural finance across the government; facilitate effective and sustainable partnership with the private sector and other non-state actors in the provision of rural finance; and ensure that there is equity in access to rural finance focusing on bridging existing geographical, social and gender gaps in access to resources.⁷⁶
- *The Micro, Small and Medium Enterprise Development Policy (2008)*: This Policy provides for the active support and participation of all key stakeholders in the development of Micro, Small, and Medium Enterprises (MSMEs). The hallmark of this Policy is partnership and an enabling environment. The objectives of the Policy include: creation and development of viable MSMEs that contributes towards annual employment creation and towards Gross Domestic Product; increasing utilization and value addition of local raw materials in identified regional areas; strengthening forward linkages between MSMEs and large scale companies by facilitating an annual increase in subcontracting of MSME by large scale companies; improve productivity in the MSME sector; and enhancing Local Economic Development thereby stimulating broad based economic growth.⁷⁷

~~136-142.~~ The environmental and social impact screening will be conducted for the project activities to ensure adherence to national regulations and IFAD's Social, Environment and Climate Assessment Procedures (SECAP). The Adaptation Fund grant proceeds will not be used to finance any activities that induce environmental and social risks and negative impacts. The screening will anticipate potential risks and impacts, gaps and needs that may be required to be addressed at any stage of the project, including an integrated assessment of compliance with the Zambian and Adaptation Fund environmental and social safeguard policies and procedures. During the inception phase of the CALRF, a gap analysis will be conducted during the development of the Environment, Social and Climate Management Plan (ESCMP). The ESCMP will also articulate the agreed common approach to environmental, social and climate risk management.

~~137-143.~~ The project will fund For the activities to be financed through the revolving funds that may include small scale infrastructure such as ponds for aquaculture, paving of roads, construction of storage facilities and processing plants for value addition and post-harvest loss reduction. These will be screened through the environmental Zambian law, which identifies projects or development activities

⁷⁵ Government of Zambia (2017): National Financial Inclusion [Strategy](#)

⁷⁶ Government of Zambia (2012): National Financial Inclusion [Strategy](#)

⁷⁷ Government of Zambia (2008): The Micro, Small and Medium Enterprise Development [Policy](#)

which ~~should be the subject of~~require an Environmental Impact Assessment (EIA) based upon the following main principles: 1. Type of activity undertaken. 2. Extent of natural resources exploitation. 3. Location. 4. Type of energy used to operate. Zambia Environment Management Agency's (ZEMA) EIA system classifies the projects into three categories based on different levels of EIA requirements according to severity of possible environmental impacts and location of the establishment and its proximity to residential settlements:

- Category (A): projects with minimum environmental impacts. These are required to complete an environmental impact assessment form A. Given the scale of activities financed through the matching grants, most will fall under this category for the agricultural value chains being targeted.
- Category (B): projects with potential adverse environmental impacts yet less adverse than category C. These are required to complete an environmental impact assessment form B. Very few activities may fall under this category and support will be provided by the project to undertake any studies that would be required to ensure adherence to the national standards.
- Category (C): projects, which have highly adverse impacts. These are required to prepare a full EIA study. None of the CALRF activities will fall under this category.

~~138-144.~~The ~~project~~CALRF activities ~~from the revolving funds~~ will fall under Category A for the ZEMA and under the moderate classification for IFAD's SECAP due to the small size and location of investments in non-sensitive geographic areas. The screening of the investments will include risk and adverse impact minimization measures. Financial Service Providers (FSPs) capacity will be built to ensure adherence to the national regulations and IFAD's SECAP.

~~139-145.~~In response to the impacts of climate change, the Zambian government has put in place regulatory and legal frameworks, a climate change responsive policy, reviewing existing sectoral policies to accommodate climate change and developing national response strategies. To date, the government has enacted the NPCC that provides for a coordinated response to climate change, mainstreaming climate change in economically important and vulnerable sectors of the economy by 2030 and a NDC to UNFCCC Policy effected in 2016. CALRF is aligned with the updated NDC as elaborated in the earlier sections and will contribute to achieving articulated targets.

~~140-146.~~Regarding Financial Management, the CALRF Project Implementation Unit will develop policies and procedures that shall be in accordance with provisions of the Public Finance Management Act No.1 of 2018 and IFAD guidelines on Financial Management and Administration. The Financial statements shall be prepared in accordance with the International Public Sector Accounting Standards (IPSASs), Cash Basis of Accounting and shall be subject to Audit by the Office of the Auditor General, which is the Supreme Audit Institution with the mandate to Audit proceeds of all public finances in Zambia. The PIU will be responsible for overall financial management of the project. It will be responsible for the release of funds against agreed plans, drawn out of the approved AWPBs, disbursement of funds to implementing agencies and coordinate monitoring and financial reporting for the project as a whole. Project financial reporting will be through quarterly interim financial reports (IFRs) in line with IFAD guidelines. To ease financial reporting, all required information would be mapped in the accounting system such that financial reporting would only entail extracting data from the accounting system with minimal refinements.

F. Duplication of project with other funding sources, if any

~~141-147.~~There is no duplication with other funding sources. On the contrary complementarity is established through the choice to ride on investments already made by RUFEP and is being explored with other funding sources such as the Green Climate Fund to build on the activities of the CALRF to establish a climate financing facility and increase the reach to MSEs, FSOs and smallholder farmers and investments for the agriculture sector that is vulnerable to climate change.

~~142-148.~~CALRF will complement resources being requested from the Global Agriculture and Food Security

Programme, which will support the smallholders in building a resilience to shocks such as the current economic ones in food price and inputs increases resulting from the Ukraine-Russia crisis. CALRF will focus on building the resilience to climate related shocks by focusing more on the concrete adaptation measures to respond to the impacts of climate change and extreme weather events in the selected districts.

143-149. The current projects being implemented in Zambia focusing on climate change adaptation and mitigation in the agriculture sector, for which complementarity will be ensured with the CALRF include the tabulated below:

No.	Project title	Project description	Justification of complementarity
1.	Rural Finance Expansion Programme (RUFEP) – IFAD-implemented	The Programme is aimed at promoting access to and usage of sustainable financial services and products by poor rural men, women and youth in Zambia. The program is structured around (i) Strategic Partnerships; (ii) Innovation and Outreach Facility (IOF) and (iii) Knowledge Management and Programme Implementation.	The project will build on networks and partnerships in the finance space within the target districts to create the catalytic funding needed by the target beneficiaries. CALRF will therefore work with some service providers, notably ZANACO, AGORA, Vision Fund Zambia, UBA and NASCO
2.	Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II (SCRALA) – IFAD-implemented	The project is US\$32 million GCF-funded to indirectly support three million small-scale farmers in building climate resilient lives. Implemented by the Ministry of Agriculture, the project is helping farmers in 16 districts across five provinces (predominantly in the south) cope better with climate change threats through modern technology, sustainable growing techniques and better understanding of climate issues. To broaden the reach of weather updates, the project partners with community radio stations to interpret and broadcast weather information in local languages and intends to train the presenters on how to better interpret the information	In terms of communicating weather updates, SCRALA collaborates with radio stations to disseminate information in local languages but also to train journalists. Building on this focus, CALRF will train communities in target districts in using climate-related information to prioritize concrete adaptation options, develop the taxonomy of viable climate change adaptation investments options and support district level to enhance climate change and systematic adaptation planning
3.	Zambia Strengthening Climate Resilience (PPCR Phase II) – World Bank-implemented	Financed by the Climate investment Funds and implemented by the World Bank and African Development Bank, the project seeks to strengthen Zambia's institutional framework for climate resilience and improve the adaptive capacity of vulnerable communities in the Barotse sub-basin	PPCR II focuses in Western province, particularly in the Barotse sub-basin. CALRF will build on PPCR II's lessons particularly regarding participatory adaptation and management of community adaptation sub-grants to build resilience and build adaptive capacities.
4.	Zambia Integrated Forest Landscape Project (ZIFLP) – World Bank-implemented	This project is supported by the Zambian government in partnership with World Bank meant to improve landscape management and increase environmental and economic benefits for the targeted rural communities in Eastern province. It is designed around improving an enabling environment for livelihood investments, improving rural livelihoods, conservation of ecosystems and reducing emissions and providing assistance in case of emergency relief or disaster	ZIFLP is implemented in Eastern Zambia. CALRF will complement ZIFLP's lesson regarding community engagement to enhance conservation of ecosystem services while simultaneously improving rural livelihoods – including local-level institutional arrangements that support the achievement of both goals.
6.	Transforming Landscapes for Resilience and Development (TRALARD) – World Bank-implemented	This is a \$100 million World Bank-funded project in Northern, Muchinga and Luapula provinces that is supporting the sustainable use of natural resources for livelihoods, and help the government of Zambia respond adequately and timely to a crisis or emergency	CALRF will seek to rehabilitate degraded lands, repair 5 crossing points and diversify livelihoods. CARLF's approach has drawn on community mobilization and targeting strategy in create a Recovery Fund for food security. It will draw lessons on TRALARD which has also focused more on cooperatives and service

			<u>providers on the ground than individuals. Focusing on cooperatives or groups of people offers a better multiplier effect of a project's achievement's management of crisis/emergencies. Through the Revolving Investment Fund, CALRF will complement TRALARD's interventions and support towards viable livelihood opportunities that can build resilience and reduce poverty levels. It should be noted that TRALARD and CALRF overlap in terms of geographical coverage in Luapula province.</u>
7.	UNEP Ecosystem-based Adaptation project <u>UNEP - Implemented</u>	UNEP is now supporting the Government of Zambia to improve the climate resilience of local people living near wetlands by strengthening the capacity of local communities and local governments to implement ecosystem-based adaptation interventions. This is being achieved by piloting ecosystem-based adaptation measures in sites across the Bangweulu and Lukanga wetlands (and adjacent forest ecosystems) and by providing training to the local and national governments on adaptation planning and implementation.	CALRF will complement knowledge and lessons learned on the benefits and execution of the nature-based solutions with an aim of promoting the upscaling of such approaches in other areas. <u>The idea of CALRF to use practices such as agroforestry and crop and animal mixed systems is drawn from NbS in the UNEP project understanding that NbS are more cost-effective to create multiple benefits for humans and the environment.</u>
8.	Climate Smart Agriculture, executed by Save the Environment and People Agency (SEPA)	SEPA is working with traditional leaders, women, youths, farmers and extension officers to try and deepen the understanding on how the community can best protect the environment through building the capacity of communities and deepening their understanding of sustainable environmental protection and sustainable natural resources management as well as close gaps between good and bad environmental practices.	Building on this focus, CALRF will train communities in target districts in entrepreneurship, capacity building, tree planting, sustainable agriculture, water and sanitation, climate change issues in the project areas. <u>CALRF's inspiration from SEPA relates to community engagement mechanisms to strengthen community ownership.</u>
9.	Smallholder Productivity and Promotion Programme (S3P): <u>IFAD implemented</u>	S3P was designed and implemented to sustainably achieve food and nutrition security and increased incomes among targeted beneficiaries through attainment of the Programme Development Objective of increased productivity, production and agricultural sales. It was implemented in Luapula, Muchinga and Northern Provinces of Zambia and it closed on 31.12.2019	CALRF will build on the capacities created by S3P in the two provinces targeted for implementation. S3P promoted environmentally friendly agricultural practices, such as Conservation Agriculture, organic farming (that included composting and discouraged use of chemicals), agroforestry and system for crop intensification. <u>S3P has a legacy in Luapula where it will overlap with CALRF</u>
10.	Enhanced-Smallholder Livestock Improvement Programme (E-SLIP) <u>IFAD implemented</u>	The development objective of ESLIP is to sustainably improve the production and productivity of major livestock among targeted household beneficiaries (female and male smallholders) in selected provinces and districts though the Programme has a national scope. The Programme prioritizes districts that are prone to outbreaks of Contagious Bovine Pleuro-pneumonia (CBPP), and/or East Coast Fever (ECF).	CALRF will complement the work done by ESLIP through support to cattle <u>raising-aising communities through the insurance, breeding heifer loans and capacity development for improved crop and animal husbandry/health programmes. Drawing on E-SLIP, CALRF will support producers with fodder production using Velvet beans, Cowpea and Red Sunhemp, Rhodes grass and Panicum maximum.</u>

11	<u>Support to Climate Adaptation through Rural Finance (SCARF) – IFAD implemented</u> <u>\$20 m (Funded by the Global Agriculture and Food Security Program)</u>	<u>The project seeks to build resilience and adaptive capacity of the project beneficiaries in response to global food crisis and persistent climate change challenges through increased productivity and production of basic food commodities. The project will boost food and nutritional security and household incomes particularly for vulnerable households (youth and female headed households) adversely affected by the global food crisis.</u>	<u>CARLF will be scaled up and catalysed through SCARF particularly with regards to activities promote resilient seed varieties, links to markets, and capacity development in all the 15 districts.</u>
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444-150. The proposed project will continue drawing lessons from the afore-mentioned interventions. The lessons will be used to ensure synergies in some cases, and scaling up and out in others to avoid duplication. It should be also mentioned that different areas of interventions will be used as an opportunity for scaling up and out best practices that will be relevant to the proposed project. The engagement strategy will be at one important level: i) development partners implementing the projects will be engaged to provide technical advice during steering committee meetings as well as during project progress reviews/evaluation such as mid-term reviews, and inception workshop.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned

Component 3 on enhancing district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building is dedicated to ensuring that the project more effectively captures, stores, shares and utilizes relevant information and best practices. Better knowledge management for the project will lead to more informed decision making, increased efficiency, and improved outcomes. Effective knowledge management will enable the project to synergize better with other projects. This will foster a culture of continuous improvement and innovation, allowing the project to adapt to changing circumstances and better manage the complex and dynamic environment of natural resources as they get affected by different factors such as extreme weather events.

The project under component 3 will develop key aspects of knowledge required to support well-informed, systematic, evidence-based adaptation activities, raise awareness among the target populations on the impacts of climate change, production landscapes (for both crop and animal production), and food security and nutrition. The project will also support enhancing capacity for understanding climate change risks, responses and planning approaches, for systematic and effective sub-national planning in the targeted 15 districts as part of knowledge management but also awareness-raising. This will be critical to enhance people's ability to access information for them to make informed decisions.

The Ministry of Green' Economy and Environment, Zambia National Information Service (ZANIS) in close collaboration with the Ministry of Agriculture will be developing a comprehensive farmer tailored agro-met information package, including, seasonal weather and crop forecast to smallholder famers. Part of this process will include installation of rain gauges to augment the national system, not just for weather information collection but for training farmers in the recording, interpretation, and dissemination. This will form part of the Community Agrometeorological Participatory Extension System that will enhance farmer-to-farmer extension support done through producer groups.

To ensure that relevant project stakeholders, particularly the target population have improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at sub-national levels, some of the knowledge products will include training guides and manuals in financial and market literacy, community agricultural entrepreneurship. The project will build information hubs as one stop shops, website for the project, Videos and multimedia, knowledge-sharing platforms – and reports which will be shared in the print media and TV (see activity 3.1.1.3) in collaboration with ZANIS. It should be pointed out that training materials, reports, video and multimedia will include translations into local

languages to ensure the information is close to the people and they are able to understand it correctly.

Finally, though component 3 is the one with the knowledge management aspects, activities under other components will contribute knowledge products to the overall knowledge management strategy.

Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan

445. ~~The annual planning cycle of CALRF project will follow the GRZ planning and budgeting cycle. The cycle will commence with the Annual Work Plan and Budget (AWPB) preparation as a key instrument for implementation and operational control. The Project will follow a bottom up participatory planning process for the AWPB. The first stage of planning and preparation of the AWPB will be carried out at the camp level, following the decentralized administration framework. The camp level plans will then be consolidated at the district level, then at the provincial level and, eventually, at the national level, into the Project AWPB. The approved AWPB will be the only mechanism through which Project resources would be spent and the basis for progress monitoring. Preparation of the AWPB will be led by the Project Coordination Unit (PCU).~~

446. ~~The CALRF results framework will be the foundation of the Project's monitoring and evaluation (M&E) system and contains a set of defined Project specific indicators, the Adaptation Fund indicators and IFAD Core Outcome Indicators (COI), to guide continuous performance assessment of the Project. The CALRF M&E system will be participatory, gender responsive and results oriented while enabling the integration of physical and financial progress reporting. In addition, the system will enable the analysis of climate change vulnerability and resilience among the beneficiaries using the combined resilience scorecard. The system will incorporate an in depth baseline, COI surveys and completion surveys, a mid term review and other thematic studies as relevant. The indicators in the results framework have been selected to allow tracking of resilience, adaptation, social and economic performance of target groups, especially women, youth and vulnerable groups. The system will conform to IFAD's Operational Results Management System (ORMS), updated SECAP guidelines and COI Guidelines and AF guidelines as well as GRZ existing M&E arrangements.~~

447. ~~The overall responsibility for project monitoring, evaluation and reporting will rest with IFAD in liaison with the CALRF PCU. The Project will have a detailed M&E Plan developed at the start of implementation. The objectives of this M&E Plan will be to inform decision making by project management during implementation to ensure achievement of the set goal and development objective. It would also enable accurate and timely reporting to all stakeholders. The M&E strategy will be to establish an iterative process for identifying issues and problems to ensure that the Project focus is maintained and expected results are achieved. This will rely on data from periodic monitoring but, more importantly, on specific outcome/impacts measurement exercise/surveys which will be carried out by the Project.~~

448. ~~A baseline survey will be carried out at the start of implementation and subsequent rigorous evaluations that seek to establish Project impacts and provide lessons learned for enhanced Project impacts will be conducted after. The project's evaluation strategy will use quantitative and qualitative methods to determine how it contributed to climate resilient livelihoods among beneficiaries, at mid term and end line. A final evaluation will consolidate data and provide recommendations for future efforts.~~

449. ~~Monitoring of environment and climate aspects of the Project and implementation of appropriate mitigation measures will be done in two ways: a) monitoring physical progress against targets of proposed climate adaptation/mitigation measures, environmental sustainability, and sustainable natural resource management interventions and b) monitoring and ensuring the implementation of mitigation measures against identified environment, social and climate risks associated with Project interventions. This will be~~

~~done through implementation and regular monitoring of the Environment, Social and Climate Management Plan (ESCMP) and their accompanying Monitoring Plan.~~

- ~~140. The CALRF M&E processes, outcomes, outputs and activities are aligned with the AF Strategic Results Framework and with AF rules and regulations as well as the IFAD ORMS and COI framework. Thus, the following will be the key project M&E and reporting activities:~~
- ~~141. Inception planning: The project will begin with an inception phase during which preliminary activities of establishing systems for project implementation will be undertaken. Inception activities will include developing and signing agreements with the relevant stakeholders and partners, recruitment and induction of staff and procurement of project equipment and materials. The inception period will also involve (i) planning and stakeholder engagement for setting up the relevant coordination mechanisms/structures such as the Project Steering Committee (PSC) and the PCU; (ii) setting up of project accounts; (iii) holding an inception workshop to launch the project to stakeholders, following which an inception report will be prepared and submitted within two months (iv) development of the AWPB; (v) refining implementation and targeting approaches; (vi) developing systems/tools including for M&E, community engagement including clarifying roles of the stakeholders (vii) elaborating the Environmental, Social and Climate Management Plan for the project with stakeholders.~~
- ~~142. All planning, monitoring and reporting templates shall be validated at inception stage and AWPBs will be endorsed by the PSC.~~
- ~~143. *Baselines Assessments, feasibility/technical studies:* The project will undertake a baseline survey at the start of implementation and subsequent rigorous evaluations that seek to establish Project impacts and provide lessons learned for enhanced Project impacts. The project's evaluation strategy will use quantitative and qualitative methods to determine how it contributed to climate resilience, improved livelihoods and food and nutrition security among beneficiaries, at mid term and end line. A final evaluation will consolidate data and provide recommendations for future efforts.~~
- ~~144. *Quarterly and annual reviews and progress reports:* Regular monitoring during project execution will be reported through quarterly progress reports and annual progress reports. Project Field Officers shall facilitate preparation of monthly progress reports for submission to the PCU. The PCU shall use the monthly progress reports to facilitate preparation of quarterly progress reports and annual progress reports to be submitted to IFAD and the AF. Project Progress Reports (PPRs) will be submitted annually to the AF based on the date is decided of the inception workshop. The Annual reports will outline financial, procurement and activity implementation progress against the targets in the results framework as well as compliance with the requirements of the environmental and social assessment and management frameworks. The annual reports will be presented and discussed by the PSC and during supervision missions by IFAD. The reports will also be useful in providing recommendations to inform the subsequent AWPB. The annual reports and work plans will be reviewed and approved by PSC before being submitted to IFAD no later than one month after the end of the project year. IFAD will then consolidate and submit the Annual Progress Reports in the standard AF PPR template to the AF Secretariat no later than two months after the end of the project implementation year. The PCU will ensure that the reports are supplemented by annual project work plans for the next Project year, also to be approved by the PSC. The annual plan for the forthcoming year will include details on specific project activities, roles and responsibilities, and a detailed budget with a disbursement schedule and procurement plan for major items included as annexes. The detailed AWPB will be used as the basis for the release of funds from IFAD to the executing agency for the first quarter of the following project year.~~

~~455. At the end of the project, a Project Completion Report shall be prepared within six months after Project completion and submitted by IFAD to the AF secretariat. An external midterm review will be carried out half way through project implementation and will provide an overview of the state of project implementation, effectiveness of implementation arrangements and recommendations for project modifications if any. An independent final evaluation will be completed within nine months after project termination. Finally, a financial audit will be provided by IFAD to the AF Secretariat six months after the end of the fiscal year in which the project ended.~~

456-151. In terms of learning and knowledge management, CALRF will ensure these standard project aspects are fully operationalized as part of the implementation strategy. To this effect, the project will develop a knowledge management strategy (KMS) during design and early project implementation. The KMS will spell out and provide guidance regarding processes for generating, capturing, sharing and disseminating lessons. The KMS will also set out how lessons from the project will be integrated with existing knowledge and how this will inform adaptive management of the project itself. The project KMS will adopt a three-thronged approach that focuses on knowledge generation, knowledge use and enabling environment.

457-152. The project interventions will generate a number of knowledge products such as training manuals, training reports, practical guidelines and manuals on resource access, use and management in climate change vulnerable contexts, market literacy, community engagement and response to extreme weather events, catchment management plans. Other knowledge generation and learning activities include the contribution to a taxonomy of viable adaptation options for financing, identification and effective dissemination of climate change adaptation financing products including digital finance, incentives for investing in climate change-sensitive sectors (such as CSA, including aquaculture). Videos and photos from the fields where the project activities will be implemented will be useful tools. Good practices and key lessons from project interventions will be identified, documented as case studies, bulletins, pictures, and videos. In addition, the project will also produce learning documents, evaluation reports and policy briefs. Knowledge generation will be the responsibility of the project management team.

458-153. Considering the capacity needs, the project management team will receive training on knowledge management to facilitate collection, analysis and dissemination of evidence, good practice and lessons. Different methods will be used to collect evidence and lessons, which include key-informant interviews, surveys and focus group discussions. Collection of evidence and lessons learnt will be included as regular part of M&E and thus will be done during annual reviews, mid-term and end of term project evaluation. The lessons learnt will assist in replication and scaling up of activities but also to facilitate intra and inter-district sharing of lessons – particularly important given the different agro-ecological zones of the target districts.

459-154. The lessons and knowledge from the project will be captured through specific activities that will complement the monitoring and evaluation system of the project. Under component 3 on project management, coordination, and monitoring, all activities related to KMS will be structured to ensure lessons are captured, disseminated and inform the adaptive strategy of the project – including strengthening the capacities of relevant stakeholders to implement project adaptation activities effectively and build socioeconomic but also ecological resilience.

460-155. Channels of dissemination will include capacity building workshops, dialogues, rural finance network forums, and project level sensitization and awareness raising sessions. Social media platforms, including print media, TV talks and radio programs will also be part of the dissemination channels and mechanisms. By working with other partners, including the private sector, lessons and best practices from the project will be disseminated. Finally, the knowledge generated will also be disseminated through IFAD's website.

H. Consultative process, including the list of stakeholders consulted

464-156. The development of this proposal has gone through two stages: the first stage constituted the design of the Concept Note that was approved by the Adaptation Fund Board. The development of the concept note was a product of substantive consultations with different stakeholders. Consultative meetings were held with National Designated Authority (NDA), the Ministry of Agriculture at national level (including Zambia Agricultural Research Institute), Zambia Development Agency (ZDA) and the Ministry of Commerce, Trade & Industry, and with community ~~members where the potential investments from the revolving funds will potentially be located (community contracts with some Chiefdoms)~~. A wide stakeholder meeting took place during the RUFEP supervision mission in November 2021. The meeting was an online planning meeting, and the invitees were able to discuss version 0 of the Concept Note.

462-157. Several stakeholders have been involved at different levels in the development of Concept Note. These have included the Ministry of National Development Planning, which previously hosted the NDA, District Development Coordinating Committees (DDCCs) which include the district councils and all relevant government line departments (i.e., fisheries, forest, agriculture, community development & social welfare, chiefs and traditional affairs, and local civic leaders) ~~where potential revolving funds would be established (letters from the District Administration are attached to confirm the consultations by the institutions and organisations that are potential recipients of the funds)~~. Other institutions consulted include women and youth groups. At district level, meetings were held with all key members of the DDCC to discuss the climate change adaptation needs in different locations ~~that could be included for the revolving funds and the roles for local actors to facilitate efficient and effective implementation of potential project activities~~.

463-158. The main inputs received from the consulted communities were the confirmation of the vulnerabilities of their livelihoods to climate change. Some communities, particularly those in Luapula province are dependent on fisheries mainly from the lakes and projected impacts of climate change on fisheries will lead to low fish catches, undermine household incomes and exacerbate the already high poverty levels. Household incomes in fishing-dependent communities are further compromised by reduced market value of the fish due to poor post-harvest handling. Therefore, climate smart fish farming provides an opportunity for building the resilience to climate change. Other communities are dependent on crop and small-ruminant production – productivity dwindling due to rainfall variability both in terms of quantity and onset shift (with some delay estimated at one to two months), land degradation but also frequent crop and animal disease outbreaks. Communities therefore called for building their skill base in CSA, reduction in post-harvest losses and livelihoods diversification to cushion the socioeconomic burdens imposed by the impacts of climate change on the sectors that support their survival.

464-159. Preliminary consultations with rural communities, constituting the vulnerable and marginalized community members have therefore, inspired the design of this project. The community meetings were held in the afternoons to allow women to participate as they are occupied with other responsibilities in the mornings, particularly working on farms, collecting firewood or drawing water from water sources, which usually are far away from homesteads. In addition, separate meetings were held with women and youth to ensure effective participation.

465-160. The second stage of engagement with different stakeholders followed after the approval of the Concept Note – that is, stakeholder consultations to support the full development of the proposal. As during the Concept Note development stage, the mechanisms and techniques for holding consultations with stakeholders were tailored to stakeholder types or categories. For example, to ensure meaningful women participation and involvement in the consultations, two strategies were used in communities: first, women were met separately from men to allow them to speak freely and propose activities that were culturally-responsive to their roles as women, including proposing how they can be more effectively be involved in a cultural context that does not cause problems with their spouses. Second, the time chosen to hold community meetings with women was 'off-peak' vis-à-vis their drudgeries to ensure that they did not have to choose between attending the project group meetings and staying home to cook, or draw

water or work in their fields.

~~466-161.~~ For an adaptation project such as CALRF, participatory engagement of women has been critical. This is because the impacts of climate change affect women in some different ways than that of men. For example, drought, specifically, threatens agricultural productivity, resulting in heightened food insecurity and diminished household incomes; these processes can catalyze other downstream risks, like early marriage and transactional sex, associated with poverty.⁷⁸ That is, the consultation process took into account the understanding that the impacts of climate change as well as the coping strategies and access to natural resources are gendered. Women and children dominate the collection and sale of mushrooms, vegetables, and fruits within households, while men dominated honey collection and charcoal production.⁷⁹

~~467-162.~~ To ensure presence of the vulnerable (specific reference here is being made to women, the youth, the differently-abled and the poor with no socioeconomic survival capital in communities), communities were first sensitized through traditional leaders. Traditional leaders supported consultations, and the process rode on the respect that they are accorded in communities to ensure that the vulnerable were not excluded.

~~468-163.~~ At national, provincial and district levels, consultations were facilitated by the Ministry of Finance, Ministry of Environment and Green Economy and the Ministry of Agriculture that have presence at all the three administrative tiers. They were the locator stakeholders that helped to convene other stakeholders to participate in the consultations. For these, consultations took a hybrid format where some officers and other partners were physically present in one room, while others joined virtually. The first stakeholder consultation for the full development of CALRF was opened and closed by the Director from Ministry of Agriculture. It should be pointed out that CARLF has received great support from the Government of Zambia, and it is hoped that the level of commitment demonstrated hitherto will be useful in ensuring the sustainability of the project outcomes.

#	Stakeholders	Contribution to the proposal development
1	Government authorities: NDA, Ministry of Green Economy, Ministry of Finance and National Planning, Ministry of Agriculture, Ministry of Fisheries and Livestock, Ministry of Commerce, Trade & Industry, Zambia Development Agency	<ul style="list-style-type: none"> To ensure the project proposal remains consistent with Government development priorities and policies, particularly in addressing adaptation challenges. To identify current challenges and opportunities for synergies.
2	Development partners: FAO, EU, USAID, WFP, WWF, IFAD-funded programmes (RUFEP, E-SAPP, E-SLIP)	<ul style="list-style-type: none"> To identify ongoing interventions in the areas of climate change adaptation and rural finance to avoid duplication of effort, To ensure the project's rationale and proposed approach are technically sound, To identify opportunities for synergies.
3	Private sector: ZANACO, AGORA, Vision Fund Zambia, UBA, NASCO	<ul style="list-style-type: none"> To identify opportunities for private sector engagement in financing adaptation activities.
4	Civil society: CHAZ, NACRO, Zambia Rainbow Development Foundation	<ul style="list-style-type: none"> To take stock of ongoing activities related to adaptation and rural finance and identify opportunities for scaling up successful approaches.
5	Smallholder farmers and farmer'	<ul style="list-style-type: none"> To identify needs and current challenges

⁷⁸ Rosen, J.G., Mulenga, D., Phiri, L. et al (2021). "Burnt by the scorching sun": climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia. *BMC Public Health*

⁷⁹ Kalaba et al. (2013). Contribution of forest provisioning ecosystem services to rural livelihoods in the Miombo woodlands of Zambia. *Journal of Population and Environment*

	groups: beneficiaries from IFAD-funded programmes	affecting potential beneficiaries at individual and farmer' group levels.
6	Vulnerable groups in communities located in all the target districts of the five priority provinces.	<ul style="list-style-type: none"> To assess the vulnerabilities of the livelihoods with respect to climate change, gather information on current strategies of coping with climate change and assess needs of communities to improve their resilience to climate change. The communities in these districts are among the potential beneficiaries of the economic benefits, and their contributions during consultations have shaped the activities of the project. The community members will be involved in project activity implementation and their capacities developed at various levels, including in the monitoring and evaluation of the progress of the project
7	Implementing Partners, The Copperbelt University, HODI and RESELI	<ul style="list-style-type: none"> Identify value chains <u>and develop them within priority</u> districts for implementation for meaningful impact in terms of addressing adaptation gaps.

[169-164](#). Various issues were discussed that related to community involvement in the life of the project starting from planning and implementation. One issue relevant to safeguards was raised where particularly communities in cooperatives/producer groups raised concerns over benefit sharing mechanisms. One way that will be overcome as a challenge is to digitize financial systems of cooperatives and producer groups to increase transparency. Beneficiary sharing mechanisms will be strengthened in all cooperatives that the project will support. This will be critical to curb community-level 'elite capture.' Related to this was with the private sector that communities felt would not support them with financial services because they are too poor to have anything to be collateralized for them to access financial services. In response, financial service providers will conduct assessments to enable them to develop products and services that suit the context of smallholders in rural areas. On the part of the financial service providers, they raised a concern on the project's ability to provide insurance on behalf of communities in the first year before the Adapt Fund becomes functional. The premise is to support a people's process for the project to achieve its objective by ensuring that communities buy into the idea of the project and their ownership is enhanced. During consultations, it was understood that some project districts have more vibrant social groups such as cooperatives while in others, these would need to be formed and strengthened. Experience shows that community ownership of projects is through social groups such as cooperatives where members share a common vision of their contexts. It should be stated here that social cohesion is an extremely important cord that binds people together in achieving goals beyond an individual person or household.

[170-165](#). The role of social cohesion reflected by individual willingness to belong to a group such as a cooperative should not be downplayed in understanding enabling community-level social dynamics for project success. Therefore, the needs of cooperatives will need to be assessed, and based on the assessment, their social structures will need to be strengthened and their capacities developed to ensure project absorption at community level. This will strengthen and sustain community involvement in the project through planning, executing activities and monitoring of project activities. Given the predominance of youth and young population within the prioritized districts, it will be imperative to deliberately involve young women and men during the community level project consultations and planning, and identify opportunities for their engagement during implementation and monitoring; as well as in the knowledge dissemination and awareness-raising aspects of the project.

[174-166](#). Stakeholder consultations also informed rapid vulnerability assessment with community members

to identify vulnerabilities and prioritize activities to address the vulnerability with community inputs. The outcomes of the consultations have been integrated in the project, and relate to the proposed activities, community benefits, the role of women and other vulnerable groups and how the project will be deliberate in ensuring their inclusion in project implementation. Other issues raised during the consultations included the challenges that communities have had to contend with due to COVID-19 pandemic, difficulties in access markets for the produce, physical and economic isolation from government systems to support communities in times of difficulties such as extreme weather events, and limited extension worker support.

[472-167.](#) CALRF seeks to work closely with communities in their socioecological and economic context. The project will do so by closely working with other partners who are already in the target districts. Even at design stage, CALRF has collaborated with these community-level partners to conduct stakeholder consultations with communities. For example, CARLF has collaborated with The Zambian Rainbow Development Foundation (ZRDF) - an organisation working in Luano and Mkushi Districts (CALRF-targeted risks) (see annex 3 of community consultations). ZRDF focuses on livelihood and food security, Economic Empowerment, Education support and Health support. The organisation promotes community-led and owned development project and uses participatory approaches in all of its interventions.

[473-168.](#) In the implementation of project activities related to the value chains, the project will collaborate with The Copperbelt University, HODI and RESELI – as important implementing partners in their areas of expertise. The Copperbelt University will partner with CARLF on fisheries, and HODI and RESELI will collaborate with the project on fruit tree value chain development.

[474-169.](#) At national level, issues raised by stakeholders present during the consultation process included the ones in the Table below. Consultations in pictures, including lists of attendees are in annex 4 of this document.

Table highlighting a summary of key issues raised during stakeholder consultations

Issues raised	How issues how have integrated in the project
<ul style="list-style-type: none"> Soil and land degradation affecting both crop and livestock production 	The project intends: <ul style="list-style-type: none"> To rehabilitate and restore degraded land using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha.
<ul style="list-style-type: none"> High poverty levels in rural isolated areas that make it difficult for climate change affected households to cope with the extreme events 	The project intends: <ul style="list-style-type: none"> To support stocking of climate resilient livestock packages (i.e., pass-on packages) to 1,500 households; To support tailored financing solutions for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units.
<ul style="list-style-type: none"> Traditional customs and practices that keep women from playing certain key roles in society, including the manner of using natural resources 	The project intends: <ul style="list-style-type: none"> To conduct a targeted climate sensitive capacity needs assessment to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members). To support the adoption of sustainable

	agricultural practices (including procuring more productive and drought-tolerant seeds) on 1,500 ha; aquaculture; crop diversification; install composting and mulching facilities; provide soil testing services; bee-keeping; among others to benefit 1,000 households (50% of which will be female-headed).
<ul style="list-style-type: none"> Rural areas have bad road networks, and often the rural areas are cut off from the socioeconomic hubs, which makes it difficult for people to access socio-economic opportunities, including markets for their produce, meagre as this call. 	<p>The project intends:</p> <ul style="list-style-type: none"> To identify and prioritize to repair 5 critical crossing points to facilitate market linkages between producer groups and buyers. To support local level processing and marketing (branding and labelling) of selected crop and animal products, including enhancing phytosanitary services. To support the procuring and installation of small crop processing and storage facilities, smallholder irrigation systems, water supply and sanitation infrastructure, among others.
<ul style="list-style-type: none"> 'Elite capture' that keeps away women, youth and the differently-abled and other vulnerable people from meaningful participation in project implementation activity and inequitable distribution of benefits. 	<p>The project intends:</p> <ul style="list-style-type: none"> Promoting diversification livelihood strategies beyond farm level interventions (promotion of off-season production using irrigation-rainwater harvesting systems - agro-forestry – linked to nurseries at community level on 1,000 ha for the benefit of women, youth and other vulnerable people. Conduct a targeted climate sensitive capacity needs assessment to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members).

I. Justification for funding requested, focusing on the full cost of adaptation reasoning

~~475-170~~. The project design considers the socioecological vulnerability context of 15 districts in five provinces in Zambia – floods (which have led to loss of and unquantified damage to property and crops) in some districts and droughts (leading to food and nutrition insecurity, disease outbreaks, poor quality grazing grounds etc.) in others, deforestation and land degradation (poor soil fertility) and average poverty level of 73.2%, among others. The extreme weather events are projected to increase in both intensity and frequency, coupled with increase in temperature and reduction in precipitation. In this vulnerable context, the project targets building adaptive capacity and enhancing climate resilience of local communities through implementing concrete adaptation interventions.

~~476-171~~. By focusing on building and improving the portfolio of livelihood options, the project takes a holistic and multisectoral approach that addresses key adaptation barriers in the districts – including building capacities, raising awareness regarding climate change risks and coping strategies, concrete livelihood strategies to improve community and household-level adaptive capacities (through both on and off-farm activities) while facilitating community members' access to financial services to invest in climate-sensitive sectors (sectors such as agriculture which are viewed as risky particularly when it is about smallholder farmers on customary land that cannot even be collateralized) that underpin their livelihoods. Community-based climate adaptive actions on the ground will improve sustainable natural resources management and enhance agricultural productivity by these communities while contributing

to strengthening ecosystem resilience in production landscapes. Climate-responsive practices such as climate smart agriculture, agroforestry interventions will not only improve agricultural productivity, but also make production more reliable, contributing to household food and nutritional security.

477-172 The justification for the request for funding is more comprehensively structured in the table below:

Table showing project outcomes with AF funding compared to no funding scenario

Component	Project Outcome	Baseline scenario (without AF funding)	Alternative AF scenario
Component 1 Building and promoting equitable diversified, resilient and sustainable community livelihood options	Outcome 1.1: Promoted and diversified livelihood options strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events	<p>With women in their role and activities related to natural resource extraction, the overreliance on the exploitation of natural resources for survival is inevitable for rural communities because communities have lean asset portfolios. That is, they have specialized in natural resources-based livelihood income streams in the face of a climate change context that demands diversification to survive. Given the frequency and intensity of extreme weather events together with animal and crop (associated with changes in temperature rise and delays in rainfall onsets) and human disease outbreaks, debilitating community-level of institution.</p> <p>Additionally, one of the biggest challenges is lack of rural infrastructure to support the growth of rural economies that can improve the adaptive capacities of rural communities. Road network and infrastructure centres are barely enough.</p>	<p>The project under AF scenario will support the diversification of livelihood option to build their resilience. Thus it will support an emergency food security fund to respond to urgent needs of particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts to support 4,000 households; and Promoting diversification livelihood strategies beyond farm level interventions (promotion of off-season production using irrigation-rainwater harvesting systems - agro-forestry – linked to nurseries at community level on 1,000 ha, among others.</p> <p>In the same breath of building diversified and resilient livelihoods to enhance rural adaptive capacities, the project will support marketing of produce, local level processing and marketing (branding and labelling) of selected crop and animal products, and repair 5 critical crossing points to facilitate market linkages between producer groups and buyers, among others.</p>
Component 3: Innovative local financing systems to	Outcome 2.1 Vulnerable communities in target provinces	In the target districts, credit availability is a challenge due to geographic isolated rural communities. Therefore,	The project under AF scenario will intervene through concrete activities that will provide financing

Component	Project Outcome	Baseline scenario (without AF funding)	Alternative AF scenario
build community adaptive capacities in climate sensitive sectors	access financial services and increase their investments in key climate-sensitive sectors.	smallholders cannot afford up-front cash outlays (e.g., input costs) and investment costs (e.g. seedlings, improved climate tolerant seeds, labor costs for construction of soil conservation structures, machinery and tools, vaccinations and pest control) associated with the implementation of climate-resilient farming practices, adoption of adapted varieties and improved breeding, crop diversification and agroforestry options.	and credit guarantees for agro dealers and other larger businesses working in the rural finance space, including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance. Additionally, the project will also lead to tailored financing solutions for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units, among others.
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building	Outcome 3.1 Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level	National and subnational level capacities to more effectively implement adaptation activities are limited in Zambia. This is at two levels: anecdotal evidence about climate change impacts; and inadequate number of trained staff and their understanding of climate change adaptation. Additionally, access to financial resources is limited, and often geographical location determine the level of support from government systems, with isolated places barely receiving any public socioeconomic services. Financial service providers exist or are accessible by smallholders, the providers lack the relevant knowledge and mechanisms to integrate climate change risk management in their agricultural and rural development portfolios. Therefore, there is a level of disconnect between needs of smallholders and what financial	The project under AF scenario will intervene through concrete activities that will support formation of commodity based cooperatives/ farmer organisations, facilitate their access to production inputs (linkage to FISP and agro dealers) and facilitate linkages to larger agro input suppliers and Support bulk purchase of production inputs Capacity development of individual and farmer groups in entrepreneurship and market literacy, group business management, group governance, and advocacy

Component	Project Outcome	Baseline scenario (without AF funding)	Alternative AF scenario
		service providers are seeking to provide	

173. Therefore, the Adaptation Fund resources will be a game changer in addressing some of the most critical structural and systemic challenges that stifle rural communities' ability to cope with the impacts of climate change, particularly extreme weather events that have become more frequent and severe in the target districts. Adaptation Fund resources will be critical in ensuring the socioeconomic and ecological resilience of the 15 districts in five provinces – developing a suite of software and hardware interventions to holistically address key adaptation barriers and support the building of livelihood and asset portfolio of the poor communities living in a very socioecological vulnerable context.

J. Sustainability of the project outcomes

183. This project builds on the achievements and institutional arrangements of RUFEP that has been promoting access to and usage of sustainable financial services and products by poor rural men, women and youth across Zambia, including in the CALRF districts. RUFEP is anchored in the Ministry of Finance but engages various partners and institutions, both government and non-government. The design of CALRF is taking advantage of all these institutional arrangements and partners to ensure: i) a participatory approach in the identification of project priorities, communities and activities; ii) social license that will ensure effective collaboration, ownership and sustainability of project activities and outcomes; and iii) cost effectiveness. The active participation of beneficiaries and local public and private entities throughout the project cycle: design, implementation, monitoring/ supervision and evaluation will ensure the project's sustainability at the level of its activities and results.
184. The Project will benefit from the established, proven and tested fiduciary, institutional and organization systems as well as knowledge and expertise of the existing staff of RUFEP, and the Ministry of Finance (with excellent experience in the Pilot Programme for Climate Resilience which was well managed) which will be strengthened with expertise in climate change adaptation and other specialists as needed. RUFEP has generated significant goodwill in the financial sector. It is a respected opinion leader and has a good reputation. It has the databases, networks and partnerships necessary for the immediate commencement of the project once financing agreements are concluded. The learning curve will be significantly shortened.
185. The project will build capacities of key relevant stakeholders. It should be noted that strengthening institutional and individual capacities of project stakeholders is consistent with the sustainability logic of this project.
186. The creation of stakeholder coordination and collaboration structures will ensure that technical expertise and experiences are continuously shared and utilized during implementation of activities in the districts – this will ensure technical and technological sustainability. The introduction of some technologies will be undertaken through a financing arrangement linked to catchment management that contributes to adoption of best practices by communities while ensuring environmental protection. Communities will also be engaged in the local production of initiatives for easy dissemination.
187. Communities will be involved in the project activities that will enhance their resilience and improve their climate change adaptive capacities. They have experienced the negative implications of extreme weather events, including losing their property, animals and crops. Therefore, it will be in their best interest to sustain any interventions to support them to cope with the impacts of extreme weather events. Coaching and sustainability training will be essential activities. Demonstrated socioeconomic

and environmental benefits themselves will be critical in ensuring sustainability of project outcomes as long as sustainability is built into the studies and activities related to the environmental, social and climate aspects.

188. *Economic sustainability:* The project will focus on improving access to innovative financial services to support community investments in climate-sensitive sectors that will be made available to the communities depending on their livelihoods. The project will also support diversification of livelihoods, physical infrastructure (to improve production but also facilitate links to markets) while contributing to on and off-farm job opportunities. This approach and level of intervention will ensure economic sustainability beyond the life of the project.
189. *Financial sustainability:* Connected to economic sustainability, this project is designed to include profitable income generation and entrepreneurial activities, which will make the project outcomes financially sustainable. Communities and financial and value chain providers as well as private sector investors will be delivering these interventions that will be selected taking into account their viability based on local socioeconomic circumstances – ensuring women and youth participation and easy adoption by community members. For this, community members will be fully engaged in the identification of activities so that financial sustainability does not elude the project.
190. *Institutional sustainability:* The involvement of grassroots institutions such as civil society organizations (including Farmer Groups/ Associations and Savings Groups), with experience working with communities and the private sector in finance will strengthen institutional sustainability for adaptation and resilience-building. Additionally, the coherence of the proposed project with the development strategies and policies in Zambia in particular the National Disaster Management Policy (2005), The Zambia National Agricultural Policy (2012-2030), the Rural Finance Policy and Strategy (2012) and the 7th and 8th National Development Plan (2017-2021 and 2022-2026). The alignment of this project's priorities with those of the government will ensure government-level institutional support and sustainability. Furthermore, this project will be anchored in the Ministry of Finance, a key ministry in the development of Zambia – and therefore, will ensure the outcomes are sustained and contribute to the overall development agenda of the country as ensured by the ministry.
191. *Environmental sustainability:* Consistent with IFAD's social, environmental and climate compliance standards, the project activities have been screened and risk avoidance or minimization measures articulated. To improve environmental sustainability and build resilience to climate change (drought and flooding leading to erosion and loss of soil fertility and destruction of the livelihoods of populations), the proposed project will promote the sustainable management of natural resources by facilitating the dissemination and adoption of technologies, including climate smart farming and agroforestry practices – practices that are consistent with adaptation and resilience-building but also promote integrated natural resources management. Monitoring and evaluation, lessons learned, knowledge management, and reporting are the pillars of any sustainability programme.

In terms of maintenance of infrastructure and installations, because of the greater multiplier effect of interventions within producer groups and cooperatives, the project will prioritize groups. This has been learned from TRALARD where it has been shown that working with communities in cooperatives or producer groups compared to individuals gives better results. Therefore, infrastructure and other installations will be dedicated to specific groups or cooperatives with management structures established to effectively ensure groups take care of the tear and wear of equipment. However, local communities will get technical support from local council engineers who are present in all the districts targeted by this project. It should also be noted that installations will be ones that communities can easily use to avoid having complicated systems that communities will fail to operate or fail to repair in case of mechanical problems.

K. Overview of the environmental and social impacts and risks

192. The proposed project activities have been designed in consultation with different stakeholders to ensure that the outcomes are overall positive and contribute to enhancing resilience and building adaptive capacities of the most vulnerable people in 15 districts facing serious challenges of extreme climatic events, poverty and degradation of the resource base. It should be noted that for some of the activities, the proposed interventions and investments have not been exhaustively defined at this project proposal stage. Further risk assessments will be undertaken at the project implementation stages, which include the Adaptation Fund principles checklist. The Adaptation and Sustainability, Gender and Social Inclusion Specialists, M&E Specialist, Natural Resources Management Specialist will be involved to support the process. At this stage of proposal development, the project indicates that activities during implementation will be screened against the 15 principles of the Adaptation Fund with participation of relevant stakeholders.

193. The relevant Adaptation Fund environmental and social safeguards will be incorporated and mainstreamed in all the revolving fund investments. The proposed interventions are not expected to induce irreversible negative impacts on the natural systems including priority natural habitats and biodiversity as well as social irreversible negative impacts on the communities, or vulnerable groups. The project will ensure the monitoring and mitigation of any eventual social, environmental and climate change related risks. This monitoring will involve all relevant stakeholders through a participative approach that will include adequate risk mitigation measures to be implemented along with the activities will be developed.

194. Table below provides an overview of the assessment against AF principles

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	x	Low risk: Through consultations with different stakeholders, including government agents, compliance with national regulations will be ensured and therefore the risk is low. Through monitoring ensure adequate management verification that safeguards are in place and are a mirror of these principles.
<i>Access and Equity</i>	x	Moderate risk: In promoting access to financial services particularly, the project will operate in a socio-cultural context that keeps women and the youth from lucrative undertakings. The project will be deliberate and ensure equitable representation of both males and females. It will also target the poor, isolated from political power and decisions, the vulnerable to build their adaptive capacities and resilience.
<i>Marginalized and Vulnerable Groups</i>	x	Low risk: As noted above, the project's target group is vulnerable rural populations thereby ensuring social inclusion is a key consideration in the project particularly providing adaptation options and increasing access to rural finance for these groups. The full design has conducted an analysis of the profiles of the communities and the targeted areas particularly for the revolving fund activities. The profiling improved the targeting of the project, ensuring the inclusion the vulnerable – in the context of the project, the vulnerable include the socioeconomically non-empowered community members, and include women, the youth and the differently abled.
<i>Human Rights</i>	x	Low risk: The project will contribute to sustained economic and social inclusion by targeting the rural vulnerable poor communities in 15 districts. The project, and in consultation and engagement with different stakeholders is cognizant of Zambia's policies and law to promote human rights, including the labour laws. The project will ensure adherence, particularly paying attention to child labour

		in all the project-funded activities.
<i>Gender Equality and Women's Empowerment</i>	x	Low risk: The Project has in its objectives gender equality and women empowerment, which should be improved through the project activities. The Gender Action Learning System will be applied and specifically the Household Methodology to ensure results are achieved. It should also be noted that 50% of the direct beneficiaries will be female
<i>Core Labour Rights</i>	x	Low risk: The project will support activities that will require human labour. Through the application of the SECAP, screening will be conducted on investments to ensure labour rights are respected. Any contracts awarded under the revolving fund activities will also include relevant clauses on adherence to labour rights and subsequent monitoring and reporting will be required. Additionally, as has been noted above, no child labour will be tolerated in adherence to the Zambian laws and international best practices.
<i>Indigenous Peoples</i>	x	No risks: Technically, there is no group in Zambia that identifies itself an Indigenous People. Where the project activities will be implemented, principles of Free, Prior and Informed Consent (FPIC) will be adhered to.
<i>Involuntary Resettlement</i>	x	Low risk: Some of the project activities will involve infrastructure development – including paving some strategic roads. Due diligence will be done to avoid involuntary resettlement during implementation. At implementation, the aim will be to avoid any involuntary resettlement. The proposed infrastructure will be small in size, and will not lead to any involuntary resettlement. The process of infrastructure will consider existing land tenure system in Zambia. Since the infrastructure will be in rural areas, the land is under traditional chiefs (customary land) but the land is used by community members. It should be noted that Zambia is sparsely populated, and communities in rural areas rarely live in agglomerations. This limits the chance of land scarcity within community contexts to trigger undesirable physical or economic involuntary resettlements. Finally, regarding crossing points, the project will only focus on repairs rather than construction of new ones.
<i>Protection of Natural Habitats</i>		Low risk: As noted above under 'Involuntary Resettlement,' through infrastructure development, the project may contribute to disturbance of natural habitats. However, considering the envisaged level of development, disturbance to natural habitats will likely be minimal or non-existent. Concrete activities will be screened, otherwise should, any of the activities lead to destruction of the natural habitats, full scale social and environmental assessment will be undertaken.
<i>Conservation of Biological Diversity</i>		Low risk: As noted above under 'Involuntary Resettlement,' through infrastructure development, the project may contribute to disrupting Conservation of Biological Diversity. However, considering the envisaged level of development, disturbance to Conservation of Biological Diversity will likely be minimal or non-existent. Concrete activities will be screened, otherwise, should any of the activities lead to disruption of the Conservation of Biological Diversity, full scale social and environmental assessment will be undertaken.
<i>Climate Change</i>	x	Low Risk: The project does not have any negative impact on climate change. The project interventions are actually aimed at addressing adverse effects of climate change. Activities centered on assisted natural regeneration and agroforestry systems, for example, will have mitigation benefits to the impacts of climate change. Continued stakeholder consultations will ensure that none

		of the proposed interventions directly or indirectly increase social and environmental vulnerabilities to climate change. They will also ensure that a robust suite of adaptation measures is implemented. Overall, the project activities will promote climate change adaptation and will not result in any increase in greenhouse gas emissions.
<i>Pollution Prevention and Resource Efficiency</i>	x	Moderate risk: The Project will be the subject of an Environmental and Social Impact Analysis that will consider pollution, public health, physical and cultural heritage, as well as Lands and Soil Conservation will be examined in the analysis. However, during infrastructure development, particularly road rehabilitation, there will be minimal noise and dust. Efforts will be done by the service providers to keep noise and dust to the minimum. These aspects will be included in the service provider contracts.
<i>Public Health</i>	x	Low risk: Livelihood activities will contribute to improving the health of beneficiaries through food and nutritional security. However, working conditions across many sectors in the rural areas are generally poor owing to poverty level, isolation from law-enforcement authorities, among other factors. The project will ensure health and safety standards are in place and adhered to, including mandating service providers in infrastructure development to submit job and health analysis. Monitoring will be done, and full scale environmental and social assessment done should any activity trigger high risk impact on public health.
<i>Physical and Cultural Heritage</i>	x	No risk: No investments will be made in areas with physical and cultural resources of importance.
<i>Lands and Soil Conservation</i>	x	Low risk: Sustainable land management and improved soil fertility are part of the project results. The environmental and social impact analysis at design will determine whether any impacts on land and soil conservation are envisaged and will provide management and monitoring measures if required. The infrastructure development activities will not target areas for agricultural and or animal production so as not to compromise soil conservation practices. If any risks, they will be minimal and localized.

195. Based on the environmental and social risks screening against the 15 principles of the Adaptation Fund ESP, the project is categorized as a Category B project and classified as a moderate risk project (SECAP), with some, potential adverse impacts and risks that are reversible or mitigated. As has been noted under involuntary resettlements in the overview of the assessment against AF principles Table above, the focus to repair crossing points rather than constructing new ones will ensure minimum social and environmental disturbances in the targeted places. The climate risk classification of the CALRF is substantial (SECAP) due to the fact that the target areas have experienced climate shocks such as droughts and floods that have resulted in loss of crops and livestock, damage to infrastructure and adversely impacted livelihoods of the CALRF beneficiaries.

196. An Environmental and Social Impact Analysis (ESIA), and CRA (Climate Risk Analysis), will be available at implementation phase in compliance with the Zambia Environmental Management Agency (ZEMA) that provides policy guidance regarding ESIA based on the proposed development to the land and ensures compliance to environmental standards. This categorization reflects the socioeconomic context of CALRF areas where land is held under traditional authorities and the areas are sparsely populated – no villages in the traditional sense of household agglomeration in one area. On the contrary, people tend to live far apart where in some cases, households are dotted like 500m to a kilometer apart.

197. It is reiterated that for all community-level infrastructure development activities, the project will ensure adherence to ZEMA regulations and the applicable building codes, in compliance with labour laws – to ensure underage local community members are not part of the labour force. If any environmental issues, they are anticipated to be minimal and localized. Specific compliance and mitigation measures will follow at implementation stage after submission of construction plans to ZEMA which will provide guidance on the requirement for EIAs for infrastructure development sites. This will be part of the final steps. The initial actions during pre-inception will involve coordination of the roles and responsibilities of those involved in managing these risks with the ESS specialist taking the lead role but also with the support from Gender and M&E Specialists.

198. The potential environmental and social risks posed by the project are limited and constrained to feeder road rehabilitation, repairs of crossing points, small-scale irrigation and drainage. The project will not have any negative impacts such as the involuntary taking or restriction on the use of land resulting in physical or economic displacement or negatively affect local peoples⁸⁰ or sites of historic, religious or cultural significance. Once again, the project is categorised as a 'moderate' project according to IFAD's Social, Environmental and Climate Assessment Procedures (SECAP), which means any adverse impacts will be site specific in non-sensitive areas, mostly reversible and can be managed with appropriate measures. Further analysis and an environmental management plan will however be mainstreamed throughout project design and implementation and be largely covered by the Adaptation Fund funded activities – this will be done and determined with guidance from ZEMA at the implementation of activities related to infrastructure development and others that could trigger social and environmental concerns.

Grievance Redress Mechanism

199. CARLF has conducted extensive consultations with various stakeholders at national and sub-national levels. Despite the buy-in, enthusiasm and commitment from different stakeholders, CARLF recognises that socioeconomic and contexts within communities evolve – and consequently, conflicts may erupt in due course of project implementation. Therefore, the project implementation strategy will have a grievance redress mechanism embedded in it that builds on existing systems at community level.

200. In order to reduce conflicts, a robust grievance/complaints mechanism that meets at least the following 'effectiveness' criteria will be instituted:

- *Legitimate*: enabling trust from the stakeholder groups for whose use they are intended, and being accountable for the fair conduct of grievance processes;
- *Accessible*: being known to all stakeholder groups for whose use they are intended, and providing adequate assistance for those who may face particular barriers to access;
- *Predictable*: providing a clear and known procedure with an indicative time frame for each stage, and clarity on the types of process and outcome available and means of monitoring implementation;
- *Equitable*: seeking to ensure that aggrieved parties have reasonable access to sources of information, advice and expertise necessary to engage in a grievance process on fair, informed and respectful terms;
- *Transparent*: keeping parties to a grievance informed about its progress, and providing sufficient information about the mechanism's performance to build confidence in its effectiveness and meet any public interest at stake;
- *Rights-compatible*: ensuring that outcomes and remedies accord with internationally recognized human rights;
- *A source of continuous learning*: drawing on relevant measures to identify lessons for improving the mechanism and preventing future grievances and harms;
- *Based on engagement and dialogue*: consulting the stakeholder groups for whose use they are

⁸⁰ In the Zambian context, there is no group of people that identifies itself as an indigenous community.

intended on their design and performance, and focusing on dialogue as the means to address and resolve grievances.

201. IFAD has established a Complaints Procedure to receive and facilitate resolution of concerns and complaints with respect to alleged non-compliance of its environmental and social policies and the mandatory aspects of its SECAP in the context of IFAD-supported projects. The procedure allows affected complainants to have their concerns resolved in a fair and timely manner through an independent process. Although IFAD normally addresses potential risks primarily throughout the design process and project, it remains committed to: (i) working proactively with countries and the affected parties to resolve complaints; (ii) ensuring that the complaints procedure is responsive and operates effectively; and (iii) maintaining records of all complaints and their resolutions⁸¹.
202. To ensure that complaints and dissatisfactions from project beneficiaries and communities are duly attended to and resolved, the apex groups of the farmer organizations will serve as the first level of grievance reporting mechanism. Issues that cannot be resolved at this stage will proceed to the community leadership. When the leadership is not able to resolve these issues, the matter will be escalated to the PCU through the project liaison officer at the community level.
203. The AF Project will as much as possible utilize every available grievance redress mechanisms including: associations (including farmers' associations/organizations) traditional council (Paramount Chiefs and elders), village square engagement (consisting of representatives of men, women and social groups), village general assembly, the PCU etc. In short, the project will use various avenues available to address concerns related to its implementation to ensure it remains on course to achieve objective without causing any socioeconomic or environmental harm to communities that it is designed to build adaptive capacities.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangements for project implementation

204. As has already been noted, this project builds on the successes of RUFEP. The implementation arrangements of the proposed project will build on RUFEP – this will be important in shortening the learning curve and time by taking advantage of RUFEP's established, proven and tested institutional and organization arrangements as well as knowledge and expertise of the existing staff. This will also prove useful in building on already institutional collaborations with other partners that RUFEP has been working with. However, the staff will be strengthened with expertise in climate change adaptation and other specialists, considering the natural resources and adaptation angles of the CALRF.
205. The project will have a PCU that will be established under the Ministry of Finance and National Planning/Green Economy and Environment. The PCU will be responsible for the day to day management of the project, providing directions and guidance to project partners and coordinating the project implementation, and officially engaging with partners in the executing of activities on the ground, and preparing and giving inputs to the project progress reports. The project will have its own manuals for execution, monitoring, evaluation and administrative, financial and accounting management. Thus, its roles will be: a) efficient and effective implementation of project activities; b) efficient coordination with project partners; c) efficient coordination with the Ministry of Finance, Ministry of Green Economy and Environment and Ministry of Agriculture for support to the project implementation; d) identify bottlenecks and potential impediments to project execution and raise these with the project steering committee to ensure decisions and action are taken e) identify synergies with potential project partners to add value to project and facilitate cooperation as necessary and f) any other activities, as necessary

⁸¹ IFAD (2016) Managing Risks to Create Opportunities. IFAD's Social, Environmental and Climate Assessment Procedures (SECAP) (IFAD: Rome), p.12

206. The recruited communication / knowledge management unit team will support the implementation of the proposed project. As noted, given the technical aspects of the project regarding adaptation, natural resources management, access to finances for investments in climate-sensitive areas, the need for gender mainstreaming, entrepreneurship and business development, the PCU will be constituted to reflect the expertise in key thematic areas of the project. However, at this stage, it can be confirmed the PCU will be headed by a National Project Coordinator who will be supported by an M&E Specialist and Administrative and Finance Officer. Gender is an important cross-cutting theme through all the three components. Therefore, to ensure gender mainstreaming, a Gender Specialist will be employed as full time staff within the PCU to ensure gender mainstreaming throughout the project activities. At more strategic level, the Project Steering Committee will also have members with expertise in gender equality and social inclusion to be able to support gender causes for the project.

207. Project Steering Committee (PSC): The project will have a PSC to provide implementation oversight of the project. It will have relevant representation at national and subnational levels, including key government institutions (i.e. Ministry of Finance and National Planning/ Green Economy and Environment, Ministry of Agriculture, Ministry of Livestock and Ministry of Small and Medium Enterprises), the Rural and Agricultural Finance/SME Working Group of the National Financial Inclusion Strategy, civil society organizations. Together, they will act as a Technical Advisory Group for project implementation, including giving inputs in the annual work budgeted plans and adaptive management strategies of the project.

The PSC will have annual regular meetings with a technical planning workshop organized prior to the first session of the steering Committee. This workshop will bring together all actors involved in the technical implementation of the project. The procedures manual will specify the relevant structures. The PSC will serve as a space for debate on themes concerning the project, including coordination of project activities given the involvement of three strategic ministries. The PSC will review and approve the Manual of procedures, schedules, and progress and audit reports of the project.

Implementing Partners: The design of this project has been explicit about the adaptation challenges in the priority districts. The project is seeking to address by building on existing assets by working with different partners to develop concrete measures to enhance the adaptive capacity of communities by broadening their livelihood base. Building on their comparative advantages, the project has identified the Copperbelt University, HODI and RESELL institutions in the development of two important value chains that are relevant to addressing the impacts of climate change and extreme weather events in the selected districts. An assessment of the value of these identified products and their full development, including how to engage community members in them as required will be facilitated by these institutions with support from the government through the PCU and PSC. The Copperbelt University will partner with CALRF on fisheries, and HODI and RESELL will collaborate with the project on fruit tree value chain development.

CBOs- Beneficiary Level: The project intends to facilitate community access to financial resources to empower them to be able to invest in climate-resilient measures, to enhance their ability to bounce back in the face of extreme weather events. The project recognizes the role of financial resources in increasing community resilience and in reducing their vulnerability. However, in rural contexts vulnerable to impacts of climate change, financial services are out of reach by communities. Where they are present, the financial products and services are limited and do not fully serve the adaptation needs of communities. Therefore, drawing on lessons from RUFEP, this project will partner with financial service providers to bridge the financial service gaps in rural areas. These will be at beneficiary level. These are: ZANACO, AGORA, Vision Fund Zambia, UBA and NASCO who have been part of the consultation process to identify opportunities for private sector engagement in financing adaptation activities within communities in the selected districts.

At this level, community groups or producer groups or cooperatives will actively be engaged within the project as beneficiaries but also as active participants in activities such as land rehabilitation,

rehabilitation crossing points, infrastructure development – that is, involvement even in jobs that will come with some interventions.

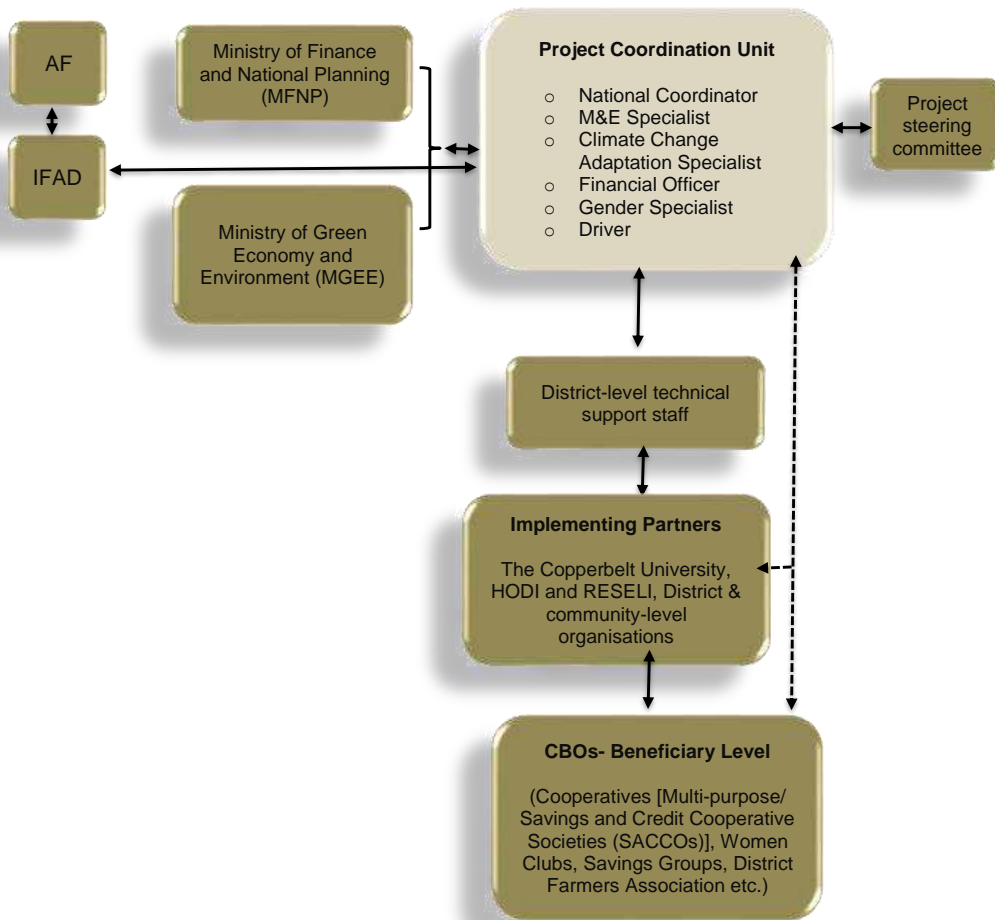


Fig. 12 showing the implementation structure of CALRF

207-208. To ensure more effective implementation of project activities, the project will have district-level structures of field technical officers to engage with communities and project partners on the ground. This will not only smoothen the implementation of project activities, but it will also help during the reporting processes. In this regard, the project will have national and sub-national implementation arrangement with clear communication strategies to ensure free flow of information and dissemination of lessons and results (Figure 12).

208-209. To ensure more effective implementation of project activities at beneficiary level, the PCU will work

through its selected Implementing Partners (IPs) per district. The selected IPs will in turn work through respective Community Based Organizations (CBOs) in reaching the target beneficiaries (poor rural men, women and the youth). This will be realized with the technical input from relevant Subject Matter Specialist at the levels of the PCU. While the PCU, MFNP, MGEE and the Steering Committee will constitute national-level structures of the implementation arrangement, the district-level technical support staff, the district and community-level organizations, and community-level producer groups/cooperatives will constitute subnational level structures to ensure quality delivery of services and project support to community members. This will be consistent with the project's strategy to be as close as possible to the communities during the implementation process.

209-210. Communication is cardinal during implementation to ensure timely response to challenges that the project might encounter. To this end, the project will foster a culture of transparency and accountability among all involved in the implementation structure. The project will embrace direct two-way communication strategy to enhance accountability and responsiveness in addressing hurdles that might be encountered. In the implementation structure above, solid double arrows show direct two-way approach in the communicating project implementation. The dashed two-way arrows represent indirect yet accountable communication channels.

211. IFAD, as the Implementing Entity, will supervise the project directly; providing continuous technical support and guidance to ensure smooth implementation of activities. In its role as Implementing Entity, IFAD will assume the overall responsibility to report on the project progress to Adaptation Fund while ensuring that the fiduciary practices within the project remain compliant with Adaptation Fund policies and guidelines. This will be a two-way communication between IFAD and Adaptation Fund. At higher level, IFAD will ensure continued engagement with stakeholders, including sharing best practices and lessons from the project at regional or international fora.

The different reports such as project inception report, the annual project progress reports, midterm reports and terminal evaluation fall on the charge of IFAD as the Implementing Entity. In case of delays due to any force majeure or indeed any other reasons, it is within the mandate of IFAD to report on the delays to Adaptation Fund. Additionally, special requests such as change of implementation arrangements, change in any of the targets in the results framework, provision of services or requests for extensions are supposed to be done through IFAD.

210-212. A Mid-Term review will be carried out jointly with the government to evaluate project progress, identify areas for further improvement and revise project approach, activities and budgets based on MTR findings and recommendations.

B. Measures for financial and project risk management.

211-213. The PCU will ensure adherence to financial reporting standards, in compliance with IFAD's reporting obligations to the Adaptation Fund. The table below details financial and project risks management.

Identified Risks	Risk Level	Risk Management Measures
Staff turnover within the government delay project implementation	Medium	Relevant government institutions and departments have been involved in the design of this project. Engagements will continue so that the government remains committed to the project's implementation. <u>This will be monitored through project progress reports.</u>
Insufficient capacities of PCU to effectively manage the day-to-day implementation of the project	Medium	- The proposed project will benefit from the proven experience of RUFEP, and a needs-assessment will be conducted to identify capacities that need additional training to ensure appropriate management and day-to-day implementation. Additionally, the project will conduct a competitive recruitment process so that the right experts with specific experiences in development project management and financial management procedures, including with

		appropriate experience in required accounting softwares are recruited. <u>This will be monitored through project progress reports and technical visits to the project sites.</u>
Loss of government support may result in lack of prioritisation of AF project activities	Low	As noted above, the design of this proposed project has benefited from government support, and IFAD remains a trusted partner in Zambia – given the portfolio of IFAD projects focused on rural development of smallholder farmers. Consultations and identification of mechanisms to ensure smooth implementation of the project will continue at all relevant administrative tiers. Recently, GRZ has formally expressed interest in the continuation of RUFEP. <u>This will be monitored through project progress reports and technical visits to the project sites.</u>
Communities fail to support project activities and they are not informed	Medium	The project has already engaged some community members, and will continue with awareness campaigns and hold stakeholder meetings to explain the project to the communities. Local leadership will be involved in these meetings to secure a strong buy-in. <u>This will be monitored through project progress reports and technical visits to the project sites.</u>
Competing interests between different stakeholders regarding accessing and use of natural resources	Low	The project will continue being consultative in its approach of engaging stakeholders, and will seek to establish a multi-stakeholder dialogue platform to nurture cooperation and shared interests in the project. <u>This will be monitored through project progress reports and technical visits to the project sites.</u>
Low technology adoption rate by communities	Low	Promotion and demonstration of new technologies and practices, focusing on those that communities can easily adopt, practices that build on what they already have. The roll-out of digital finance technology by RUFEP proves that communities are willing and ready to adapt and can do so quite quickly. <u>This will be monitored through reports and technical visits to the project sites.</u>
Project implementation and financial management procedures do not guarantee sufficient transparency and accountability	Medium	The project will ensure teamwork and clear segregation of duties in the management of financial system so that the entire process is not managed by one single person. In fact, requests for financial resources will have to be approved by the steering committee, and disbursed according to budgeted work plans. Additionally, there will be regular financial audits. <u>This will be monitored through reports.</u>
<u>Financial service providers do not cooperate and decide to withdraw their commitment to the project</u>	Low	<u>ZANACO, AGORA, Vision Fund Zambia, UBA and NASCO that will be the financial service providers in the project have been part of the consultations, and have been adequately engaged. These institutions are looking for opportunities to enable them expand their services, and the project is that opportunity for them. Therefore, risk associated with their withdrawal of interest is low. Throughout the implementation of the project, engagements with them will continue. This will be monitored through reports and technical visits to the project sites.</u>
<u>Occurrence of extreme weather events (floods and droughts)</u>	High	<u>Zambia has been extreme weather events which have intensified and have become an annual phenomenon. In some parts, there are floods (notably southern region), and in others, droughts (other parts of the country). The project is designed to essentially to address these challenges, and will, among others, empower communities with access to financial resources to enable them to invest better in climate-resilient undertaking. The project will also support communities to access climate-resilient seed varieties, developed based on different climatic conditions across the three eco-regions in Zambia. Investments in early warning is another mitigation measure that the project will take, including providing food to 4,000 households. This will be monitored through reports and technical visits to the project sites.</u>

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

~~213-214.~~ The potential environmental, social and climatic risks emanating from these activities will include deforestation; land degradation; inappropriate use of agrochemicals leading to pollution; conflicts; gender-based violence; child labour and social unrests. These activities may cause pollution of environmental media such as water, soil, etc, and pose occupational health hazard, water use conflicts, conversion and/or loss of physical cultural resources during construction of infrastructures etc. Most of the impacts will be localized to the project site, short term and most importantly can be avoided/reduced or mitigated by properly applying mitigation measures.

~~213.~~

~~214-215.~~ The measures for risk management include: cutline clearance is to be minimized as far as possible to reduce the potential for any environmental impacts; sensitive habitats should be avoided. (Wetlands and stream banks); clearing should be limited to working areas only, and these include areas for foundations for agricultural infrastructure etc.; revegetation and reforestation must be prioritized. (e.g., Planting grass, and trees as appropriate); over abstraction of construction materials like sand and gravel should be avoided; habitat restoration must be done where effects have been caused i.e., refilling burrows pits and re-grassing bare areas; sustainable range management must be practiced including rotational grazing, etc.; revegetation, re-grassing of all bare surfaces; minimisation of vegetation clearing to working areas only; use of existing roads to access the fields and farm sites and employ drainage control measures and culverts to control natural runoff and overland flow; installing soil erosion control structures like gabions, contour ridges, swells, and check dams; collection of all construction debris for proper disposal at designated landfills; waste from agricultural activities can be further processed into other uses, e.g., organic manure; reuse and recycling must be preferred over disposal of the waste; encourage organic farming and limit the use of Agro chemicals like inorganic fertilizers; use Integrated Pest Management (IPM) approaches to minimize pesticide use; conduct awareness training & workshops on safe handling of chemicals.

~~215-216.~~

~~216.~~ The ESMP for the proposed CALRF (see Annex 3), provides guidelines for the management of potential environmental and social aspects at the project sites. The ESMP also identifies parties responsible for monitoring actions, and any training or capacity building needs. Mitigation measures have been identified to reduce present and potential impacts associated with both the existing and new agricultural activities on the proposed project. In addition, mitigation measures are identified as either social or physical measures. Social mitigation includes the measures used to mitigate effects such as noise, land use, and other effects to the human environment. Physical mitigation includes measures that address impacts to the physical environment, such as biological communities, vegetation, air quality, and others.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund

217. The annual planning cycle of CALRF project will follow the GRZ planning and budgeting cycle. The cycle will commence with the Annual Work Plan and Budget (AWPB) preparation as a key instrument for implementation and operational control. The Project will follow a bottom-up participatory planning process for the AWPB. The first stage of planning and preparation of the AWPB will be carried out at the camp level, following the decentralized administration framework. The camp level plans will then be consolidated at the district level, then at the provincial level and, eventually, at the national level, into the Project AWPB. The approved AWPB will be the only mechanism through which Project resources would be spent and the basis for progress monitoring. Preparation of the AWPB will be led by the Project Coordination Unit (PCU).
218. The CALRF results framework will be the foundation of the Project's monitoring and evaluation (M&E) system and contains a set of defined Project specific indicators, the Adaptation Fund indicators and IFAD Core Outcome Indicators (COI), to guide continuous performance assessment of the Project. The CALRF M&E system will be participatory, gender responsive and results-oriented while enabling the integration of physical and financial progress reporting. In addition, the system will enable the analysis of climate change vulnerability and resilience among the beneficiaries using the combined resilience scorecard. The system will incorporate an in-depth baseline, COI surveys and completion surveys, a mid-term review and other thematic studies as relevant. The indicators in the results framework have been selected to allow tracking of resilience, adaptation, social and economic performance of target groups, especially women, youth and vulnerable groups. The system will conform to IFAD's Operational Results Management System (ORMS), updated SECAP guidelines and COI Guidelines and AF guidelines as well as GRZ existing M&E arrangements.
219. The overall responsibility for project monitoring, evaluation and reporting will rest with IFAD in liaison with the CALRF PCU. The Project will have a detailed M&E Plan developed at the start of implementation. The objectives of this M&E Plan will be to inform decision-making by project management during implementation to ensure achievement of the set goal and development objective. It would also enable accurate and timely reporting to all stakeholders. The M&E strategy will be to establish an iterative process for identifying issues and problems to ensure that the Project focus is maintained and expected results are achieved. This will rely on data from periodic monitoring but, more importantly, on specific outcome/impacts measurement exercise/surveys which will be carried out by the Project.
220. A baseline survey will be carried out at the start of implementation and subsequent rigorous evaluations that seek to establish Project impacts and provide lessons learned for enhanced Project impacts will be conducted after. The project's evaluation strategy will use quantitative and qualitative methods to determine how it contributed to climate resilient livelihoods among beneficiaries, at mid-term and end line. A final evaluation will consolidate data and provide recommendations for future efforts.
221. Monitoring of environment and climate aspects of the Project and implementation of appropriate mitigation measures will be done in two ways: a) monitoring physical progress against targets of proposed climate change adaptation/mitigation measures, environmental sustainability, and sustainable natural resource management interventions and b) monitoring and ensuring the implementation of mitigation measures against identified environment, social and climate risks associated with Project interventions. This will be done through implementation and regular monitoring of the ESMP and the accompanying Monitoring Plan.

222. The CALRF M&E processes, outcomes, outputs and activities are aligned with the AF Strategic Results Framework and with AF rules and regulations as well as the IFAD ORMS and COI framework. Thus, the following will be the key project M&E and reporting activities:

- Inception planning: The project will begin with an inception phase during which preliminary activities of establishing systems for project implementation will be undertaken. Inception activities will include developing and signing agreements with the relevant stakeholders and partners, recruitment and induction of staff and procurement of project equipment and materials. The inception period will also involve (i) planning and stakeholder engagement for setting up the relevant coordination mechanisms/structures such as the Project Steering Committee (PSC) and the PCU; (ii) setting up of project accounts; (iii) holding an inception workshop to launch the project to stakeholders, following which an inception report will be prepared and submitted within two months (iv) development of the AWPB; (v) refining implementation and targeting approaches; (vi) developing systems/tools including for M&E, community engagement including clarifying roles of the stakeholders.
- All planning, monitoring and reporting templates shall be validated at inception stage and AWPBs will be endorsed by the PSC.
- Baselines studies: The project will undertake a baseline survey at the start of implementation and subsequent rigorous evaluations that seek to establish Project impacts and provide lessons learned for enhanced Project impacts. The project's evaluation strategy will use quantitative and qualitative methods to determine how it contributed to climate resilience, improved livelihoods and food and nutrition security among beneficiaries, at mid-term and end line. A final evaluation will consolidate data and provide recommendations for future efforts.
- Quarterly and annual reviews and progress reports: Regular monitoring during project execution will be reported through quarterly progress reports and annual progress reports. Project Field Officers shall facilitate preparation of monthly progress reports for submission to the PCU. The PCU shall use the monthly progress reports to facilitate preparation of quarterly progress reports and annual progress reports to be submitted to IFAD and the AF. Project Progress Reports (PPRs) will be submitted annually to the AF based on the date is decided of the inception workshop. The Annual reports will outline financial, procurement and activity implementation progress against the targets in the results framework as well as compliance with the requirements of the environmental and social assessment and management frameworks. The annual reports will be presented and discussed by the PSC and during supervision missions by IFAD. The reports will also be useful in providing recommendations to inform the subsequent AWPB. The annual reports and work plans will be reviewed and approved by PSC before being submitted to IFAD no later than one month after the end of the project year. IFAD will then consolidate and submit the Annual Progress Reports in the standard AF PPR template to the AF Secretariat no later than two months after the end of the project implementation year. The PCU will ensure that the reports are supplemented by annual project work plans for the next Project year, also to be approved by the PSC. The annual plan for the forthcoming year will include details on specific project activities, roles and responsibilities, and a detailed budget with a disbursement schedule and procurement plan for major items included as annexes. The detailed AWPB will be used as the basis for the release of funds from IFAD to the executing agency for the first quarter of the following project year.
- At the end of the project, a Project Completion Report shall be prepared within six months after Project completion and submitted by IFAD to the AF secretariat. An external midterm review will be carried out half way through project implementation and will provide an overview of the state of project implementation, effectiveness of implementation arrangements and recommendations for project modifications if any. An independent final evaluation will be completed within nine months

after project termination. Finally, a financial audit will be provided by IFAD to the AF Secretariat six months after the end of the fiscal year in which the project ended.

The table below presents the budgeted M&E

<u>M&E Activity</u>	<u>Responsibility</u>	<u>Timeframe</u>	<u>AF budget</u>
<u>Inception workshop and report</u>	<u>IFAD, PCU</u>	<u>Start of project</u>	<u>15,000</u>
<u>Project meetings including PSC</u>	<u>PCU</u>	<u>Annually</u>	<u>18,000</u>
<u>Measurement of Means of verification and Project Purpose Indicators</u>	<u>PCU</u>	<u>Start, mid and end of project</u>	<u>9,000</u>
<u>Direct Project Monitoring and Quality Assurance including progress and financial reporting, project revisions, technical assistance and risk management (including those related to environmental and social risks)</u>	<u>PCU, IFAD</u>	<u>Semi-annually</u>	<u>10,000</u>
<u>Semi-Annual Progress Report</u>	<u>PCU</u>	<u>Semi-annually</u>	<u>-</u>
<u>Supervision missions</u>	<u>IFAD</u>	<u>Annually</u>	<u>Covered by IE fee</u>
<u>Mid-Term Evaluation</u>	<u>PCU</u>	<u>Mid-point</u>	<u>25,000</u>
<u>Annual Work Plans and Budget</u>	<u>PCU, IFAD</u>	<u>Annually</u>	<u>-</u>
<u>Site visits</u>	<u>PCU, IFAD</u>	<u>Annually</u>	<u>8,000</u>
<u>Terminal Evaluation</u>	<u>IFAD, External consultants</u>	<u>End of project</u>	<u>35,000</u>
		Total	120,000

C.E. C-Project's results framework

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
Overall objective: To build and enhance resilience and adaptive capacities of 8,680 ⁸² vulnerable households in five provinces to cope with extreme weather events through promoting diversified, resilient and sustainable community livelihood options and facilitating access to finances for investments in climate-sensitive sectors					
Building and enhancing adaptive capacities of vulnerable smallholder farmers through resilient livelihood options and access to innovative finances for investment in climate-sensitive sectors in five provinces in Zambia	AF Core indicator: Number of beneficiaries (direct and indirect)	0	43,400 people 50% of whom women direct beneficiaries, and ~217,000 as indirect beneficiaries.	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts do not disrupt project activities, including causing migration of beneficiaries.
	AF Core indicator: Number of smallholder farmers reporting improvements in their living conditions.	0	43,400 people		
	Number of institutions and smallholder farmers with strengthened capacity to reduce risks associated with climate change.	0	At least 15 (at least one per district)		
	Number of communities with increased adaptive capacity to climate change-driven hazards affecting their specific locations.	0	21,500 smallholder farmers 43,400 people		
	Climate Change priorities are integrated into national development strategy.	0	At least in 15 district development plans		
Number of farmers reporting better access to innovative adaptation practices, tools and technologies accelerated, and scaling -up and/or replicating	0	43,400 people			
Project Outcome	Project Outcome Indicator(s)	Fund Output	Target	Means of Verification	Risks and Assumptions
Component 1: Building and promoting equitable diversified, resilient and sustainable community livelihood options					
Outcome 1.1:				<ul style="list-style-type: none"> • Project M & E reports 	<ul style="list-style-type: none"> ○ Community

⁸² 8,680 households is equivalent to ~43,400 people, taking 5 as the average household size in Zambia

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
Promoted and diversified livelihood options strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events	<ul style="list-style-type: none"> Number of people benefiting directly from equitable, diversified and sustainable livelihood options 	0	43,400 direct beneficiaries	<ul style="list-style-type: none"> Field technical visits Progress reports Mid-term evaluation; and Final project evaluations 	<ul style="list-style-type: none"> engagement is sustained throughout the life of the project Government continues to demonstrate the same level of political will towards the project COVID-19 pandemic does not escalate to cause the halting of project field activities National peace and stability continue Extreme weather events such as floods and droughts do not disrupt project activities, including causing migration of beneficiaries.
Output 1.1.1 Rural community-based organisation groups (women, youth & other producer groups) own adaptation processes associated with climate change.	<ul style="list-style-type: none"> Number of needs assessment conducted to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members) 	0	15	<ul style="list-style-type: none"> Project M & E reports Field technical visits Progress reports Mid-term evaluation; and Final project evaluations 	<ul style="list-style-type: none"> Community engagement is sustained throughout the life of the project Government continues to demonstrate the same level of political will towards the project COVID-19 pandemic does not escalate to cause the halting of project field activities National peace and stability continue Extreme weather events such as floods and droughts don't disrupt project
	<ul style="list-style-type: none"> Number of smallholder farmers trained in climate smart agriculture in selected value chains (promote climate resilient varieties, soil management, water use efficiency etc.) 	0	1,500		
	<ul style="list-style-type: none"> Number of commodity based cooperatives/ farmer organisations formed to facilitate access to production inputs (linkage to FISP and agro dealers) and facilitate linkages to larger agro input suppliers and Support bulk purchase of production inputs 	0	45		
	<ul style="list-style-type: none"> Number of individual and farmer groups trained in 	0	1,500 individuals		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
	entrepreneurship and market literacy, group business management, group governance, and advocacy		45 farmer groups		activities, including causing migration of beneficiaries.
Output 1.1.2 Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.).	Number of hectares under off-season production systems using irrigation–rainwater harvesting systems - agroforestry – linked to nurseries at community level	0	1,000 ha	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term evaluation; and • Final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts do not disrupt project activities, including causing migration of beneficiaries.
	Number of hectares under climate smart agriculture focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts.	0	1,000 ha		
	Number of smallholder farmers trained in Integrated Pest Management and soil fertility management	0	2,500 smallholder farmers		
	Number of hectares under land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds.	0	1,000 ha		
Output 1.1.3 Targeted individual and community livelihood strategies of the vulnerable members in the target districts established and strengthened in response to the impacts of climate change, including variability, and more specifically increased extreme weather events.	Number of household beneficiaries of stocking of climate resilient livestock packages (i.e., pass-on packages)	0	1,500 households	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts don't disrupt project activities, including
	Number of hectares under adopted sustainable agricultural practices (including procuring more productive and drought-tolerant seeds) aquaculture; crop diversification	0	1,500 ha		
	Number of beneficiaries		1,000 beneficiaries (50% female-headed)		
	Number of detailed selected value chains studies conducted	0	4 (Mango, Fisheries, agroforestry, rice)		
	Number of staff with built capacities to improve extension services in target districts to support veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general); management of post-harvest losses; crop disease	0	150		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
	outbreaks (crop husbandry services in general and aquaculture).				causing migration of beneficiaries
Output 1.1.4 Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change-associated extreme weather events and impacts	Number of crops and animal products supported with local level processing, marketing (branding and labelling), and phytosanitary services.	0	3 crop and animal products supported with local level marketing services 3 crop and animal products supported with local level processing services 3 crop and animal products with local level phytosanitary services	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
	Number of small crop processing and storage facilities, smallholder irrigation systems, water supply and sanitation infrastructure procured and installed	0	15 processing facilities 15 storage facilities 30 irrigation systems		
	Number of critical crossing points repaired to facilitate market linkages between producer groups and buyers.	0	5		
Component 2: Innovative local financing systems to build community resilience and adaptive capacities in climate sensitive sectors					
Outcome: 2.1 Vulnerable communities in target provinces access financial services and increase their investments in key climate-sensitive sectors.	Number of vulnerable communities accessing financial services and increase their investments in key climate-sensitive sectors	0	21,500	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
Output 2.1.1 Financial Service Providers with promising adaptation	Number of measures integrated in community-level business models and financial products after conducting financial value chain analysis and risk	0	4		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards	assessment			<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
	Number of financial service providers engaged to provide technical and financial support in the design, development and testing/piloting and scaling of financial products, platforms, alternative distribution channels, credit enhancement mechanisms and financing instruments that speak to producer groups, SMEs and low income earners.	0	15		
	Number of financing and credit guarantees provided for agro dealers and other larger businesses working in the rural finance space, including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance	0	15		
	Number of tailored financing solutions supported for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units	0	6		
Output 2.1.2 Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out	Number of individuals benefiting from the blended finance options	0	2,500	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather
	Number of people benefiting from enhanced access to market systems and partnerships (production alliance model) that facilitate for climate resilient agricultural value	0	3,000		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
					events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
Output 2.1.3 Catalytic financing established	Number of Savings Groups and selected Savings and Credit Cooperative Societies (SACCOs) supported with digitalization considering the current technology architecture.	0	15	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
	Number of producer organizations benefiting from finance market driven-profitable climate resilient business solutions	0	30		
	Number of households benefiting from an emergency food security fund to respond to urgent needs of particularly food insecurity and utter livelihood loss in case of extreme weather	0	4,000		
Output 2.1.4 Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans	Number of strategies developed at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement.	0	15	<ul style="list-style-type: none"> • Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations 	<ul style="list-style-type: none"> ○ Community engagement is sustained throughout the life of the project ○ Government continues to demonstrate the same level of political will towards the project ○ COVID-19 pandemic does not escalate to cause the halting of project field activities ○ National peace and stability continue ○ Extreme weather events such as floods and droughts don't
	Number of Climate Adaptation Funds established to facilitate blended financing structures and ensure sustainability post-CARLF	0	1		
	Number of districts with operationalized Digital Financial Services Collaborative Framework.	0	15		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
					disrupt project activities, including causing migration of beneficiaries
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building					
Outcome 3.1 Enhance district-level planning and awareness raising for evidence-based resilience and adaptive capacity building.	Number of people directly reached out during awareness-raising for evidence-based resilience and adaptive capacity building	0	10,000 (50% of whom will be women)	<ul style="list-style-type: none"> Project M & E reports Field technical visits Progress reports Mid-term and final project evaluations 	<ul style="list-style-type: none"> Community engagement is sustained throughout the life of the project COVID-19 pandemic does not escalate to cause the halting of project field activities Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
Output 3.1 .1 Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building	<ul style="list-style-type: none"> Number of districts with strengthened climate change and extreme weather-related information systems in to reach target audience and train them in using the information to prioritize adaptation options in component 1 	0	15	<ul style="list-style-type: none"> Project M & E reports Field technical visits Progress reports Mid-term and final project evaluations 	<ul style="list-style-type: none"> Community engagement is sustained throughout the life of the project Government continues to demonstrate the same level of political will towards the project COVID-19 pandemic does not escalate to cause the halting of project field activities National peace and stability continue Extreme weather events such as floods
	<ul style="list-style-type: none"> Number of members at provincial and district-levels trained in climate change and systematic adaptation planning, including support towards policy, legal and regulatory environment for innovative financing. 	0	30		
	<ul style="list-style-type: none"> Number of climate change risks awareness-raising campaigns conducted 	0	30		
	<ul style="list-style-type: none"> Number of crop and livestock production and environmental data hub in target provinces established 	0	1		

Project Objective(s) ¹	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
	<ul style="list-style-type: none"> Number of tools developed for knowledge generation, management and dissemination mechanisms 	0	6		and droughts don't disrupt project activities, including causing migration of beneficiaries

D.F. D. Demonstrate how the project aligns with the Results Framework of the Adaptation Fund

Project Objective(s) ¹	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (\$)
Overall objective: To build and enhance resilience and adaptive capacities of 8,680 vulnerable households in five provinces to cope with extreme weather events through promoting diversified, resilient and sustainable community livelihood options and facilitating access to finances for investments in climate-sensitive sectors				
Building and enhancing adaptive capacities of vulnerable smallholder farmers through resilient livelihood options and access to innovative finances for investment in climate-sensitive sectors in five provinces in Zambia	No. of direct beneficiaries, disaggregated by gender	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	10,000,000
	No. of physical assets supported by the project (produced, developed, improved, or strengthened)	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	
	No. of households reporting increased income/diversified livelihood income streams	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	
	No. of beneficiaries accessing innovative financial services for investments in climate-sensitive sectors	Outcome 8: Support the development and diffusion of innovative adaptation practices, tools and technologies	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	
	No. of ha under sustainable crop and animal production systems	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	
	No. of people reached during planning and climate change awareness-raising campaigns	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	
Project Outcome	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (\$)
Component 1: Building and promoting diversified, resilient and sustainable community livelihood options				

<p>1.1: Promoted and diversified livelihood options strengthen the resilience and build adaptive capacities of vulnerable communities (8,680 households) to climate change-related extreme weather events in five provinces in Zambia (Luapula, Northern, Central, Southern and Western), which are very vulnerable to the recurrent extreme weather events</p>	<ul style="list-style-type: none"> Number of people participating in the: i) fish value chain; and ii) fruit tree value chain 	<p>Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p>	<p>Type of income sources for households generated under climate change scenario</p>	<p>5,839,400</p>
	<ul style="list-style-type: none"> Number of critical crossing points repaired to facilitate market linkages between producer groups and buyers. 	<p>Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets</p>	<p>4.2. Physical infrastructure improved to withstand climate change and variability-induced stress</p>	
	<ul style="list-style-type: none"> Number of people benefiting directly from equitable, diversified and sustainable livelihood options 	<p>Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p>	<p>Type of income sources for households generated under climate change scenario</p>	
	<ul style="list-style-type: none"> Number of needs assessments conducted to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members) 	<p>Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning.</p>	<p>No. of technical committees/associations formed to ensure transfer of knowledge</p>	
	<ul style="list-style-type: none"> Number of hectares under land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds. 	<p>Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability</p>	<p>No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</p>	
	<ul style="list-style-type: none"> Number of hectares under off-season production systems using irrigation–rainwater harvesting systems - agro-forestry – linked to nurseries at community level. 	<p>Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability</p>	<p>No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</p>	
	<ul style="list-style-type: none"> Number of hectares under climate smart agriculture focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts. 	<p>Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability</p>	<p>No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</p>	
	<ul style="list-style-type: none"> Number of established individual and community-level livelihood strategies for the vulnerable members in the target districts. 	<p>Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p>	<p>No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies</p>	
	<ul style="list-style-type: none"> Number of crop and animal marketing services and infrastructure supported and 	<p>Vulnerable development sector services and infrastructure assets strengthened in response to climate</p>	<p>Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts,</p>	

	strengthened in the vulnerable targeted districts	change impacts, including variability	including variability	
Component 2: Innovative local financing systems to build community resilience and adaptive capacities in climate sensitive sectors				
2.1 Vulnerable communities in target provinces access financial services and increase their investments in key climate-sensitive sectors.	<ul style="list-style-type: none"> Number of financial service providers engaged to provide technical and financial support in the design, development and testing/piloting and scaling of financial products, platforms, alternative distribution channels, credit enhancement mechanisms and financing instruments that speak to producer groups, SMEs and low income earners. 	Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	1,560,600
	<ul style="list-style-type: none"> Number of measures integrated in community-level business models and financial products after conducting financial value chain analysis and risk assessment 	Targeted population groups covered by adequate risk reduction systems	Percentage of target population covered by adequate risk-reduction systems	
	<ul style="list-style-type: none"> Number of tailored financing solutions supported for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units 	Targeted population groups covered by adequate risk reduction systems		
	<ul style="list-style-type: none"> Number of financing and credit guarantees provided for agro dealers and other larger businesses working in the rural finance space, including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance 	Targeted population groups covered by adequate risk reduction systems	Percentage of target population covered by adequate risk-reduction systems	
	<ul style="list-style-type: none"> Number of strategies developed at district and community-levels in target provinces to incorporate 	Improved integration of climate-resilience strategies into country development plans	No. of targeted development strategies with incorporated climate change priorities enforced	

	climate change priorities and support capacities for enforcement.			
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building				
3.1 Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level	<ul style="list-style-type: none"> Number of districts with strengthened climate change and extreme weather-related information systems in to reach target audience and train them in using the information to prioritize adaptation options in component 1 	Improved integration of climate-resilience strategies into country development plans	No. of policies introduced or adjusted to address climate change risks (by sector)	942,000
	<ul style="list-style-type: none"> Number of members at provincial and district-levels trained in climate change and systematic adaptation planning, including support towards policy, legal and regulatory environment for innovative financing. 	Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	
	<ul style="list-style-type: none"> Number of climate change risks awareness-raising campaigns conducted 	Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	
	<ul style="list-style-type: none"> Number of crop and livestock production and environmental data hub in target provinces established 	Targeted population groups covered by adequate risk reduction systems	Percentage of target population covered by adequate risk-reduction systems	
	<ul style="list-style-type: none"> Number of tools developed for knowledge generation, management and dissemination mechanisms 			

E.G. G- Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs

Activity	Budget Notes	Annual AF Grant
Component 1: Building and promoting equitable diversified, resilient and sustainable community livelihood options		
Output 1.1: Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.).		
Activity 1.1.1: Promoting diversification livelihood strategies beyond farm level interventions (promotion of off-season production using irrigation–rainwater harvesting systems - agro-forestry – linked to nurseries at community level on 1,000 ha	Besides the size of land under nurseries, this will involve concrete interventions such as irrigations systems to support livelihoods. Will require community mobilization	450,000
Activity 1.1.2: Investments in climate smart agriculture on 1,000 ha, focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts, including improving capacity of smallholder farmers through trainings in climate smart agriculture around selected value chains (promote climate resilient varieties, soil fertility management, water use efficiency, Integrated Pest Management etc.) entrepreneurship and market literacy, group business management, group governance, and advocacy.	Understanding the factors that can support the adoption of climate smart agriculture, and promote these agricultural practices – will require community mobilization.	520,000
Activity 1.1.3: 2,500 smallholder farmers training sessions in Integrated Pest Management and soil fertility management	Consultant to train smallholders in integrated pest management in the project area, particularly the districts with historical breakout of pests.	60,000
Activity 1.1.4: Land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha.	Based on contexts in districts, appropriate land rehabilitation and restoration will be done with full participation of community members to improve the productive capacity of land.	400,000
Output 1.1 subtotal		1,430,000
Output 1.2: Targeted individual and community livelihood strategies of the vulnerable members in the target districts established focusing on fish and fruit tree value chains and strengthened in response to the impacts of climate change and extreme weather events		
Activity 1.2.1: Support stocking of climate resilient livestock packages (i.e., pass-on packages) to 1,500 households	Through community mobilization and in collaboration with other organization, the pass-on packages will ensure quick response to shocks in some cases, and others, reduction of community vulnerabilities.	250,000
Activity 1.2.2: Build capacities to improve extension services in target districts of 150 staff to support veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general); management of post-harvest losses; crop disease outbreaks (crop husbandry services in general and aquaculture) (50% of which will be female-headed)	Assessment to understand gaps in knowledge and practices, and how the gaps are likely to influence project implementation. This will require short-term technical support. Community mobilization will be critical.	200,000

Activity	Budget Notes	Annual AF Grant
Activity 1.2.3: Conduct detailed value chain mapping and development of fruit tree and fish value chains.	An assessment of the value of these identified products and their full development, including how to engage community members in them as required. This will require implementing partners, namely The Copper belt University, RESELi and HODI to provide technical support.	3,000,000
Output 1.2 subtotal		3,450,000
Output 1.3: Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change -associated extreme weather events and impacts		
Activity 1.3.1: Support local level processing and marketing (branding and labelling) of selected crop and animal products, including enhancing phytosanitary services.	An activity that will ensure the engagement of different stakeholders, including phytosanitary agents to improve the marketability of both crop and animal products.	100,000
Activity 1.3.2: Support the procuring and installation of small crop processing and storage facilities, smallholder irrigation systems, water supply and sanitation infrastructure, among others.	Activity that is likely to slow down due to long processes of procurement, but will require technical support that will be procured through a competitive process.	600,000
Activity 1.3.3: Identify and prioritize to repair 5 critical crossing points to facilitate market linkages between producer groups and buyers.	This activity will need the expertise of consultants to repair critical crossing points.	680,000
Subtotal output 1.3		1,380,000
Total component 1		6,260,000
Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors		
Output 2.1: Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards		
Activity 2.1.1: Conduct financial value chain analysis and risk assessment, including engaging financial service providers and provide technical and financial support in the design, development and testing/piloting and scaling of financial products, platforms, alternative distribution channels, credit enhancement mechanisms and financing instruments that speak to producer groups, SMEs and low income earners	The assessment will be conducted with the support of an expert to understand gaps in community access to financial services, and how this project can contribute to reversing lack of financial access in the project's districts. The activity will bring different stakeholder around the financial services table to facilitate community access to financial resources and services.	45,000
Activity 2.1.2: Provide financing and credit guarantees for agro dealers and other larger businesses working in the rural finance space, including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance.	This activity will target the needy yet capable community members to support them cope better with climate change.	135,000

Activity	Budget Notes	Annual AF Grant
Activity 2.1.3: Tailored financing solutions for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units	Consistent with targeted interventions in this project, this activity will support with capacity development and pieces of equipment to communities – to be done with the support of experts in the field.	250,000
Subtotal output 2.1		430,000
Output 2.2: Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out		
Activity 2.2.1: Establishing the blended finance options to benefit 2,500 individuals	Establishing an innovative financial system to support financial access and services for communities.	400,000
Activity 2.2.2: Enhancing access to market systems and partnerships (production alliance model) that facilitate for climate resilient agricultural value chains and enhance access to finance.	Developing a model that will enable community access to finances.	30,000
Subtotal output 2.2		430,000
Output 2.3: Catalytic financing established		
Activity 2.3.1: Digitalization of Savings Groups and SACCOs considering the current technology architecture in the project's priority districts	The activity will seek to support the graduation of identified viable and promising.	20,000
Activity 2.3.2: Finance market driven- profitable climate resilient business solutions of viable producer organizations, including digitizing their accounting, financial management and reporting systems	With technical support from experts, this activity will conduct an assessment and develop finance market driven-profitable climate resilient business solutions, responsive to community socioeconomic contexts.	100,000
Activity 2.3.3: Establish an emergency food security fund to respond to urgent needs of particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts to support 4,000 households	This activity will be critical in responding to urgent shocks of community members, and will seek to work with the Disaster Management.	300,000
Subtotal output 2.3		420,000
Output 2.4: Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans		
Activity 2.4.1: Support the development of 15 strategies at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement.	This will involve stakeholder consultations whose views will be critical in the development of strategies that will mainstream climate change.	80,000

Activity	Budget Notes	Annual AF Grant
Activity 2.4.2: Establish a Climate Adaptation Fund to facilitate blended financing structures to support the operationalization of the Digital Financial Services Collaborative Framework in CALRF's 15 target districts and to ensure sustainability post-CALRF.	This will be technical assistance to support the operationalization of the framework to ensure it is functional and accessible by many potential users.	30,000
Subtotal output 2.4		110,000
Total component 2		1,390,000
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building		
Output 3.1: Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building		
Activity 3.1.1: Strengthen climate change and extreme weather-related information systems in 15 target districts to reach target audience and train them in using the information to prioritize adaptation options in component 1	This will require an assessment of climate change weather provision in the project catchment area, and then engage the right expertise to support strengthening information diffusion on climate change.	400,000
Activity 3.1.2: Conduct 30 climate change risks awareness-raising campaigns in the 15 target districts	Focus will on empowering communities with information to be delivered in different ways, including radio programs, plays etc.	100,000
Activity 3.1.3: Establish crop and livestock production and environmental data hub in target provinces	This will complement awareness-raising campaigns to create a one stop shop for critical information on crop and livestock production.	110,000
Activity 3.1.4: Develop tools for knowledge generation, management and dissemination mechanisms	This activity will develop tools for dissemination of knowledge and lessons from the implementation of this project to various audiences.	82,000
Subtotal output 1.3		692,000
Total component 3		692,000
		8,342,000
Project activity cost (A)		8,342,000
Project Execution costs (including M&E) (B)		
Project staff personnel (Coordinator, M&E Specialist, CC Adaptation Specialist, Gender Specialist, Financial Officer, Driver, including Short term technical support)		460,18,590
Project vehicle		57,000
Office operational costs, including computers, furniture		47,000
All staff travel expenses		66,000
Inception Workshop, baseline , mid-term and terminal evaluations (M&E)		78,120,000
External audits		57,000
ESP and GP compliance		32,000
Project equipment maintenance		44,000

Activity	Budget Notes	Annual AF Grant
Communication		33,000
	Total	874,590
Total Project Costs (A+B)		
	Total	9,216,590
Project Implementing Entity (8.5%) (C)		
Operational and Financial Management		170,018
Project Development and implementation support		313,018
Technical support and supervision		300,374
	Total	783,410
Total Amount of Financing Requested (A+B+C)		10,000,000

Project Disbursement matrix

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
Component 1: Building and promoting equitable diversified, resilient and sustainable community livelihood options							
Output 1.1: Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.).							
Activity 1.1.1 Promoting diversification livelihood strategies beyond farm level interventions (promotion of off-season production using irrigation–rainwater harvesting systems - agro-forestry – linked to nurseries at community level on 1,000 ha	450,000	25,000	225,000	100,000	100,000		450,000
Activity 1.1.2: Investments in climate smart agriculture on 1,000 ha, focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of the 15 districts, including improving capacity of smallholder farmers through trainings in climate smart agriculture around selected value chains (promote climate resilient varieties, soil fertility management, water use efficiency, Integrated Pest Management etc.) entrepreneurship and market literacy, group business management, group governance, and advocacy	520,000	40,000	200,000	200,000	80,000		520,000
Activity 1.1.3: 2,500 smallholder farmers training sessions in Integrated Pest Management and soil fertility management	60,000		30,000	30,000			60,000

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
Activity 1.1.4: Land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha.	400,000	50,000	150,000	150,000	50,000		400,000
Output 1.1 subtotal	1,430,000	115,000	605,000	480,000	230,000	0	1,430,000
Output 1.2: Targeted individual and community livelihood strategies of the vulnerable members in the target districts established focusing on fish and fruit tree value chains and strengthened in response to the impacts of climate change and extreme weather events							
Activity 1.2.1 Activity 1.2.1: Support stocking of climate resilient livestock packages (i.e., pass-on packages) to 1,500 households	250,000		50,000	100,000	50,000	50,000	250,000
Activity 1.2.2 Build capacities to improve extension services in target districts of 150 staff to support veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general); management of post-harvest losses; crop disease outbreaks (crop husbandry services in general and aquaculture) (50% of which will be female-headed).	200,000	50,000	100,000	50,000			200,000
Activity 1.2.3 Activity 1.2.3: Conduct detailed value chain mapping and development of fruit tree and fish value chains.	3,000,000	200,000	1,000,000	1,000,000	500,000	300,000	3,000,000
Output 1.2 subtotal	3,450,000	250,000	1,150,000	1,150,000	550,000	350,000	3,450,000
Output 1.3: Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change -associated extreme weather events and impacts							
Activity 1.3.1 Support local level processing and marketing (branding and labelling) of selected crop and animal products, including enhancing phytosanitary services.	100,000		50,000	50,000			100,000
Activity 1.3.2 Support the procuring and installation of small crop processing and storage facilities, smallholder irrigation systems, water supply and sanitation infrastructure, among others.	600,000	50,000	300,000	230,000		20,000	600,000
Activity 1.3.3 Identify and prioritize to repair 5 critical crossing points to facilitate market linkages between producer groups and buyers.	680,000	50,000	300,000	300,000	30,000		680,000
Output 1.3 subtotal	1,380,000	100,000	650,000	580,000	30,000	20,000	1,380,000
Total component 1	6,260,000	465,000	2,405,000	2,210,000	810,000	370,000	6,260,000
Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors							
Output 2.1: Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards							

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
Activity 2.1.1 Conduct financial value chain analysis and risk assessment, including engaging financial service providers and provide technical and financial support in the design, development and testing/piloting and scaling of financial products, platforms, alternative distribution channels, credit enhancement mechanisms and financing instruments that speak to producer groups, SMEs and low income earners	45,000		45,000				45,000
Activity 2.1.2 Provide financing and credit guarantees for agro dealers and other larger businesses working in the rural finance space, including strengthening crop weather insurance and expanding the coverage of the livestock weather index insurance	135,000		30,000	60,000	45,000		135,000
Activity 2.1.3 Tailored financing solutions for agricultural mechanization and climate smart technologies e.g. Decentralized Renewable Energy sources, Solar Irrigation systems, Solar Cooling Systems, climate tolerant seed varieties and livestock breeds, improved storage and agro-processing units	250,000		125,000	125,000			250,000
Subtotal output 2.1	430,000	0	200,000	185,000	45,000	0	430,000
Output 2.2: Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out							
Activity 2.2.1 Establishing the blended finance options to benefit 2,500 individuals	400,000	20,000	400,000				420,000
Activity 2.2.2 Enhancing access to market systems and partnerships (production alliance model) that facilitate for climate resilient agricultural value chains and enhance access to finance.	30,000	30,000					30,000
Subtotal output 2.2	430,000	50,000	400,000	0	0	0	450,000
Output 2.3: Catalytic financing established							
Activity 2.3.1 Digitalization of Savings Groups and SACCOs considering the current technology architecture in the project's priority districts	20,000		20,000				20,000
Activity 2.3.2 Finance market driven- profitable climate resilient business solutions of viable producer organizations, including digitizing their accounting, financial management and reporting systems	100,000		30,000	70,000			100,000

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
Activity 2.3.3 Establish an emergency food security fund to respond to urgent needs of particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts to support 4,000 households	300,000		25,000	275,000			300,000
Subtotal output 2.3	420,000	0	75,000	345,000	0	0	420,000
Output 2.4: Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans							
Activity 2.4.1: Support the development of 15 strategies at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement.	80,000		50,000	30,000			80,000
Activity 2.4.2: Establish a Climate Adaptation Fund to facilitate blended financing structures to support the operationalization of the Digital Financial Services Collaborative Framework in CALRF's 15 target districts and to ensure sustainability post-CALRF.	30,000		30,000				30,000
Subtotal output 2.4	110,000	0	80,000	30,000	0	0	110,000
Total component 2	1,390,000	50,000	755,000	560,000	45,000	0	1,410,000
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building							
Output 3.1: Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building							
Activity 3.1.1: Strengthen climate change and extreme weather-related information systems in 15 target districts to reach target audience and train them in using the information to prioritize adaptation options in component 1	400,000	15,000	150,000	150,000	120,000	15,000	450,000
Activity 3.1.2: Conduct 30 climate change risks awareness-raising campaigns in the 15 target districts	100,000	20,000	20,000	20,000	20,000	20,000	100,000
Activity 3.1.3: Establish crop and livestock production and environmental data hub in target provinces	110,000	15,000	95,000				110,000
Activity 3.1.4: Develop tools for knowledge generation, management and dissemination mechanisms	82,000		10,000	60,000	12,000		82,000
Subtotal output 1.3	692,000	50,000	275,000	230,000	152,000	35,000	742,000
Total component 3							742,000
Project activity cost (A)							8,412,000
Project Execution costs (including M&E) (B)							
Project staff personnel (Coordinator, M&E Specialist, CC Adaptation Specialist, Gender Specialist, Financial Officer, Driver, including Short term technical support)							460,590
Project vehicle							57,000
Office operational costs, including computers, furniture							47,000

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
All staff travel expenses							66,000
Inception Workshop, baseline, mid-term and terminal evaluations							78,000
External audits							57,000
ESP and GP compliance							32,000
Project equipment maintenance							44,000
Communication							33,000
Total							874,590
Total Project Costs (A+B)							
Total							9,216,590
Project Implementing Entity (8.5%) (C)							
Operational and Financial Management							170,018
Project Development and implementation support							313,018
Technical support and supervision							300,374
Total							783,410
Total Amount of Financing Requested (A+B+C)							10,000,000

F.H. H- Include a disbursement schedule with time-bound milestones

Project disbursement schedule

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project activity cost \$	834,200	2,919,700	2,919,700	1,251,300	417,100	8,342,000
Project execution costs	87,459	306,107	306,107	131,189	43,730	874,590
Implementing Entity Fee \$	78,341	274,193 4	274,194 193	117,511 2	39,170 4	783,410
Total (\$)	1,000,000	3,500,000	3,500,000	1,500,000	500,000	10,000,000

IE Fees Breakdown

IE Fees Breakdown of M&E Supervision	Responsibility	Budget (USD)	Frequency
Technical supervision visits	IFAD, PCU, Government	80,000	Biannually
Training workshops on M&E	IFAD, PCU	50,000	2023
Mid-term evaluation	IFAD, PCU	90,000	2026
Final evaluation	IFAD, PCU	100,000	2028
Supervision missions and Ppolicy support	IFAD, PCU	1523,000	Biannually Annually
Portfolio management	IFAD, PCU	120,000	Biannually
Oversight	IFAD, PCU	112 20 ,000	Biannually

Financial management	IFAD, PCU	80,000	Biannually
Knowledge management activities and publications	IFAD, PCU	128,410	Biannually
		783,410	

Project Gantt Chart

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1: Building and promoting equitable diversified, resilient and sustainable community livelihood options																				
Output 1.1: Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.).																				
Output 1.2: Targeted individual and community livelihood strategies of the vulnerable members in the target districts established and strengthened in response to the impacts of climate change, including variability, and more specifically increased extreme weather events.																				
Output 1.3: Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change - associated extreme weather events and impacts																				
Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors																				
Output 2.1: Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards.																				
Output 2.2: Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified																				

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
and rolled out																				
Output 2.3: Catalytic financing established																				
Output 2.4: Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans																				
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building																				
Output 3.1: Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building																				

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

A. Record of endorsement on behalf of the government²

Mr Francis Mpampi, National Coordinator-National Designated Authority for GCF and AF Ministry of Green Economy and Environment	Date: 10 January 2022
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B. Implementing Entity certification

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 and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Mr Tom Mwangi Anyonge Implementing Entity Coordinator Director, a.i., Environment, Climate, Gender and Social Inclusion Division International Fund for Agricultural Development	
Date: 9 January 2023	email: ecgmailbox@ifad.org
Project Contact Person: Ms Paxina Chileshe-Toe Regional Climate and Environment Specialist, Eastern and Southern Africa, ECG Division, IFAD Tel : +254793484367 email: p.chileshe@ifad.org	
HQ focal point: Ms Janie Rioux Senior Technical Specialist (Climate Change), ECG Division, IFAD Email: j.rioux@ifad.org	

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.

Annex 1: Letter of Endorsement



Annex 2: Gender analysis for CARLF Project

Purpose of the gender analysis: Climate change adaptation strategies need to consider the socio-economic roles of both men and women in production landscapes; explicitly acknowledging the differential access and use of natural resources to cope with the impacts of climate change. The objective of this preliminary gender analysis is to provide sex-disaggregated information to inform the design of CARLF in Zambia. The analysis provides information on the different needs, capacities, roles and knowledge resources of women and men. A detailed gender assessment will be conducted during the development of the full proposal to ensure meaning inclusion and engagement of women in the design and implementation of the project - that is, ensuring gender equality.

National context: Zambia acknowledges gender gaps in the manner that men and women access natural resources that underpin livelihoods, particularly in rural areas where socio-cultural practices disadvantage women in their exercise of rights over resources. Women are underrepresented in certain sectors where men have taken leadership roles to control access and use of socioeconomic opportunities to the exclusion of women. Women's participation in traditionally male-dominated industries remains notably low at 20%. Women's participation in decision-making at all levels is low, with no women appointed as Provincial Ministers. This leads to socioeconomic marginalization of women by systemic structural barriers. Overall, Lack of institutional and human resource capacities, coupled with the persistence of patriarchal cultural beliefs or norms and Zambia's dual legal system (though recently revised to give supremacy to constitutional law) continue to hamper efforts aimed at achieving the full participation of women, girls, and the youth in various sectors, notably in education, sexual and reproductive health, and access to resources and economic opportunities, among others.⁸³ The women's access to inputs, technical advice, regulations, improved technologies, land ownership and decision-making processes are limited compared to men, thus constraining their resilience to climate change induced impacts. Making strides to address this challenge:

- The Forest Act 2015 mandates the Forest Department to devise and implement participatory forest management approaches for indigenous forests and plantations involving local communities, traditional institutions, nongovernmental organisations and other stakeholders, based on equitable gender participation.
- Creation of the Gender Division within the Office of the President
- Zambia has a National Gender Policy 2014
- Establishment of speedy handling mechanisms for gender-based violence cases in courts of law.

Despite these progressive actions, Zambia is in the medium category with a SIGI gender index value of 35%—and women score as low as 0%, 25% and 25% on legal framework access to non-land assets, to land assets and to financial services, respectively—compared to men.⁸⁴

Gender and climate change: Women living in rural areas are particularly vulnerable because of their specific role in agriculture and generally taking care of families—relying on climate-sensitive agriculture and forest resources. Consultations revealed that the lack of water in the villages and fuelwood leads women to walk long distances to collect water and fuelwood. Thus, conflicts related to the use of water points and fuelwood collection mainly involve women—impacting them more than men. The use of fuelwood for domestic use exposes women to respiratory diseases more than men.

Gender mainstreaming in the project: The project will be deliberate about gender inclusion in the project activities, including strategic decision-making processes that will ensure equitable representation of both men and women and the youth in accessing socioeconomic

⁸³ Republic of Zambia Ministry of Gender: Gender Status Report 2017–19

⁸⁴ OECD (2019). Social Institutions and Gender Index (SIGI): Zambia country profile

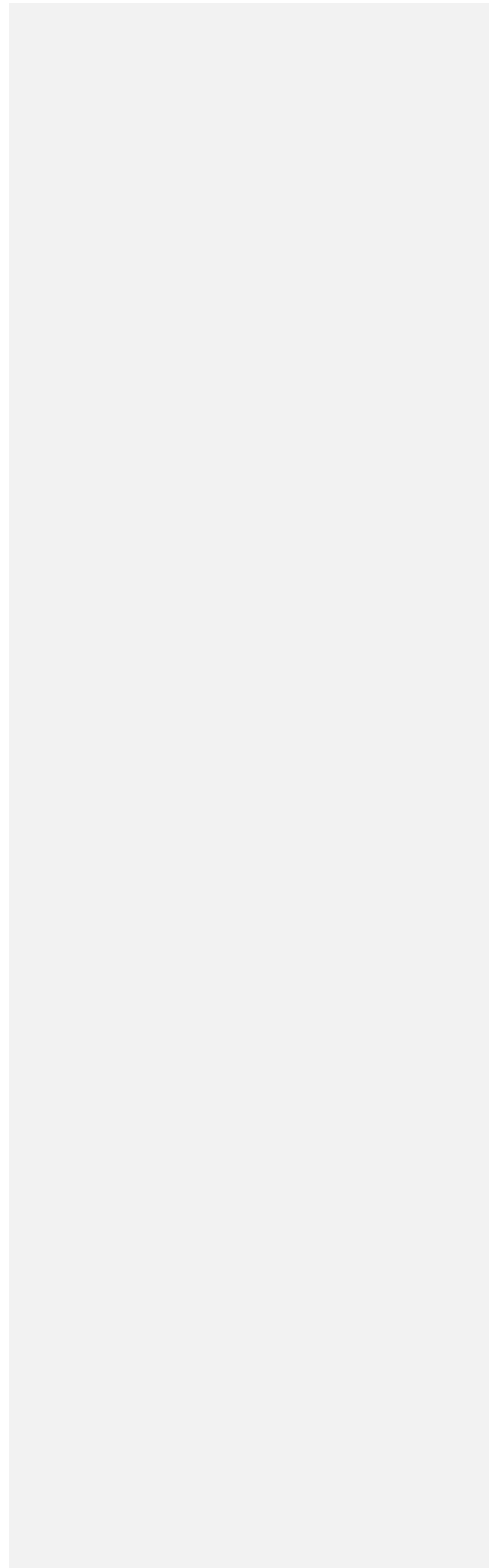
benefits from the project activities—particularly, access to financial services and support, livelihood options, capacity development to cope with the impacts of climate change and resource degradation. This will be consistent with Zambia's National Gender Policy of 2014 and the Gender Equity and Equality Act of 2015 that aim at gender equality in the development processes by redressing existing gender imbalances, and promoting gender equity and equality, respectively. Additionally, guided by IFAD's mainstreaming agenda for gender and youth as well as IFAD's targeting policy, the project will aim to reach at least 50% women among the beneficiaries and 30% youth. Social inclusion, particularly of vulnerable and marginalized groups will be part of the targeting strategy for the project.

During consultations, key issues raised are tabulated below. Ensuring women participation, consultations were conducted in the afternoon and separately from their men:

Key Issues	Action
Vulnerable/marginalized groups including small-scale fishermen/fish mongers, pastoral communities and smallholder farmers and women are the most affected by climate change but are often neglected in enhancing their climate adaptive capacity and resilience.	Take into account inclusion of all these vulnerable/marginalized groups into vulnerability assessments and in Climate Adaptation Action Plans, including capacity development.
Most structures in the government and in the community are dominated by men, which leads to lack of participation in capacity building activities and in climate adaptation planning management processes.	<ul style="list-style-type: none"> ● Encourage vulnerable groups and women participation in training and workshops. ● Create dedicated communication channel for women groups to convey concerns and ideas in Climate Change adaptation
Limited recognition of women/vulnerable/marginalized group roles, participation and experiences in climate adaptation and sustainable livelihood activities.	<ul style="list-style-type: none"> ● Document and disseminate women /vulnerable/ marginalized group roles, participation and experiences in climate adaptation and sustainable livelihood activities. ● Create women champion groups in climate change adaptation campaigns
Most of the climate change information/knowledge are very technical and not easily comprehensible by local communities or vulnerable/marginalized groups in vulnerable contexts.	<ul style="list-style-type: none"> ● Diversify design and channels of information, education and communication materials/programs based on target audiences, including conducting campaigns in the local languages of the areas. ● Provide facilitation and empowerment assistance for specific groups to ensure climate information can be conveyed correctly

Conclusion and recommendations. This gender analysis has highlighted a number of opportunities for project intervention to promote greater gender equality. The implementation of the project activities will remain alive to the fact that there is a gender divide in the manner that men and women access and use resources. This differential access and use marginalizes women socioeconomically. Therefore, CARLF will devise mechanisms for women participation in the identification of activities, their implementation, sharing mechanisms of benefits and monitoring of the project activity, including the employment of a Gender Specialist to ensure adequate gender mainstreaming. It should be noted also that the project would require reporting on gender segregated data to facilitate the identification of differential impacts that the project will have on women and men and encourage action based on this data. Capacity development of women will be critical in the eventual participation of women in accessing and using of project activities.

|



Methodology:

A desk review was undertaken, which involved reviewing reports, development/strategic plans, and policy documents pertaining to gender mainstreaming and empowerment. Relevant data was then extracted through a critical gender lens. The review of secondary information sources main limitation is the scarcity or absence of socioeconomic information disaggregate at local level because data are scarcely collected and analysed at the grassroots levels. The community perspective were collected through the consultations for the project and analysed with a gender lens. During the project inception phase and particularly the baseline studies more community level assessments will be undertaken to refine the gender action plan for the project.

Summary:

Zambia has historically been associated with patriarchal tendencies that have significantly affected the country's human and economic development. The daunting power imbalances between men and women and between men and women, and other vulnerable groups such as children, the youth, and people with disabilities means that those with greater power and ability to access productive resources (mostly men) are likely to participate more in economic activities, whereas those with less power or control and access continue to be marginalized. Gender Inequality emanates from deep-rooted social and cultural norms due to the fact that the Zambian Constitution (enacted in 1991 and revised in 1996) endorses customary law in addition to men's prejudice against women and lack of knowledge on women's rights among the general public. There have been, steady improvements made at the policy level towards gender equality with a fully-fledged Ministry of Gender, the Anti-Gender Based Violence Act and National Gender Policy.

Zambia's 2018 Gender Inequality Index (GII) value of 0.540 highlights the inequalities between men and women in parliament, health, and education, as well as labour markets.⁸ This GII value reflects an increase in inequality from 0.517 in 2017.⁸⁵ It must also be noted that Zambia's GII value is very close to the SADC region's average of 0.573. The GII reflects gender-based inequalities in three dimensions: 1) reproductive health (measured by maternal mortality and the adolescent fertility rate); 2) empowerment (measured by the numbers of women in parliament, and girls completing secondary and higher education); and 3) economic activity (measured by participation in the labour market). The index represents a percentage of potential human development lost because of existing inequalities between men and women.¹¹ The key challenges affecting progress in achieving gender equality and equity include limited access to productive resources by women, early and child marriages and dual aspects of Zambian law and social prejudices and stereotypes, has seriously affected access and participation in empowering socio- economic activities by women. At institutional level, in spite of having a Ministry of Gender, financial, institutional, and technical capacity challenges, such as inadequate funding and human resource capacity affect the effective implementation of its programme as stipulated; and the absence of sub-national implementation structures through which the Ministry of Gender could foster gender analysis and mainstreaming at provincial and/or district levels. Furthermore, there are inadequate personnel employed to specifically focus on gender issues in line ministries and most quasi-public and private institutions.

Dual Structure of Statutory Law and Customary Law

Zambia has a two-tier system of land ownership comprising state and customary land. Even though Article 11 of the Zambian Constitution recognizes equal rights regardless of gender, Article 23 accepts personal as well as customary law.. State land makes up 6 per cent of the

⁸⁵ United Nations Development Programme (UNDP). n.d. "Gender Inequality Index (GII)". Available online: <http://hdr.undp.org/en/content/gender-inequality-index-gii> [accessed Feb 2023]

country's land, while customary land accounts for 94 per cent. The Lands Act provides support for women with regard to state land, but does not apply to customary land. With regard to customary land, land ownership does not provide women with significant land rights, and even when it does, traditional institutions often do not effectively implement the rules. Customary law entails rules and disciplines which are not written but which are accepted by individual ethnic groups as customs and it varies from one group to another of the 72 ethnic groups in Zambia. As a result, customs which contradict statutory law have created serious problems in terms of socioeconomic activities, including marriage. For example, marriage under the age of 21 is prohibited under statutory law. In reality, however, the practices of child marriage¹⁸, marriage in exchange for payment of a dowry to the family of the would-be bride, unfair distribution of property for women and female genital mutilation which is harmful to the body still exist in Zambia today and are tantamount to the non-observation of women's rights.¹⁹ Child marriage is a particularly serious problem in Zambia. It is reported²⁰ that 47% of all marriages are child marriages resulting from the traditional custom of male superiority and poverty.

This dual structure of law also has implications on property ownership especially land. Although the Land Act accepts the land use rights of women, women in general face an extremely unfair situation in which they are not permitted to manage or own land because of the prevailing emphasis on land use rights based on customary law. Cultural inculcation is also evident with regard to state land, with few women applying for state land; and upon being offered it, a good number relinquish ownership to their male counterparts.

Some ethnic groups have maintained the custom of the sexual cleansing⁸⁶ of a widow whose husband has deceased. This custom not only violates women's human rights as pointed out in the concluding observations of the CEDAW Committee but also exposes the widows to the risk of HIV/AIDS infection as they may have a sexual relationship with a man whose HIV/AIDS status is unknown. Moreover, divorced men are immune from the responsibility of supporting their former wives and children.²³ As such, customary law has many negative elements which make women vulnerable. Reform of the dual structure is essential to eliminate such prejudice and discrimination and the current efforts of the government to revise the Constitution is an important step

Access and ownership of Assets –Land

Land is a critical resource to women's and men's participation in agriculture and rural development. In Zambia, like in any other African country, land is a convertible asset, which can be used to access benefits and privileges such as collateral, access to credit and financial markets, agricultural inputs, and decision-making on products of their agricultural labour. Lack of women's access to land and tenure rights reduce their full contribution to the eradication of hunger and poverty. Zambia operates a two tier system of land ownership and distribution. Land ownership can either be through the state and its local government decentralized structures or a customary system, which is administered by chiefs. Access to land, in particular, is fundamental to social and economic development. Zambia's population is predominantly female (50.5 per cent) and youthful (45 per cent). Furthermore, when compared with men, women contribute more to national development through unpaid and agricultural labour. Yet, women and youth have limited access to the critical resources of land and housing, which they need in order to be able to contribute fully and tangibly towards improving their livelihoods, as well as towards the country's social and economic security. Although the government passed the Land Act in 1996 which guaranteed women the possibility of being land owners, the legislation allows for customary laws to dictate land ownership, which mainly confers land ownership on men. Under customary law, men dominate the allocation,

⁸⁶ In some parts of Zambia, a widow is regarded as "unclean" and there is an accepted practice of making a widow engage in a sexual act with another man for cleansing

[inheritance and use of land and women have access to land through male folk, their fathers, husband, brother or son. Women have limited participation in the land allocation processes. Women lack control over land but may have access and user rights to the land.](#)

[To improve women's access to land, the Land Policy of Zambia was revised to include provisions prioritizing the issuance of state land to women. Women still encounter various barriers the land allocation system notably their low representations in the structures that are responsible for the allocation of land. This inequality in representation promotes male dominance at a structural level. The 'first come first served' method of land allocation has less regard for gender disparities and imbalances, and the unlevelled playfield that exists in communities. With regards to the procedure for land allocation, it is mandatory that the applicant provides proof of capacity to develop the proposed property or business on the plot of land being applied for. The major proof required includes pay slips and bank statements. The challenge for most females is that they are not in the formal employment sector where they can get pay slips and most of those who run small-scale business or entrepreneur activities do not bank their returns. Therefore, even when they have the capacity to develop the proposed property/business, they cannot provide the required proof and as such they are automatically disqualified from accessing land. The associated high services charges further disenfranchises women and marginalized groups in accessing land. Advertisement for council land is made in newspapers and this eliminates rural women who do not have access to such print media or who are illiterate. Most personnel involved in land administration do not fully know or understand the provision of 30 percent land allocation to women. There is poor sex disaggregated data at the levels of councils, which allocate land. Most laws that relate to land in Zambia are gender neutral and do not provide mechanisms for land to be easily accessed by all sexes \(GRZ Ministry of Gender and Child Development \(MGCD\) 2013\).](#)

[Literacy and Health](#)

[Access to education](#) The Gender Inequality Index estimates that, between 2010 and 2017, only 39.2% of women aged 25 and older had at least some secondary education, compared with 52.4% in men aged 25 and older for the same period. In high- and middle-income populations, females obtain higher completion rates of lower secondary schooling than males, but in low-income populations this reverses, with an absolute decrease in completion rates⁸⁷. As a result, low-income women (as the majority in rural areas) have lower attainment than men, which may additionally constrain them accessing or being aware of alternative livelihoods, statutory instruments etc. that ultimately reinforce their relative customary subservience. The dropout rate indicates the proportion of pupils who leave school without completing a given grade in a school year. Table 6.5 shows that the national dropout rate for primary education (grades 1–7) increased from 1.5 per cent in 2017 to 1.7 per cent in 2018. The dropout rate in primary schools was higher among girls than boys for both years. This indicates that although the enrolment of girls seems to be increasing, at some point these girls are leaving school before completion.

[Maternal Mortality:](#) In Zambia, maternal mortality is one of the contributing factors to mortality. It accounts for 10 per cent of women's deaths in the country⁸⁸. The 2018 Zambia Demographic and Health Survey found that the maternal mortality rate was at 252 maternal deaths per 100,000 live births. This falls short of reaching the national and global targets of reducing MMR to at least 100 deaths per 1,000 live births and 70 per 100,000 live births respectively. Infant mortality as at 2018 was 42 deaths per 1,000 lives, a decline from 73.3 in 2016 but remains high, especially among adolescent mothers (58 deaths per 1,000 live births). This is as a result of poor maternal health services due to lack of skilled providers,

⁸⁷ World Bank, 2016. *Gender Data Portal*. Gender Indicators Report for Zambia

⁸⁸ Zambia Statistics Agency (ZamStats), Ministry of Health, and ICF. 2019. *Zambia Demographic and Health Survey 2018*. Lusaka and Rockville, MD

pregnancy complications occur, and poor access to emergency obstetric care services⁸⁹. Furthermore, mothers education also contributed to infant and child mortality with lower rates among mothers with higher level of education. For instance, there were 69 deaths per 1,000 live births among mothers with no education, 66 deaths per 1,000 live births among those with primary education, 62 deaths per 1,000 live births among those with secondary education, and 47 deaths per 1,000 live births among those with higher education.

Participation of Women in Decision-Making

Zambia ranked 62nd among 146 countries which were surveyed for the Global Gender Gap Index 2022 by the World Economic Forum. In terms of political empowerment which evaluates the situation of women's participation in politics, Zambia ranks 85th. Meanwhile, the Gender Equality Index in a human development report by UNDP puts Zambia at 125th among 160 countries, indicating Zambia's relatively low status in terms of the empowerment of women. One of the main reasons for these results attribute to women's low participation in decision-making.

Decision Making at Household Level: Unequal power relations between men and women, with men being more domineering, remain a significant challenge, affecting how a household, particularly married women, use income for empowerment investments. According to the Zambia Demographic and Health Survey, there has been a decline of 10 percentage points in women controlling use of their own income since 2001. In 2001/2002, 41 per cent of women controlled use of their income compared to 31 per cent in 2018. However, during the same period, there was an increase in the percentage of women who made joint decisions with their husbands, from 31 per cent to 51 per cent; providing a possible explanation for the noted decline. It suffices to note once again the influence education level, wealth, and residential area have on determining how partners decide on financial resources. About 73 per cent of women with a higher education level are likely to jointly decide on how to use their income; this is more than those with no education or primary and secondary level education.

Women participation in rural institutions: Women are poorly represented in the leadership of rural institutions and cooperatives. Culture acts directly and indirectly as a barrier for women to actively participate in leadership of rural institutions. In view of the low literacy levels of women and the numerous cultural norms and beliefs especially in the rural areas, the potential for women to be involved in leadership and decision-making is hampered. There is inequitable representation of women in agricultural associations and cooperatives. Cooperatives demand a lot of time for meetings, which women do not have due to a lot of household chores. Moreover, in the case of male-headed households men go for meetings leaving the spouse attending to the home. One of the largest farmers union membership organization working in agriculture and rural development is the Zambia National Farmers Union (ZNFU) where women's participation is only 38 percent (ZNFU, 2015).

Women, Economy and Agriculture

Employment: Agriculture is one of the biggest employment sectors in Zambia for both men and women, as well as the youth. Like in many SADC and developing countries, women are the main contributors to the agriculture sector; contributing mostly cheap and unpaid labour. Currently, 88 per cent of the workforce in agriculture in Zambia comprises women who are not covered by social security. Only 12 per cent are covered by social security, compared to 23.1 per cent of men. In 2019, there were more men (70 per cent) than women (30 per cent) employed formally, which implies that more women than men are vulnerable to employment

⁸⁹ Ministry of National Development Planning (Zambia), 2017. *Seventh National Development Plan*; Ministry of Health (Zambia), 2017. *National Health Strategic Plan*.

shocks in Zambia⁹⁰. The National Agricultural Investment Plan reports that 70% of Zambia's population rely on agriculture for their livelihood and that 78% of women are engaged in agriculture. However, most of these women are involved in crop production for home consumption and their farming activities do not produce any tangible income. Women are unable to gain the same productive conditions as men due to the following issues: difficulties in accessing land, finance and production equipment and materials based on customary law and the idea of male superiority, as well as their responsibilities for household work and child-rearing. The situation is no different for female entrepreneurs, especially those running micro-businesses. An employment survey in 2012 reports that 84% of female employment is in the informal sector and that many female entrepreneurs do not register their businesses. Thus they find it difficult obtaining essential information, and receiving technical training and financing. Moreover, the time constraints they face because of other responsibilities such as household work make it more difficult for female entrepreneurs to scale up the business to increase their productivity or profit. Among the female population in the informal sector, 70% have never received education or have only studied at primary education level (compared to 59% for male workers). It is therefore more challenging for female entrepreneurs to register a business, obtain information, understand the contents of technical training and/or conduct marketing activities compared to men.

Unpaid family labour: According to the Labour Force Survey data (constructed from Central Statistic Office- CSO, 2012), 70 percent of men working in agriculture, forestry and fishing are self-employed (e.g. having their own farms), 23 percent are unpaid family workers (working on family farms), and 7 percent are paid employees (e.g. working on someone else's farm for payment). Of the women working in the same sector, most (59 percent) are unpaid family workers, 39 percent are self-employed, and 2 percent work as paid agricultural employees (Table 3).

Table 1: Status in employment among those working in agriculture, forestry and fishing

	Paid employees	Apprentices/ interns	Employers	Self-employed	Unpaid family workers	Total
Men	7.3 %	0.1 %	0.1 %	70.0 %	22.5 %	100 %
Women	1.8 %	0.0 %	0.0 %	38.8 %	59.3 %	100%

Source: CSO: Labour Force Survey data 2012

Both women and men in the agricultural sector are mostly working on the family farm, but men are more often considered as the decision- makers and holders of income from the farming business and women more often considered as unpaid work force (instead of co-managers) for that farming business. Although women are provide the bulk of the family labour, in agriculture their labour input is often not costed, neither is it given any economic value. Moreover, women are more often involved in food crops whilst men are involved in cash crops and in marketed household commodities. The labour burden of rural women exceeds that of men, and includes a higher proportion of unpaid household responsibilities related to preparing food, and collecting fuel and water. There is currently no data on time use by women, which could provide a clearer picture of how women spend their time and the contribution of their time spent to the household and national economy.

Crop production: Globally it has been established that if women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent. This

⁹⁰ Source: Ministry of Labour and Zambia Statistics Agency (ZamStats). 2019. Zambia Labour Force Survey.

could raise the total agricultural output in developing countries by 2.5–4 percent, with significant contributions to the reduction of hunger and malnutrition (FAO, 2011). In Zambia, women are the major food producers and processors accounting for over 60 percent of the national food stocks. Maize is the main staple food and as such is grown by the largest percentages of female and male-headed households – 86.2 percent of male-headed households and 78.5 of female-headed households (GRZ CSO, 2010). A greater percentage of female-headed households are involved in food production while there is comparatively greater participation of male-headed households in cash crops. An evaluation conducted by FAO⁹¹, shows that although certain crops such as groundnuts are considered as women’s crops, when they have an increased market value, men come in to produce and market them.

Agricultural technologies: Women’s use of technologies is concentrated around traditional ways of food processing but once these are mechanized with higher returns, they are quickly taken over by men. Tillage is one of the labour-demanding operations on the farm if it is manually done. Data from Zambia CSO based on a national survey shows that the percentage among female-headed household using conventional hand and hoe tillage system is a high 38.5 percent whilst for men it is 31.4 percent. The data also shows that when it comes to ox-drawn tillage systems where the labour and drudgery is transferred to animals and machinery there is a greater percentage among male-headed households using the method as compared to women. female-headed households use conventional hand and hoe tillage systems, which is labor-intensive and increases drudgery. The gendered perspectives of women and men in agricultural processes have a bearing on productivity. Data on Table 2 shows that the average harvest per hectare per crop for male-headed households is much higher in some cases even close to double the amount harvested per hectare for female- headed households.

Table 2: Average harvest per hectare (kgs)⁹²

	Male-headed hhs		Female headed hhs	
	Mean	Median	Mean	Median
Maize	2 053	1 035	1 058	575
Groundnuts	172	96	114	75
Sorghum	264	166	181	132
Millet	272	185	217	154
Rice	624	364	328	202
Sunflower	206	139	132	139
Soya beans	360	196	306	163
Mixed beans	185	108	128	54
Bambara nuts	136	60	81	69
Cowpeas	249	45	96	45

This reflects the cumulative effects of production and productivity, lack of productive resources, labour, inefficient tillage systems and drudgery as well as other gender-related

⁹¹ Farmer Input Support Response Initiative (FISRI 2013)

⁹² CSO post-harvest survey raw data 2012

factors that have been analysed above. It is a confirmation that if women were to be provided with productive resources, they would increase their production levels.

Gender and agricultural extension: Statistics show that there are few female extension officers compared to male extension officers despite the greater percentage of farmers in the rural areas being female. The existing staff demonstrates a weak gender approach to extension services. In general, there is limited access to extension services by both female and male-headed households. Due to the limited number of female extension workers, extension services have failed to address the conditions in which a majority of rural women live.

Agricultural marketing: Women are often excluded from better markets due to limited access to transport and market information. Women experience more challenges than men in marketing their products, especially food products. Their products are marketed locally and they often get lower prices at the farm gate. Women, compared to men also have mobility constraints. They cannot be away for a long time to market their products because of the numerous household chores. Focus group discussions with female farmers during the FAO supported FISRI evaluation carried out in 2012, revealed that the marketing of maize was a male domain because in the first instance it was difficult for women to negotiate with transporters. In addition, the official government grain marketing system was said to be inefficient since one had to spend a week or more away from home, marketing their produce. This is not convenient for women in view of their numerous gender roles in the home.

Access to financial services: There is limited availability and institutional presence of rural finance options for women and men in the rural areas. Women have challenges in securing loans with banks because most of them do not have collateral to secure the loan. Although this has been the situation, there has been some improvement in women's access and use of financial services.

Gender and climate change

Globally there is increasing attention on the differentiated climate change impacts on men and women, and their differentiated capabilities to adapt to these. There is growing evidence demonstrating how the livelihoods of both men and women may be affected differently by climate change, due to culturally established roles such as the gendered division of labour (like caring for children) or land ownership. Currently, however, there are no in-depth studies regarding gender-differentiated impacts of climate change in Zambia.

Climate change manifests in floods or unexpected droughts and inconsistent seasons. These changes present challenges to smallholder farmers, particularly female farmers who in most cases are not able to quickly adapt to the changing environment. Climate variability affects women more than men because men migrate to other areas in times of stress leaving women to do all the agricultural roles from production to marketing. Moreover in view of drought-related climate change variations, women are more affected because they are responsible for the food security and nutrition needs of the family. Further research and analysis on the impact of gender and climate change in the different climatic zones is needed for evidence-based support. Moreover the depletion of forests due to climate change affects women more than men as women have to walk for long distances to collect firewood. Women spend on average 800 hours a year in Zambia in fuelwood collection(Data from FAO Gender and Forestry website). The depletion of water resources also affects women negatively as they have to struggle to get water for domestic/ household use.

Institutional and Policy framework

Several measures have been put in place to promote women's empowerment in Zambia. Gender Equity and Equality Act No. 22 of 2015, which is aimed at domesticating international

human rights instruments such as the [Convention on the Elimination of All Forms of Discrimination Against Women \(CEDAW\)](#) (adopted in 1979); the [SADC Protocol on Gender and Development](#) (2008); and the [Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa](#) (2003). The Gender Equity and Equality Act gives effect to CEDAW and is intended to implement women's empowerment targets that meet the international standards of the SDGs, as well as Zambia Vision 2030.

Zambian Constitution was amended in 2016 to include critical and progressive articles for gender equality by [acknowledging that every citizen, man or woman, has equal rights to participate in, determine, and build a sustainable political, legal, and socio-economic order freely. The Constitution further provides for human dignity, equity, social justice, equality, and non-discrimination among the national values and principles.](#)⁵ The constitution further mandate the creation of [Gender Equity and Equality Commission to further enhance the protection of women's rights. The mandate of the commission is to promote the mainstreaming and attainment of gender equality. To increase the participation of both men and women in national governance and decision-making, the Constitution provides that nominations to public office must ensure 50 per cent representation of each gender category.](#)⁶The Constitution has further mandated the [Human Rights Commission to take necessary steps to appropriately redress the rights of all persons, which includes women, children, and people with disabilities.](#)⁷ In addition to the constitutional rights and privileges, and policies earlier alluded to, other policies and strategies, like the

Gender and Climate Change: GRZ Climate Change Action Plan (2016) addresses the integration of women and gender mainstreaming into climate change policy. The National Policy on Environment (NPE, 2007) includes the guiding principle that "women and men including the youth should play a key role in the sustainable utilisation of renewable natural resources and other development programmes;" as well as a strategy to enhance women's participation in environmental management activities at all levels⁹³. Zambia is also regionally and internationally mandated to incorporate consideration of women into environmental planning, and to include them in decision-making processes.

National Child Policy and the Re-Entry Policy promotes gender mainstreaming to attain equality and equity. The National Child Policy is aimed at promoting and protecting children's rights, whereas the Re-Entry Policy allows re-admission of girls in school after giving birth. Other policies and strategies include: the Adolescent Sexual and Reproductive Health Policy, the Comprehensive Sexuality Education Curricula for In-School and Out-of-School Adolescents, and the Ending Child Marriage Strategy.

Table 3 Other Policies

Policy	Remarks
Gender Policy (2014)	It commits to attainment of gender equality and equity in the development process by redressing the existing gender imbalances. It provides for equal opportunities for women and men to actively participate and contribute to their fullest ability; and equitably benefit from national development. It commits to increased access to and control of productive resources, access to and utilization of information and technology, and mainstreaming gender in policies.
National Agriculture Investment Programme (NAIP) 2014-2018	The NAIP has demonstrated inadequate gender analysis and attention to gender issues. Gender is mentioned as one of the cross-cutting issues. The role of women in food security and nutrition is acknowledged, but the

⁹³ Government of Zambia, 2016. Climate Change Gender Action Plan of the Republic of Zambia ccGAP:ZM

(2013)	strategies outlined are gender neutral and no gender outcomes have been specified.
National Water Policy (2010)	It integrates cross-cutting issues such as gender, HIV and AIDS and climate change, and introduces modern technologies and principles of water resources management.
National Forestry Act 1998 revised in 1999	The Act notes that there is need to create responsible partnerships with stakeholders and promote gender equitable activities to ensure the performance and stability of forests. It provides for women to be involved in decision-making.
National Food and Nutrition Policy (2008)	It acknowledges the vulnerability of women and adolescent girls to poor nutrition. It recognises issues faced by women and notes and adopts a women's empowerment and gender mainstreaming approach.
Land Act (1996) and Policy	It provides for women's ownership of land, and commits to the allocation of 30 percent land to women with remaining 70 percent for both women and men.
Constitution (1996)	Article 11 of the current Constitution prohibits discrimination based on among other issues, sex. Contrary to this, Article 23 negates this guarantee, by allowing the application of customary law in matters of personal law (marriage, divorce, inheritance, burial, devolution of property on death and other matters of personal or family law). The Constitution review process has removed article 23 from the Constitution.
Revised Sixth National Development Programme(R-SNDP) 2013-2016 (2014)	The plan considers gender as one of the important cross-cutting issues in all programmes and sectors. It requires all programme and sector deliverables to mainstream gender, all key output indicators to reflect gender in their implementation plans, and ensure that gender issues are part and parcel of the monitoring and evaluation mechanisms. The MGCD has a coordinating role in gender issues in agriculture, and in providing for gender- responsive programming in the plan (gender mainstreaming, collecting and generating sex disaggregated data).
National Agriculture Policy 2004-2015	It commits to affirmative strategy to improve the economic status of women farmers and to inculcate gender equity in agricultural services

Conclusion

[The analysis summarized below presents the situation of marginalisation of women in Zambian context. GRZ has made some progress in mainstreaming gender equality and women's empowerment in the agriculture and rural sectors although this has been slow. Women continue to face challenges of unequal access and control over productive resources, unpaid labour, drudgery, and limited participation in rural institutions and markets. Considering these elements, gender-responsive interventions aimed at addressing stereotypes generated by social and cultural norms should identify, understand and implement actions to close gender gaps and overcome gender biases. Activities should be based on the application of the gender approach under a "do no harm" approach, so that adaptation measures promote coherent, responsible and ethical action in the face of social action.](#)

Recommendations

In view of the differentiated vulnerability of all beneficiaries in the project area to the interlinked challenges of climate change, it is critical to address the developmental needs of increased drought, access to water, low productivity, land degradation and gender discrimination. This will help develop and implement a more enabling and gender-transformative environment for addressing climate change. Women face specific barriers to their basic needs and persistent patriarchal attitudes that limit their options. Given their increased vulnerability to climate change, the project will aim to (i) promote economic empowerment; (ii) enable women and men to have an equal voice and influence in rural community-based organisations; and (iii) achieve a more equitable balance between women and men in the distribution of work and economic and social benefits. The project will challenge social norms that perpetuate inequalities between men and women through implementation of household approaches. A targeted gender-sensitive diagnostics will be conducted in targeted communities prior to implementation as one of the first actions of the project to identify contextual gender gaps and inequalities and inform the development of a gender sensitive strategy. The specific recommendations include:

1. Increase women's voice in decision-making at the household and community level. As part of literacy and life skills, leadership training will also be included. Women will be trained to form groups and their leadership and negotiation skills will be strengthened to enable them to make informed decisions during the community planning process.
2. Establish participation quotas to reduce the existing gender inequality and promote social inclusion of women by including at least 50% participation of women, 30% of the youth population (men and women) and 5% of the persons disabilities focusing on capacity building and women empowerment, adoption of climate adaptation practices, promotion of leadership in local organizations. Participation should, consider women's time constraints to ensure activities are carried out in accordance with their available schedules
3. Develop gender-sensitive training programs on sustainable agriculture, climate risk management, and microfinance which include specific modules on gender equality, in order to raise awareness and strengthen ownership. Additionally, Gender-awareness trainings (including Gender-based Violence – GbV) will be mainstreamed into all training to men and women will be carried out at both household and community levels, including village leaders.
4. Adaptation measures in agricultural plans should include activities that respond to women's needs and that can also be implemented using their own capacities and resources, such as raising small species, home gardens, food processing and others.
5. Define gender-specific mechanisms and agreements with financial service to improve service outreach and facilitate effective and timely access to financial products and services. This will include the provision of tailored advice and training, including financial literacy and creation of simplified credit lines for crop insurance to strengthen the knowledge and capacity to respond to climate risks to the communities in the intervention areas.
6. Support the government, in collaboration with private sector and civil society stakeholders in driving the gender agenda in the agricultural and rural sectors. This involves strengthening partnership and collaboration on gender equality programming and implementation between Ministry of Agriculture and Livelihoods, Ministry of Lands, Forestry department, MGCD and organizations working on women's leadership and participation in rural institutions (ZNFU), rural savings and lending, financial inclusion etc

7. [Develop initiatives for the economic empowerment and ownership of women such as diversification of livelihoods, vegetable gardens, poultry farming, food processing companies, community gardens, building market alliances and networks.](#)
8. [Incorporate measures and actions that reduce the domestic burden on women and girls and improve their participation in income-generation activities and decision-making instances, at household and communities level. These measures would include time-saving technologies](#)

Table 4: GENDER ACTION PLAN

Outputs/Objectives	Activities	Performance Targets/Indicators	Responsible	Timeframe
Component 1. Building and promoting equitable diversified, resilient and sustainable community livelihood options				
1.1: Sustainable crop and animal production systems implemented on at least 3,000 ha of land under the stress of extreme weather events and human exploitation (floods, droughts, erosion, deforestation etc.).	1.1.1 Conduct a needs assessment on sustainable productions systems for women.	1.1.1.1 Training needs assessment of women identified (baseline: N/A)	PMU gender specialist.	Q4 2023– Q4 2025
	1.1.2 Develop gender-sensitive training programs on sustainable agriculture	1.1.1.2 At least 50% women and girls trained in skills on sustainable agriculture (baseline: 0)		
	1.1.3 Develop and adopt the CARLF Gender Strategy	1.1.1.3 The CARLF Gender Strategy developed (baseline: 0)		
1.1.2: Targeted individual and community livelihood strategies of the vulnerable members in the target districts established focusing on fish and fruit tree value chains - strengthened in response to the impacts of climate change and extreme weather events	1.1.4 Conduct at least two diversification livelihood strategies trainings to women and girls that respond to their need	1.1.4.1 At least 50% women and girls trained in livelihood and income generating skills relevant to CALRF the (baseline: 0)	PMU gender specialist, and hired Gender TA	Q4 2023 – Q1 2024
1.1.3: Crop and animal marketing services and infrastructure supported and strengthened in response to climate variability and change -associated extreme weather events and impacts.	1.1.5 Facilitate market linkages between women farmers for crop and animal markets	1.1.5.1 At least 50% women trained in market linkages	PMU gender specialist, and hired Gender TA	Q2 2024– Q4 2025
Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors				
2.1.1 Financial Service Providers with promising adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards climate change adaptation	2.1.1 Define gender-specific mechanisms and agreements with financial service to improve service outreach and facilitate effective and timely access to financial products and services	2.1.1. 1 Mechanisms documented on gender-specific mechanisms and agreements with financial service	NTDC, PMU gender specialist, and hired Gender TA	Q3–Q4 2023

2.2.1 Improved and innovative financing tools to integrate climate risk management and monitoring of climate change adaptation investments identified and rolled out:	2.2.1 Provide tailored advice and training, including financial literacy and creation of simplified credit lines for crop insurance to strengthen the knowledge and capacity to respond to climate risks to the communities in the intervention areas.	2.2.1.1 Innovative tools identified accessible to women	PMU gender specialist	Q1 2024
2.3.1 Catalytic financing established	2.3.1 Incorporate measures and actions that reduce the domestic burden on women and girls and improve their participation in income-generation activities and decision-making instances, at household and communities level ⁹⁴	2.3.1.1 At least 50% participation of women in SACCOs and other groups	PMU gender specialist	Q4 2023–Q4 2024
2.2.4 Adaptation options based on district-level development plans supported, prioritized and funded through the investment plans	2.2.4 Develop adaptation measures that include and respond to women's needs 2.2.5 Create women champion groups in climate change adaptation campaigns	2.2.4.1 Adaptation options identified and documented 2.2.5.1 At least 7 groups created for CALRF	PMU gender specialist	Q4 2023–Q4 2025
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building				
3.1.1 Planning and climate change awareness-raising mechanisms set up and institutionalized to enhance resilience and adaptive capacity building	3.1.1 Conduct awareness-raising campaign attracting more female participation 3.1.2 Conduct training needs assessment for female beneficiaries 3.1.3 Gender-awareness trainings (including Gender-based Violence – GbV) 3.1.4 Train women to form groups and strengthen their leadership and negotiation skills to make informed decisions during the community planning process.	3.1.1.1 At least 50% women participation in project activities 3.1.2.1 At least 50% women participation in project activities 3.1.3.1 At least 80% of the CALRF's male and female beneficiaries report improved knowledge on the Act protecting women against harassment (baseline: 0) ⁹⁵ 3.1.4.1 Increase number of women in leadership positions to at least 20% (baseline: 0)	PMU gender Specialist and the Gender TA	Q4 2023Q1 2024 Q3 2024

HR = human resources, PMU = project management unit, Q = quarter, TA = technical assistance

References

1. CSO post-harvest survey 2012
2. FAO (2013) Farmer Input Support Response Initiative (FISRI 2013)
3. Government of the Republic of Zambia. CSO. 2010. *Population and Housing Census Survey*.

⁹⁴ These measures would include time-saving technologies

⁹⁵ The expected learning outcomes of this training is male and female staff have improved knowledge about harassment and key provisions of the law about harassment

4. [Government of the Republic of Zambia. Ministry of Gender and Child Development. 2014. MGCD Strategic Plan 2014–2016.](#)
5. [Government of Zambia. 2016. Climate Change Gender Action Plan of the Republic of Zambia ccGAP:ZM](#)
6. [JICA \(a\), JICA Country Gender Profile , Zambia, 2016](#)
7. [Ministry of Labour and Zambia Statistics Agency \(ZamStats\). 2019. Zambia Labour Force Survey.](#)
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Annex 3 ENVIRONMENTAL, CLIMATE AND SOCIAL IMPACTS ANALYSIS

3.1 INTRODUCTION

[This chapter outlines the description of the potential Environmental, Climate and Social impacts that will be caused by the implementation of the project, including their significance. The requisite mitigation measures for the identified impacts are then outlined in the following Chapter.](#)

[The CALRF is envisaged to result in more positive than negative environmental and social impacts. With appropriate design, adequate management and monitoring, negative impacts can be kept to a minimum.](#)

3.2 ACTIVITIES AND SOURCES OF ENVIRONMENTAL AND SOCIAL IMPACTS.

[The critical components for environmental, Climate and Social related negative impacts are derived from the CARLRF activities that will require development, construction, and operation of infrastructure such as:](#)

- a) [feeder road rehabilitation](#)
- b) [repairs of crossing points](#)

- c) rehabilitation and or construction of small dams and other rainwater harvesting systems.
- d) small-scale irrigation, water supply, sanitation infrastructure and drainage.
- e) construction of agro-processing and storage facilities.
- f) veterinary services (such as vaccinations, artificial insemination, and animal husbandry services in general.
- g) management of post-harvest losses; crop disease outbreaks (crop husbandry services in general and aquaculture.
- h) Horticulture and Fisheries value chains.
- i) use of agrochemicals; fertilisers, herbicides, pesticides, etc
- j) preparation of land for crop and pasture farming.
- k) local level processing, Storage facilities and marketing (branding and labelling) of selected crop and animal products.
- l) E-waste from digitising and computerising the financial systems and services.
- m) group business management

The potential environmental, social and climatic risks emanating from these activities will include deforestation; land degradation; inappropriate use of agrochemicals leading to pollution; conflicts; gender-based violence; child labour and social unrests.

These activities may cause pollution of environmental media such as water, soil, etc, and pose occupational health hazard, water use conflicts, conversion and/or loss of physical cultural resources during construction of infrastructures etc. Most of the impacts will be localized to the project site, short term and most importantly can be avoided/reduced or mitigated by properly applying mitigation measures. The following is an analysis of the possible beneficial and adverse impacts of the project.

3.3 ENVIRONMENTAL IMPACT ANALYSIS

The potential environmental impacts that will be generated by the implementation of the CARLRF activities have been grouped as follows:

3.3.1 Environmental Impact Analysis - Planning Phase

3.3.1.1 Potential Negative Impacts During Planning Phase.

a) Vegetation Clearing for cutlines.

Vegetation will be cleared during the topographical surveys of project site and pegging of pipeline routes for cut lines and visibility. This impact will be a direct impact to the environment.

Assessment of the impact

The impact will be minimal and temporary as only vegetation disturbing visibility in the cutlines will be affected.

Required Mitigation Measures

- Cutline clearance is to be minimized as far as possible to reduce the potential for any environmental impacts.

Table 0-1 Vegetation Clearing for Cutlines.

<u>Impact of Vegetation Clearing for Cutlines.</u>	
<u>Project Phase</u>	<u>Planning Phase</u>
	<u>Pre-Mitigation Impact</u>
<u>Type of Impact</u>	<u>Negative, direct</u>
<u>Duration</u>	<u>Short-medium term</u>
<u>Extent</u>	<u>Site Specific</u>
<u>Intensity</u>	<u>Low</u>
<u>Consequence</u>	<u>low</u>
<u>Probability</u>	<u>Definite</u>

Significance	Low
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Residual Impact

Post-mitigation, it is expected that the impact of vegetation clearing for cutlines (i.e., potential dust generation, soil erosion) on local environment will be reduced to one of **No** significance for whole project area.

3.3.1.2 Potential Positive Impacts During Planning Phase.

a) None Identified

3.3.2 Environmental Impact Analysis – Construction/Establishment Phase

3.3.2.1 Potential Negative Impacts During Construction Phase.

a) Vegetation Clearing.

There will be limited clearing of Vegetation that will occur at all construction sites to include, excavations for pipelines and foundations and construction of irrigation systems, Construction of agro-processing and storage facilities, preparations of farmlands. All will involve localized land clearing, removal of trees and shrubs. This will result in habitat fragmentation and small wildlife disturbance (migration included) especially for irrigation scheme facilities. Loss of plant cover leads to compaction of soil, exposure of topsoil and possibility for erosion, weakening and degradation of soils, disturbance of the natural landscape and disfiguring of the natural morphology.

The vegetation clearing will lead to dust, noise and ultimately soil erosion and will have a regional effect as it will not only be a problem to the footprint area, but also to some households that are nearest to the proposed Project sites.

Assessment of the impact

The impacts of vegetation clearing will be *short to medium term* in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will not only be a problem to the footprint area, but it will also reach all the nearby residences. It is expected that the intensity of these impacts will be medium-high.

The disturbances from the construction Vegetation clearance will be *negative and direct* in nature. The consequence of the impact is anticipated to be moderate detrimental because of the short to medium duration that the impact will be experienced. For the people residing nearest to the project site it is considered to be of **Low** significance. The moderate detrimental and definite probability result of this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include the following:

- Dust suppression
 - Dust suppression measures are to be implemented, which shall include covering soil mounds, spraying water, etc.
 - Site clearance is to be minimized as far as possible to reduce the potential for dust and other impacts
 - Water sprinklers to be used, especially on the road leading to the project side
- Sensitive habitats should be avoided. (Wetlands and stream banks)
- Clearing should be limited to working areas only, and these include areas for foundations for agricultural infrastructure etc.
- Revegetation and reforestation must be prioritized. (e.g., Planting grass, and trees as appropriate)

- [Over abstraction of construction materials like sand and gravel should be avoided.](#)
- [Habitat restoration must be done where effects have been caused i.e., refilling burrows pits and re-grassing bare areas.](#)
- [Sustainable range management must be practiced including rotational grazing, etc.](#)

Table 3-2 [Vegetation Clearing.](#)

Impact of Disturbance from Nuisance Factors	
Project Phase	Pre-Construction, Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

[Residual Impact](#)

[Post-mitigation, it is expected that the impact of Vegetation clearance \(i.e., dust, noise, and traffic\) on local communities could be reduced to one of No significance for all people.](#)

b) [Temporary Visual Intrusion \(Marred landscape\).](#)

[Construction and repairs of Feeder roads, crossing places, micro dams and irrigation scheme systems, agro processing facilities, agricultural infrastructure, and other possible facilities will change the aesthetics of the project areas and has potential to leave marred landscapes impacting on the appearance of the surrounding areas.](#)

[It is expected that there will be some extraction of building materials, and bricks will be moulded and burnt for warehouses and sheds construction. Pits will be dug, and trees will be cut for firewood. Efforts must be made to minimise the damage, cover/rehabilitate the pits, and intensify reforestation.](#)

[Assessment of the impact](#)

[This will result in potential changes in the landscape, leaving a defaced and scarred landscape from borrow pits and other excavations, negatively impacting small game and natural habitats, sediment loads, etc.](#)

[Required Mitigation Measures](#)

[The borrow pits and scarred landscapes should be rehabilitated by backfilling and revegetation.](#)

Table 3-3 [Temporary Visual Intrusion \(Marred landscape\).](#)

Impact of Marred Landscapes	
Project Phase	Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

[Residual Impact](#)

[Post-mitigation, it is expected that the impact of **Temporary Visual Intrusion \(Marred landscape\)** on local landscapes could be reduced to one of No significance.](#)

c) Soil Erosion

Although construction work will be limited to local areas, the project may involve works that will expose the soils to erosion and also compact it and break down the soil structure which will potentially decrease the drainage of the areas. Some land will also be prepared for crop and pasture farming. This will generally result in soil erosion, defacing of the countryside and generation of dust.

Assessment of the impact

During the construction phase, all soil forms will be susceptible to erosion to some extent because the vegetation cover will be cleared before construction takes place at irrigation schemes and infrastructure areas. Also during preparation of land for crop and pasture farming, the land can be exposed to erosion.

The main direct potential consequences of soil erosion are the reduction in soil quality, the gully formation and the reduced water-holding capacity of many eroded soils. The indirect consequences of soil erosion include disruption of riparian ecosystems and sedimentation leading to reduced water quality.

Required Mitigation Measures

The mitigation measures for soil erosion include the following:

- Revegetation, re-grassing of all bare surfaces
- Minimisation of vegetation clearing to working areas only
- Use existing roads to access the fields and farm sites and employ drainage control measures and culverts to control natural runoff and overland flow.
- Installing soil erosion control structures like, gabions, contour ridges, swells, and check dams.

Table 3-4 Soil Erosion

<u>Impact of Soil Erosion</u>	
<u>Project Phase</u>	<u>Construction</u>
	<u>Pre-Mitigation Impact</u>
<u>Type of Impact</u>	<u>Negative, direct</u>
<u>Duration</u>	<u>Short-medium term</u>
<u>Extent</u>	<u>Regional</u>
<u>Intensity</u>	<u>Medium-high</u>
<u>Consequence</u>	<u>Moderate detrimental</u>
<u>Probability</u>	<u>Definite</u>
<u>Significance</u>	<u>Low</u>

Residual Impact

Post-mitigation, it is expected that the impact of soil erosion on the local landscapes could be reduced to one of **little** significance.

d) Solid waste nuisance

Huge quantities of solid wastes are normally generated from construction activities. Such wastes include stones, wood, broken glasses, containers, rods of metal, pieces of iron sheets etc. The sub-project proponents will be expected to design and institute appropriate measures for the collection and disposal of the various wastes produced by their operations. Animals may suffocate from using the solid waste materials. Solid waste can also be dangerous to aquatic animals if washed into water courses.

Assessment of the impact

The disturbances from Solid Waste will be **medium – long term** in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will not only be a problem

to the footprint area but can be transported downstream and pollute water courses. It is expected that the intensity of this impact will be medium-high.

The disturbances from the solid waste will be *negative and direct* in nature. This impact will definitely occur during the construction phase and will be medium – long term in nature. The consequence of the impact is anticipated to be moderate detrimental because of the medium duration that the impact will be experienced. For the people in the surrounding environment nearest to the project site it is considered to be of **Low** significance. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include:

- Seek guidance of local environmental officers to identify acceptable disposal sites.
- Collection of all construction debris for proper disposal at designated landfills.
- Waste from agricultural activities can be further processed into other uses, e.g., organic manure.
- Reuse and recycling must be preferred over disposal of the waste.

Table 3-5 Solid waste nuisance

Impact of Solid waste nuisance	
Project Phase	Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	medium to long term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of solid waste management could be reduced to one of **No** significance as the system gets underway.

(e) Loss of natural and cultural heritage.

The construction works at the project site may affect some natural features, antics, and relics in the project area. The excavations for the works will potentially cause destruction of the natural features, antics, and relics. This is anticipated during trenching for the pipeline and digging of foundations for buildings.

Assessment of the impact

Any encountered antics or relics are in danger of being destroyed in the process of trenching and construction works.

Required Mitigation Measures

If any natural features, antics, and relics are encountered the trenching should stop immediately and the chance finds procedure be followed.

Table 3-6 Loss of natural and cultural heritage

Impact of Loss of natural and cultural heritage	
Project Phase	Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high

<u>Consequence</u>	<u>Moderate detrimental</u>
<u>Probability</u>	<u>Definite</u>
<u>Significance</u>	<u>Low</u>

Residual Impact

Post-mitigation, it is expected that the impact of **Loss of natural and cultural heritage** could be reduced to one of **No** significance for all people.

(f) Habitat loss and Biodiversity disturbances.

Noise and vibrations from the development activities may disturb the normal roaming patterns of the small game in the area, especially birds as most of them forage during the day and cause them to migrate away from the area and/or be in conflict with human beings.

Assessment of the impact

The Bio-diversity disturbances will be **short to medium term** in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will not only be a problem to the footprint area but will cause the migration of small game to neighbouring areas. It is expected that the intensity of these impacts will be medium-high, and excavations of the pipelines may involve the use of heavy-duty machinery.

There will also be increased road traffic during the pre-construction and construction phases, and this will be **negative and indirect**, introducing noise and vibrations in the area. The impact will be experienced at the **site level**. The consequences of this impact can be described as slight detrimental as it will only be effective during the cycle of the project, and it can be mitigated.

Some indirect impacts could be experienced because of the presence of jobseekers in the area resulting in increased presence of human beings and a resultant migration effect on small game and birds. This impact will definitely occur during the pre-construction and construction phases and will be short to medium term in nature. The consequence of the impact is anticipated to be moderate detrimental because of the short to medium duration that the impact will be experienced. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include:

- Noisy operations should be conducted at certain times of the day.
- Always use well serviced equipment that will be less noisy.
- Noise management measures are to be implemented and shall include maintenance of vehicles and equipment to run quietly, and avoidance of leaving engines running unnecessarily.
- Traffic management measures are to be implemented and travel speed of contractors and suppliers' vehicles will be restricted.

Table 3-7 Bio-diversity disturbances

<u>Impact of Bio-diversity disturbances</u>	
<u>Project Phase</u>	<u>Pre-Construction, Construction</u>
	<u>Pre-Mitigation Impact</u>
<u>Type of Impact</u>	<u>Negative, direct</u>
<u>Duration</u>	<u>Short-medium term</u>
<u>Extent</u>	<u>Regional</u>
<u>Intensity</u>	<u>Medium-high</u>
<u>Consequence</u>	<u>Moderate detrimental</u>
<u>Probability</u>	<u>Definite</u>
<u>Significance</u>	<u>Low</u>

Residual Impact

Post-mitigation, it is expected that the impact of Bio-diversity disturbances be reduced to one of **No** significance for the whole project area and the small game and birds will be able to migrate back as the area will now be revegetated and rehabilitated.

(g) Ambient air pollution

Air quality will be impacted by dust emissions mainly from the construction of infrastructure which includes the pipelines, feeder roads, bridges, sheds and processing plants, micro dams etc. Increased dust emissions may affect habitats for various species if not controlled. These dust emissions will require dust control measures to bring air quality within the national environmental standards and World Health Organization (WHO) recommended guideline levels.

The dust generation result in the pollution of air, increases in bronchial disorders, impaired visibility on the roads, and disturb normal developments of vegetation.

Assessment of the impact

The air pollution disturbances will be **short to medium term** in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will not only be a problem to the footprint area, but it will also reach all the nearby residences. It is expected that the intensity of this impact for most people will be medium-high.

There will also be increased road traffic during the pre-construction and construction phases which may exacerbate the raising of dust, and this will be **negative and indirect** in nature. The impact will be experienced at the **regional level**. This impact will definitely occur during the construction phases and will be short to medium term in nature. The consequence of the impact is anticipated to be moderate detrimental because of the short to medium duration that the impact will be experienced. For the people residing nearest to the project sites it is considered to be of **Low** significance. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures will include:

- Animal waste must be handled properly to avoid smell.
- Contractors should use dust screens or nets in windows, doorways and ventilators of rooms where demolition or other dusty construction activities are occurring.
- Dust suppression measures must be instituted at all sites which shall include covering soil mounds and spraying bare areas with water.
- Site clearance is to be minimized as far as possible to reduce the potential for dust and other impacts
- Water sprinklers to be used, especially on the road leading to the project side.

Table 3-8 Ambient air pollution

Impact of Ambient air pollution	
Project Phase	Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of construction nuisances (i.e., dust, noise, and traffic) on local communities could be reduced to one of **No** significance for all people.

(h) Ambient Water pollution

Quality of water especially rivers and groundwater may be affected negatively by discharges of debris from civil works, oil spills, and other pollutants generated from construction works. Groundwater contamination occurs from percolation of oil and lubricants spills into the soil. Surface water pollution may result from uncontrolled discharges into freshwaters. There are still many people relying on river water as a source for drinking water.

Assessment of the impact

The Ambient Water pollution disturbances will be **short to medium term** in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will be carried downstream and will not only be a problem to the footprint area, but it will also reach all the downstream residences where some people use the river water for drinking and for their animals. It is expected that the intensity of these impacts for most people will be medium-high.

The disturbances from the Ambient Water pollution will be **negative and direct** in nature. The impact will be experienced at the **regional level**. This impact will definitely occur during the construction phases and will be short to medium term in nature. The consequence of the impact is anticipated to be moderate detrimental because of the short to medium duration that the impact will be experienced. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include the following:

- Contractors to erect proper sanitary facilities. - Toilets at convenient locations throughout the project area.
- Pollution from lubricants and other wastes to be avoided. Contain all oil leaks at workshops and surfaces by collecting in oil separators.
- Controlled disposal of wastes and effluent by use of appropriate disposal facilities, use of appropriate drainage structures, use of cleaner technologies, proper storage of materials, awareness campaigns.
- Waste must be recycled and reused to avoid dumping in waterways.
- Polluted water shall be treated prior to disposal to watercourses.
- All agricultural processing effluent should be handled carefully.
- Maintain all vehicles and equipment to avoid oil and grease leaks.
- Install oil and grease separators to collect rain runoff around workshops and parking areas.

Table 3-9 Ambient Water pollution

Impact of Ambient Water pollution	
Project Phase	Pre-Construction, Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of Ambient Water pollution could be reduced to one of **No** significance for all people once oil and grease separators have been installed.

3.3.2.2 Potential Positive Impacts During Construction Phase.

a) Revegetation

In the process of establishing pastures the vegetation will be restored and enhanced. There will be a deliberate exercise to revegetate the project area. This will protect and conserve the environment in the process.

Assessment of Impact

The revegetation of the project area will be of a long-term nature occurring throughout the operation phase. The impact will be site specific as it will affect the footprint of the rehabilitated project area only.

The benefits will be experienced as a positive impact, at the local level, will be long-term to permanent, of medium intensity and most likely to happen. The impacts will most likely be high beneficial – the community regard this as a major long-term positive change as it will improve their livelihoods. The impacts are therefore of medium significance.

Table 3-10 revegetation

Impact on revegetation	
Project Phase	Operation
Type of Impact	Positive, direct
Duration	Long-term to permanent
Extent	Local
Intensity	Medium
Consequence	High beneficial
Probability	Most likely
Significance	Medium

3.3.3 Environmental Impact Analysis – Operation Phase

3.3.3.1 Potential Negative Impacts During Operation Phase.

a) Soil Erosion

During the operation phase, the potential for soil erosion will be much less. However loose soil at the sides of levelled irrigation pipelines as well as roads on steep slopes will still be susceptible to erosion.

The main potential consequences of soil erosion are the reduction in soil quality and the reduced water-holding capacity of many eroded soils. The indirect consequences of soil erosion include disruption of riparian ecosystems and sedimentation leading to reduced water quality.

Assessment of the impact

During the operation phase, all soil forms will be susceptible to erosion to some extent because the vegetation cover will be cleared before construction takes place at irrigation schemes and infrastructure areas.

The main direct potential consequences of soil erosion are the reduction in soil quality and the reduced water-holding capacity of many eroded soils. The indirect consequences of soil erosion include disruption of riparian ecosystems and sedimentation leading to reduced water quality.

Required Mitigation Measures

The mitigation measures for soil erosion include the following:

- Revegetation, re-grassing of all bare surfaces.
- Minimisation of vegetation clearing to working areas only.

- [Installing soil erosion control structures like, gabions, contour ridges, swells and check dams.](#)
- [Establishment of grassed drainage systems to prevent erosion.](#)

Table 3-11 Soil Erosion

Impact of Soil Erosion	
Project Phase	Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short-medium term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of soil erosion on the local landscapes could be reduced to one of **little** significance.

b) Solid waste

Less quantities of solid wastes are normally generated during the operation phase. Such wastes include domestic wastes, plastics, pesticide containers, agro packaging materials, etc. The sub-project proponents will be expected to design and institute appropriate measures for the collection and disposal of the various wastes produced by their operations. Animals may suffocate from ingesting the solid waste materials. Solid waste can also be dangerous to aquatic animals if washed into water courses.

Assessment of the impact

This impact is **medium to long term** in nature and will occur for the duration of the operation phase. These impacts have a **regional** effect as they will not only be a problem to the footprint area but can affect the wider surrounding communities if not managed. It is expected that the intensity of this impact for most people will be low to medium.

The solid waste disposal impact will be **negative and direct** in nature. The impact will be experienced at the **regional level**. Some indirect impacts could be experienced because of the presence of higher volumes of people, including jobseekers in the area resulting in pressure on social services and infrastructure.

The consequence of the impact is anticipated to be moderate detrimental. For the people residing nearest to the project site it is considered to be of **Low** significance. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures will include:

- [Collection of all solid waste in a systematic manner for disposal at designated landfills.](#)
- [Solid waste should never be burnt on site.](#)
- [Develop a solid waste management plan and implement it.](#)

Table 3-12 solid wastes

Impact of solid wastes	
Project Phase	Operation Phase
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	medium – long term

Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of solid waste pollution on local communities could be reduced to one of **No** significance for all people if solid waste management protocols are followed.

c) Effluent Discharges

Most agricultural, livestock, agro-processing, packaging, and marketing operations produce liquid effluent besides the solid waste. The effluent has potential to pollute soil and water resources.

Assessment of the impact

Effluent Discharges during the operation phase will be **long term** in nature and will occur for the duration of the operations. These impacts have a **regional** effect as they will not only be a problem to the footprint area, but it will flow downstream and pollute the water resources in the process. It is expected that the intensity of these impacts for the environment will be medium-high, necessitating the installation of some form of treatment before effluent discharges.

The disturbances from the effluent discharges will be **negative and direct** in nature. The impact will be experienced at the **regional level**. The consequence of the impact is anticipated to be moderate detrimental. For the people residing nearest to the project site it is considered to be of **Low** significance. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include:

- Installation of appropriate effluent treatment facilities next to any processes that generate effluent.
- Monitoring the quality of the effluent that is ultimately discharged to the environment so that it meets the national effluent discharge standards.

Table 3-13 effluent discharge

1. Impact of effluent discharge	
2. Project Phase	3. Operations Phase
4. Type of Impact	5. Pre-Mitigation Impact
6. Type of Impact	7. Negative, direct
8. Duration	9. long term
10. Extent	11. Regional
12. Intensity	13. Medium-high
14. Consequence	15. Moderate detrimental
16. Probability	17. Definite
18. Significance	19. Low

Residual Impact

Post-mitigation, it is expected that the impact of effluent discharge on local communities could be reduced to one of **No** significance for all people once proper effluent treatment plants are installed and are running properly.

d) Agro-Chemical Pollution

Up-scaling of agricultural activities may result in the use of more agro-chemicals to realise better yields and control pests and diseases. The farmers must be made aware of the poisonous nature of the chemicals, should employ recommended disposal methods, and apply the agro chemicals correctly. Poor handling of the agro chemicals, exacerbated by potential accidental spillages, can expose the farmers to these toxic chemicals resulting in the poisoning of farmers, aquatic animals, and soils.

During the operation phase, agricultural soils can be contaminated from inputs such as application of pesticides and fertilizers. Polluted soils can become secondary emission sources of contaminants to surrounding surface water, groundwater and subsequently to rivers.

Pesticides reach the soil by deposition after being sprayed on foliage when the pesticide is washed off the treated foliage by rainfall or overhead irrigation, by release from the surface of treated seeds or by direct application of granules or spray to soil. The inappropriate disposal of unwanted or out of date pesticides, pesticide packaging and the cleaning of agro-chemical application equipment can also cause pollution. Pesticides and some of their degradation products may accumulate in soils, leach to groundwater and can be transported by runoff to surface water bodies.

The overuse of fertilizers can result in saturation of nutrients in soils and the loss of fertilizer via leaching to groundwater and via runoff to surface water leading to pollution of nearby springs and eutrophication of river water.

Pesticides may have acute and/or chronic effects on non-target organisms including humans. They can have deleterious consequences for ecosystems by virtually eradicating some of the primary food chain, which in turn could have major consequences for predator or consumer species. Overuse of fertilizers (e.g., nitrogen fertilizers), poses a risk to human health and environment especially if leached into the groundwater. Overuse of fertilizers also contributes to soil acidification which is an environmental condition that can reduce the availability of many plant nutrients for plant growth and cause direct toxic effects from soil elements such as aluminium.

Assessment of the impact

Agro-Chemical Pollution can be **medium to long term** in nature and will occur for the duration of the operation phase. These impacts have a **regional** effect as they will not only be a problem to the footprint area but can be washed into the streams and affect water resources.

This disturbance will be **negative and indirect** in nature. The impact will be experienced at the **regional level**. For the people residing nearest to the project site the impact is considered to be of **medium** significance. The moderate detrimental and definite probability result in this impact being of **medium significance**.

Required Mitigation Measures

The mitigation measures include:

- Encourage organic farming and limit the use of Agro chemicals like inorganic fertilizers.
- Use Integrated Pest Management (IPM) approaches to minimize pesticide use.
- Conduct awareness training & workshops on safe handling of chemicals.
- Erect separate storerooms for all agro chemicals so that they are always under lock and key away from food staffs.
- Split application of fertiliser to avoid excess being washed away.
- No application before major storms.
- Don't store fertilisers and agrochemicals and food in the same store room.
- All workers to use appropriate PPE every time.
- Use the least potent variants of pesticides to minimise poisoning.

Table 3-14 Agro-chemical pollution

20. Impact of Agro-chemical pollution	
21. Project Phase	22. Operation phase
23.	24. Pre-Mitigation impact
25. Type of Impact	26. Negative, direct
27. Duration	28. Long term
29. Extent	30. Regional
31. Intensity	32. Medium-high
33. Consequence	34. Moderate detrimental
35. Probability	36. Definite
37. Significance	38. medium

Residual Impact

Post-mitigation, it is expected that the impact of Agro-chemical pollution on local communities could be reduced to one of **No** significance for all people.

e) Ambient Water pollution

Oil and grease leaks and spills are noted to be prevalent in most work areas like the farm sheds. If not well contained these leaks can be washed into water ways and end up polluting the water resources. Such products contain detrimental elements to the environment since they contain traces of heavy metals, and they pollute water resources. Chemicals in oils are detrimental to the biodiversity if not managed. There are still many people relying on river water as a source for drinking water.

Groundwater contamination occurs from percolation of oil and lubricants spills into the soil

Assessment of the impact

The Ambient Water pollution disturbances will be **short to medium term** in nature and will occur for the duration of the operations phase. These impacts have a **regional** effect as they will be carried downstream and will not only be a problem to the footprint area, but it will also reach all the downstream residences. It is expected that the intensity of these impact for most people will be medium-high.

The disturbances from the Ambient Water pollution will be **negative and direct** in nature. The impact will be experienced at the **regional level**. This impact will definitely occur during the operations phase and will be short to medium term in nature. The consequence of the impact is anticipated to be moderate detrimental because of the short to medium duration that the impact will be experienced. The moderate detrimental and definite probability result in this impact being of **medium significance**.

Required Mitigation Measures

The mitigation measures include the following:

- Contain all oil leaks at workshops and surfaces.
- Maintain all vehicles and equipment to avoid oil and grease leaks.
- Install oil and grease separators to collect rain runoff around workshops and parking areas.

Table 3-15 Ambient Water pollution

• Impact of Ambient Water pollution	
• Project Phase	• Pre-Construction, Construction
•	• Pre-Mitigation impact
• Type of Impact	• Negative, direct
• Duration	• Short-medium term
• Extent	• Regional
• Intensity	• Medium-high

• Consequence	• Moderate detrimental
• Probability	• Definite
• Significance	• medium

Residual Impact

Post-mitigation, it is expected that the impact of Ambient Water pollution could be reduced to one of **No** significance for all people once oil and grease separators have been installed.

f) Increased generation of e-waste, hazardous waste, and solid wastes.

In Output 2.3 there will be digitisation of the accounting and financial systems. This may entail the procurement of ICT equipment and the repairs, servicing and end-of-life disposal of the ICT equipment resulting in environmental risks related to electronic wastes (e-wastes), hazardous waste and solid wastes if not managed appropriately. These will need to be managed carefully to prevent public health risk and environmental impacts.

Assessment of the impact

The **Increased generation of e-waste, hazardous waste, and solid wastes** will be **medium – long term** in nature and will occur for the duration of construction. These impacts have a **regional** effect as they will not only be a problem to the footprint area but can be transported downstream and pollute water courses. It is expected that the intensity of this impact will be **medium-high**.

The disturbances from the e-waste will be **negative and indirect** in nature. This impact will definitely occur during the operation phase and will be **medium – long term** in nature. The consequence of the impact is anticipated to be **moderate detrimental** because of the **medium** duration that the impact will be experienced. For the people in the surrounding environment nearest to the project site it is considered to be of **Low** significance. The moderate detrimental and definite probability result in this impact being of **Low significance**.

Required Mitigation Measures

The mitigation measures include:

- Seek guidance of local environmental officers to identify acceptable disposal sites for the e-waste.
- All e-waste must be securely stored on site prior to collection by competent personnel for proper disposal at designated landfills.

Table 3-16 Solid waste nuisance

Impact of Solid waste nuisance	
Project Phase	Operations
Type of Impact	Pre-Mitigation Impact
Duration	Negative, direct
Extent	medium to long term
Intensity	Regional
Consequence	Medium-high
Probability	Moderate detrimental
Significance	Definite
	Low

Residual Impact

Post-mitigation, it is expected that the impact of solid waste management could be reduced to one of **No** significance as the system gets underway.

4.3.3.2 Potential Positive Impacts During Operation Phase.

a) Revegetation

During the operations phase, this will be the order of the day. This will greatly enhance the revegetation process and will protect and conserve the environment in the process.

Assessment of Impact

The revegetation of the project sites will be of a long-term nature occurring throughout the operation phase. The impact will be site specific as it will affect the footprint of the rehabilitated project areas only.

The benefits will be experienced as a positive impact, at the local level, will be long-term to permanent, of medium intensity and most likely to happen. The impacts will most likely be high beneficial – the community regard this as a major long-term positive change as it will improve their livelihoods. The impacts are therefore of **medium** significance.

Table 3-17 revegetation

<u>Impact on revegetation</u>	
<u>Project Phase</u>	<u>Operation</u>
<u>Type of Impact</u>	<u>Positive, direct</u>
<u>Duration</u>	<u>Long-term to permanent</u>
<u>Extent</u>	<u>Local</u>
<u>Intensity</u>	<u>Medium</u>
<u>Consequence</u>	<u>High beneficial</u>
<u>Probability</u>	<u>Most likely</u>
<u>Significance</u>	<u>Medium</u>

3.3.4 Summary of the Magnitude of Potential Environmental Impacts

Tables 6-18 below presents an analysis of the probability of the identified impacts occurring, and thus giving an indication of the magnitude of the risk. The magnitudes are determined using the Impact Magnitude Scoring Table in Appendix 1.

The significance of adverse impacts from project activities will be rated on the basis of their magnitude, duration and probability as shown below in **Table APP 2-1 in Appendix 1**. The scales of rating are 1 to 5 with 1 being low and 5 being high. Where an aspect is affected by more than one impact, the highest rating is taken as the applicable significance of the impact.

Table 3-18 Magnitude of Potential Environmental Impacts.

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
4.3.1	PLANNING PHASE									
4.3.1.1	<i>Potential Negative Impacts During Planning Phase.</i>									
(a)	<i>Vegetation clearing for Site Surveying and Pegging</i>	<ul style="list-style-type: none"> Clearing vegetation for visibility Opening Cutlines for survey purposes 	<ul style="list-style-type: none"> Removal of vegetation cover. Exposure of topsoil and possibility for erosion. Loss of biodiversity and habitat changes. Disturbances of small wildlife Compaction of soil. 	Negative	2	2	2	2	8 Low	6 Negligible
4.3.1.2	<i>Potential Positive Impacts During Planning Phase.</i>									
(a)	None Identified									
4.3.2	CONSTRUCTION PHASE									
4.3.2.1	<i>Potential Negative Impacts During Construction Phase.</i>									
(a)	Limited clearing of vegetation for	<ul style="list-style-type: none"> Preparation of land for Agriculture 	<ul style="list-style-type: none"> Removal of vegetation cover. Exposure of topsoil and possibility for erosion. 	Negative	3	2	1	5	11 Moderate	9 Low

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
	Infrastructure development	<ul style="list-style-type: none"> excavations for pipelines and foundations, construction of irrigation systems, Construction of of agro-processing and storage facilities, Construction of access roads. 	<ul style="list-style-type: none"> Loss of biodiversity and habitat changes. Disturbances of small wildlife Compaction of soil. Pollution of soil and water from oil leakage. Dust and noise generation. 							
(b)	Temporary Visual Intrusions (Marred landscape)	Extraction of building materials like sand, gravel and brick moulding resulting in borrow pits and scurred landscapes.	<ul style="list-style-type: none"> Construction of agricultural facilities like irrigation systems, Warehouses, and other possible facilities will change the characteristics of the area and leave a marred landscape. 	Negative	4	4	1	4	13 Moderate	8 Low
(c)	Soil Erosion.	<ul style="list-style-type: none"> All Construction Activities, Intensive farming techniques, inappropriate Irrigation and drainage management, Inappropriate use of farm machinery, Accidental discharge of hazardous substances, Sand and quarry stone for construction, Gravel for road construction, Extraction of building materials and brick Moulding. 	<ul style="list-style-type: none"> Soil and water pollution. Soil erosion Soil salinization Loss in soil fertility Loss of crop productivity Scarring of the landscape due to sand mining and borrow pits. 	Negative	4	4	1	4	13 Moderate	8 Low
(d)	Solid waste nuisance.	<ul style="list-style-type: none"> Agricultural processes generating waste, e.g., from processing plants. 	<ul style="list-style-type: none"> Pollution of soil and water resources Littering and indiscriminate dumping. 	Negative	4	3	1	2	10 Moderate	9 Low

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
		<ul style="list-style-type: none"> Spoils from access road and infrastructure construction wastes generated from construction activities, such as stones, wood, broken glasses, containers, rods of metal, pieces of iron sheets etc.. 	<ul style="list-style-type: none"> Deterioration of the aesthetics of the areas. 							
(e)	Loss of natural and cultural heritage	<ul style="list-style-type: none"> Digging of trenches for pipelines Digging of foundations for agricultural infrastructures, sheds and pens. 	<ul style="list-style-type: none"> Natural features, antics and relics destroyed in the project area e.g., during excavations. 	Negative	5	4	4	3	16 High	10 Moderate
(f)	Habitat loss and biodiversity disturbances	<ul style="list-style-type: none"> Digging of trenches will be by heavy duty machinery. Excavations will temporarily disrupt the natural habitats. _____ 	<ul style="list-style-type: none"> Noise and vibrations cause wild animals to migrate. contamination of the rivers may cause fish kills and destruction of other aquatic life. riverine ecosystems modifications due to over-abstraction for irrigation purposes 	Negative	5	4	4	3	16 High	10 Moderate
(g)	Ambient Air Quality	<ul style="list-style-type: none"> Dust generated from construction activities. Pesticides used in pests and diseases control 	<ul style="list-style-type: none"> Pollution of air Increases in bronchial disorders. Impaired Visibility on the roads Disturbs normal developments of vegetation. Causes acid rain 		2	2	3	3	10 Moderate	8 Low
(h)	Ambient Water Quality (surface	<ul style="list-style-type: none"> Waste generated from agricultural and livestock activities. 	<ul style="list-style-type: none"> Effluent pollutes soil and water resources. 		3 (groundwater)	5	2 (groundwater)	4 (groundwater)	14 high	10 Moderate

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
	and ground water)	<ul style="list-style-type: none"> Effluents from slaughterhouses Effluents (drainage water) from agriculture land Agro-chemicals run-off from the fields if not properly applied. Accidental discharge of hazardous substances, Erosion processes introduce pollutants and particulates into the water. 	<ul style="list-style-type: none"> Littering and indiscriminate dumping of solid waste pollutes land and water resources. Poisoning of aquatic and inland ecosystems. Ecosystem's imbalance and destruction of flora and fauna 		4 (Surface water)		4 (surface water)	3 (surface water)		
4.3.2.2	Potential Positive Impacts During Construction Phase.									
(a)	Revegetation	<ul style="list-style-type: none"> Proper rangeland management will encourage restoration and enhancement of the vegetation. Rehabilitation of degraded lands afforestation. Fencing off the project sites will induce environmental protection of the area. 	<ul style="list-style-type: none"> environment protected and conserved. revegetation by planting required species. In the process of establishing proper rangeland management the vegetation will be restored and enhanced 	Positive	4	3	4	4	15 High	19 Very High
4.3.3	OPERATION PHASE									
4.3.3.1	Potential Negative Impacts During Operation Phase.									
(a)	Soil Erosion	<ul style="list-style-type: none"> Bare ground around the pipelines for the irrigation schemes. Bare ground along the access roads. 	<ul style="list-style-type: none"> Much less potential for soil erosion loose soil at the sides of levelled irrigation pipelines as well as roads on steep slopes 	Negative	5	4	4	3	16 High	10 Moderate

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
		<ul style="list-style-type: none"> Any vegetation clearing during operations 	will still be susceptible to erosion							
(b)	Solid waste pollution.	<ul style="list-style-type: none"> Less quantities of solid wastes generated include domestic wastes, plastics, and animal dung. 	<ul style="list-style-type: none"> Pollution of the water ways. Littering the neighbourhood 	Negative	3	4	3	3	13 Moderate	9 low
(c)	Effluent Discharges	<ul style="list-style-type: none"> Most agricultural, livestock, agro-processing, packaging, and marketing operations produce liquid effluent. 	<ul style="list-style-type: none"> Pollution of water resources Destruction of habitats 	Negative	5	4	4	3	16 High	9 low
(d)	Agro-chemicals Pollution	<ul style="list-style-type: none"> Limited knowledge of the poisonous nature of the chemicals. Accidental spillages. Poor disposal methods being employed. Washing of equipment in rivers. Poor application methods being used. Poor handling of the chemicals. Accidental discharge of hazardous substances. 	<ul style="list-style-type: none"> Poisoning of farmers by chemicals. Poisoning of aquatic and inland ecosystems by the chemicals. Poisoning of the soil by the chemicals. Poisoning of farm products consumers by chemicals. 	Negative	5	4	4	3	16 High	10 Moderate
(e)	Ambient Water pollution	<ul style="list-style-type: none"> Oil and grease leak and spills prevalent in most work areas like the farm sheds. Leaks can be washed into water ways and end up polluting the water resources. 	<ul style="list-style-type: none"> Pollution of water resources Destruction of habitats 	Negative	5	4	4	3	16 High	10 Moderate

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY / SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
		<ul style="list-style-type: none"> Accidental discharge of hazardous substances. 								
(f)	E-Waste Generation	<ul style="list-style-type: none"> Waste generated from end of life of laptops, solar panels, etc. 	<ul style="list-style-type: none"> Potential for Hazardous waste pollution. Littering and indiscriminate dumping of solid waste E-waste pollution. 	Negative	2	2	2	4	10 (Acceptable but Undesirable)	9 low
4.3.3.2	<i>Potential Positive Impacts During Operation Phase.</i>									
(a)	Revegetation	<ul style="list-style-type: none"> planting of grass and continuous rehabilitation of the pastures. 	<ul style="list-style-type: none"> Habitat restoration. Erosion stopped. 	Positive	4	4	4	4	16 High	18 Moderate

3.4 SOCIAL AND HEALTH IMPACT ANALYSIS

The following is a social and health impacts analysis of the project. The chapter assesses the construction and operation phase social impacts identified for the proposed CARLRF Project. It should be noted that while the number of negative impacts exceed the number of positive impacts, this is not a reflection of the project having a greater overall negative impact. It is expected that the Project could bring a range of positive impacts for those people who can embrace the opportunities that arise.

The potential social impacts that will be generated by the implementation of the CARLRF activities have been grouped as follows:

3.4.1 Social and Health Impact Analysis - Planning Phase

3.4.1.1 Potential Negative Impacts During Planning Phase.

a) Limited Stakeholder Participation

The level of participation of all relevant stakeholders during project planning and designing is of paramount importance as a buy in process. Unclear roles and responsibilities and inadequate information may lead to limited participation of critical Stakeholders. The poor stakeholder participation includes top-down approaches being imposed on beneficiaries so that the projects are just handed over to them without their initial consent.

Such poor stakeholder participation will result in the lack of ownership of the project by the locals, poor participation in project implementation and low chances of sustainability of the project.

Assessment of Impact

The Limited Stakeholder Participation may occur at project inception. The intensity of this impact on project stakeholders is rated as moderate, as the households will be affected by not being consulted properly.

Mitigation Measures

The relevant project beneficiaries will be identified and continuously conferred with. The CARLRF PCU will ensure the following:

- Consultation and information disclosure becomes a continuous process in the project.
- Stakeholders are continuously appraised of the project progress.
- If any people are affected, assistance will be provided to the project affected persons (PAP) to improve, or at least restore incomes and living standards to at least the equivalent level prior to project implementation, if not better.
- Affected persons should be consulted on decisions that affect their livelihoods and well-being and shall be fully informed of their options and the compensation rates.
- Grievance redress mechanisms are developed and accessible.

Table 3-19 Impact of Limited Stakeholder Participation

Impact of Limited Stakeholder Participation	
Project Phase	Pre-Construction
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Short term
Extent	Surrounding villages
Intensity	High
Consequence	Detrimental
Probability	Definite
Significance	Medium to High

Residual Impact

Implementation of the above mitigation measures is expected to reduce the impact of Limited Stakeholder Participation to one of **low** significance post-mitigation, due to the over-riding positive expectations.

b) Poor Project Inception, Anxiety and Anticipation

The planning stage brings a lot of anxiety and anticipation as most stakeholders do not know exactly what will happen and when it will happen. Lack of a proper plan of action with timelines and full disclosure creates anxiety among stakeholders. They then hold the whole process with suspicion and do not want the planning phase to drag for too long.

Assessment of Impact

Poor Project inception mostly results in the locals not fully cooperating with the project preparation team and not disclosing all the relevant information during consultations.

Mitigation Measures

The CALRF PCU will ensure the following:

- Production of proper plan of action with timelines.
- Presenting full disclosure of project decisions and actions to all concerned stakeholders.
- The planning phase should not drag for far too long as people tend to lose hope.
- Efforts must be made to stick to agreed timelines.
- Transparency and full disclosure of key elements of the project

Table 3-20 Impact of Poor Project inception

Impact of Poor Project inception	
Project Phase	Pre-Construction
	Pre-Mitigation impact
Type of Impact	Negative, direct
Duration	Long term
Extent	Footprint
Intensity	High
Consequence	Detrimental
Probability	Definite
Significance	Medium to High

Residual Impact

Implementation of the above mitigation measures is expected to reduce the impact of Poor Project inception to one of **low** significance post-mitigation, due to the over-riding positive expectations.

3.4.1.2 Potential Positive Impacts During Planning Phase.

a) None Identified

3.4.2 Social and Health Impact Analysis – Construction/Operations Phase.

3.4.2.1 Potential Negative Impacts During Constructions/Operations Phase.

a) Conflicts between local people and external work force

Expectation for employment against hiring of expert external workers may result in a conflict that is likely to disturb smooth project progress. Local skills audit and integrating both local and outside workers but giving first preference to locals whenever is possible could reduce sources

of conflict. Transparency in hiring is also important. As part of giving back to the community, the project can target skills development for locals especially willing youths.

Required Mitigation Measures

The mitigation measures include:

- First preference for employment should be given to locals, including for technical work.
- Migrant workers encouraged to bring their spouses along.

Table 3-21 Disturbance from Conflicts between local people and external work force

Impact of Disturbance from Conflicts between local people and external work force	
Project Phase	<i>Constructions/Operations phases.</i>
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	medium to long term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of **Conflicts between local people and external work force** could be reduced to one of **No** significance for all people.

b) Occupational Health and Safety Issues:

Weak technical capacity and/or negligence on operation of vehicles and machinery resulting in temporary and permanent physical injuries, Bronchial diseases from dust, diseases, and illness from agricultural activities such as pesticide handling and/or loss of life.

The safety of the local population trying to access construction sites (Dam Sites etc) may be at risk during the construction period. The operation of various equipment and machinery and the actual construction activities will expose workers to work-related accidents and injuries.

Pollutants such as dust and noise could also have negative implications for the health of workers and near-by communities such as bronchial diseases from dust and hearing impairments due to prolonged working under noisy conditions.

Personal Protective Clothing is required at all times during construction and operation of machinery, handling of pesticides and other agro chemicals in accordance with relevant national guidelines.

Required Mitigation Measures

The mitigation measures include:

- A Health/Safety/Environment officer should be present during construction.
- All safety precautions must be enforced.
- Provide PPE to all workers.
- Institute dust and noise suppression measures.

Table 3-22 Disturbance from Occupational Health and Safety Issues

Impact of Disturbance from Occupational Health and Safety Issues	
Project Phase	<i>Constructions/Operations phases.</i>
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	medium to long term

Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of Occupational Health and Safety Issues could be reduced to one of **No** significance for all people.

c) Poor Public Health

The construction and development phase of the project is likely going to bring outside workers to stay for considerable lengths of time. Communicable diseases such as HIV/AIDS infection rate is likely to increase as the workers, drivers interact with the local population. Poverty is likely going to be the main driver as young women from poor households try to exploit the situation to earn a living. Negotiation power for safe sex may be limited. Contractors might be idolised as being wealthy by local people which gives them an upper hand in negotiating for sex and participation in illicit affairs. Awareness raising within local communities and workers through Information, Education and Communication (IEC) and distribution of free condoms and counselling and treatment will help alleviate the impacts.

Required Mitigation Measures

The mitigation measures include:

- Education on Public health issues.
- Awareness raising within local communities and workers through Information, Education and Communication (IEC) and distribution of free condoms and counselling and treatment will help alleviate the impacts.
- Provision of toilets that are constructed in such a way that they cannot leak into water resources.
- Provision of potable water supply that will include the use of groundwater resources that can be used as a reference to the performance of the project surface water supply.

Table 3-23 Disturbance from Public health issues

Impact of Disturbance from Public health issues	
Project Phase	Constructions/Operations phases.
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	medium to long term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of public health issues on local communities could be reduced to one of **No** significance for all people.

d) Gender Based Violence (GBV)

There are high chances of sexual exploitation (in its various forms) of poor women and young girls by construction workers and project implementation personnel. If not well controlled, there could be rampant exploitation of women and youths in the project area. Assessment of

exposure and appropriate preventive actions must be carried out to avoid gender-based violence at all costs.

Assessment of the impact

The risk of Gender Based Violence (GBV) will be **medium to long term** in nature and will occur for the duration of **Constructions/Operations phases**.

The risk of Gender Based Violence (GBV) will be **negative and direct** in nature. The impact will be experienced at the sub-project sites and at the households of project beneficiaries. Some indirect impacts could be experienced because of the presence of jobseekers in the area resulting in increased population of job seekers exposing the vulnerable ones. The consequence of the impact is anticipated to be moderate detrimental. The moderate detrimental and definite probability result in this impact being of **Medium significance**.

Required Mitigation Measures

The mitigation measures include:

- Zero tolerance to gender-based violence
- Ensure sexual harassment Policy at all levels involved in the project.
- _____

Table 3-24 Disturbance from Gender Based Violence (GBV)

Impact of Disturbance from Gender Based Violence (GBV)	
Project Phase	<u>Constructions/Operations phases.</u>
	<u>Pre-Mitigation Impact</u>
Type of Impact	<u>Negative, direct</u>
Duration	<u>medium to long term</u>
Extent	<u>Regional</u>
Intensity	<u>Medium-high</u>
Consequence	<u>Moderate detrimental</u>
Probability	<u>Definite</u>
Significance	<u>Low</u>

Residual Impact

Post-mitigation, it is expected that the impact of Gender Based Violence (GBV) on local communities could be reduced to one of **No** significance for all people.

e) Displacements or shifts of livelihood activities.

The CARLRF is not expected to disrupt the current agricultural activities of the beneficiaries, displace or disadvantage any persons. The communities in the proposed project Areas depend on agricultural production for their livelihood and are highly dependent on crop production for household sustenance and survival. Crops are grown primarily for household consumption but in some instances are sold and bartered.

Thus, resettlement of permanent homes is not anticipated according to the project design, but resettlement of livelihood activities (cattle grazing and hunting grounds) and assets may occur to pave way for project infrastructure and the fencing off of grazing lands. This may result in permanent loss of access to surrounding villagers who were also grazing their animals in the project sites.

The establishment of the sub-projects will have a disruptive effect on the day-to-day life of the locals, like cutting off their usual footpaths or routes to social and economic service centres and forcing them to use longer routes. This will be unavoidable, and the communities have to come up with the best alternatives.

Assessment of Impact

Communities will be affected by the construction activities of micro-dams and other agricultural infrastructure, fencing off of grazing lands to effect better management of the rangelands, causing a shift in livelihoods for many who were depending on these lands for hunting, gathering and collection of medicinal plants.

Required Mitigation Measures

The mitigation measures include:

- Engage in good irrigation scheme designs.
- Relocate the footpaths and construct foot bridges where possible.
- Create alternative sources of livelihood e.g., by involving the affected parties in the scheme.

Table 3-25 Loss of agricultural fields

Impact of loss of agricultural fields	
Project Phase	Pre-Construction, Construction (extending into Operation)
	Pre-Mitigation Impact
Type of Impact	Direct
Duration	Long term
Extent	Footprint
Intensity	Low
Consequence	Not detrimental
Probability	Definite
Significance	Low

Residual Impact

Post-mitigation, it is expected that the impact of the shift in livelihoods of the local communities could be reduced to one of **No** significance for all people as they will be benefiting from the jobs at the project sites and at other downstream opportunities like processing and packaging plants.

3.4.2.2 Potential Positive Impacts During Constructions/Operations Phase.

a) Economic Opportunities Employment (job creation)

Currently there are limited economic opportunities beyond subsistence-based agriculture in the proposed project areas. Communities expect employment and business opportunities associated with this Project, and they anticipate that these opportunities will bring about improvements to their standard of living.

During the operational phase, there will be several employment opportunities associated with the Project. The work will require both skilled and unskilled labour. It is expected that all the labour will initially be sourced locally in the sub-project areas and only unavailable skilled labour will be sourced from elsewhere in ZAMBIA.

Assessment of Impact

The communities in the sub-project areas can be considered to have **Low** sensitivity in that the economic opportunities that will most likely be available are small scale initiatives since the majority of the population is unlikely to have the skills or capital to set-up big businesses. A few will be able to set-up small initiatives that will increase their ability to earn some income.

The benefits will be experienced as a positive impact, at the local level, will be long-term to permanent, of medium intensity and most likely to happen. The impacts will most likely be high beneficial – the communities regard this as a major long-term positive change as it will improve their livelihoods. The impacts are therefore of **medium** significance.

Required Enhancement Measures

The enhancement measures include:

- [Set up favourable working relationships between the project PCU and the communities.](#)
- [Meet all promises.](#)
- [Endeavour for a win-win situation.](#)
- [Scout for skilled workers in the project area before hiring outsiders.](#)

Table 3-26 Economic Opportunities and Improved Livelihoods

Impact on Economic Opportunities and Improved Livelihoods	
Project Phase	Operation
Type of Impact	Positive, direct
Duration	Long-term to permanent
Extent	Local
Intensity	Medium
Consequence	High beneficial
Probability	Most likely
Significance	Medium

3.4.3 Summary of the Magnitude of Potential Social Impacts

Tables 7-7 below presents an analysis of the probability of the identified impacts occurring, and thus giving an indication of the magnitude of the risk. The magnitudes are determined using the Impact Magnitude Scoring Table in Appendix 1.

The significance of adverse impacts from project activities will be rated on the basis of their magnitude, duration and probability as shown below in **Table APP 2-1 in Appendix 1**. The scales of rating are 1 to 5 with 1 being low and 5 being high. Where an aspect is affected by more than one impact, the highest rating is taken as the applicable significance of the impact.

Table 3-27 Magnitude of Potential Social Impacts

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY OR SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
4.4.1	PLANNING PHASE									
4.4.1.1	<i>Potential Negative Impacts During Planning Phase.</i>									
(b)	Limited and inadequate Stakeholder involvement	<ul style="list-style-type: none"> Predominance of the top-down approach and just handing a project to stakeholders Inadequate dissemination/sharing of information. Unclear roles and responsibilities Negative perception 	<ul style="list-style-type: none"> Low chances of success and sustainability Failure to take up ownership of the project by the partners 	Negative	4	3	3	2	12 Moderate	8 Low
(c)	Poor project inception/Introduction	<ul style="list-style-type: none"> Lack of transparency from the implementing Partners. Lack of proper timelines for the different phases of the project. Dragging the planning phase too long. 	<ul style="list-style-type: none"> Anxiety and anticipation. Limited cooperation Suspicion and hence concealing of important information 	Negative	4	3	2	1	10 Moderate	7 Low
4.4.1.2	<i>Potential Positive Impacts During Planning Phase.</i>									
	None Identified.									
4.4.2	CONSTRUCTION/OPERATIONS PHASE.									
4.4.2.1	<i>Potential Negative Impacts During Constructions/Operations Phase.</i>									

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY OR SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
(a)	Conflicts between local people and external work force	<ul style="list-style-type: none"> Migration of outsiders to the potential project sites for employment. Breakdown of social fabric due to illicit relationships. increased burden on the local resources. 	<ul style="list-style-type: none"> Conflict over employment opportunities. Conflict over relationships. Conflict over available resources. 	Negative	4	3	2	2	11 Moderate	9 Low
(b)	Occupational Health and Safety Issues	<ul style="list-style-type: none"> Weak technical capacity and/or negligence on operation of vehicles and machinery Lack or inadequate use of safety gear may also contribute to accidents that may result in trauma and other casualties. Weak security measures in the project area. 	<ul style="list-style-type: none"> Temporary and permanent physical injuries. Bronchial diseases from dust. Diseases and illness from livestock handling (cattle pens, slaughterhouses, etc) Loss of life 	Negative	4	5	4	3	16 (High)	9 Low
(c)	Poor Public Health	<ul style="list-style-type: none"> Presence of contract workers from outside the area and interaction with locals. Influx of people to the areas in search of employment opportunities. Development of agriculture systems 	<ul style="list-style-type: none"> Spread of communicable diseases such as HIV/AIDS. Increase in the prevalence of water-borne diseases (intestinal and urinary bilharzia and malaria) 	Negative	3	3	3	5	14 High	10 Moderate
(d)	Gender Based Violence	<ul style="list-style-type: none"> Poverty which leads to women being exploited by men during construction phase. 	<ul style="list-style-type: none"> Physical body harm Lack of productivity Communicable disease incidences 	Negative	5	5	5	3	18 High	13 Moderate
(e)	Displacements or shifts of livelihood activities (cattle grazing and hunting grounds)	<ul style="list-style-type: none"> Fencing off the grazing lands for improved rangeland management. Expansion of irrigation farmlands and construction of micro dams. Construction of various agricultural value chain facilities – abattoir. Cutting off the usual resources areas and areas normally used by local 	<ul style="list-style-type: none"> Removal/alteration of usual source of livelihood. long-term hardship, impoverishment, and social unrest among the affected community. Migration to alternative livelihoods. 	Negative	4	4	1	4	13 Moderate	7 Low

REF:	PARAMETER UNDER CONSIDERATION			CRITERIA FOR ASSESSMENT OF POTENTIAL RISK						
	CATEGORY	CAUSE	IMPACT	QUALITY	PROBABILITY	SEVERITY OR SIGNIFICANCE	EXTENT	DURATION	MAGNITUDE OF IMPACT	RESIDUAL SIGNIFICANCE AFTER MITIGATION
		people (grazing lands, hunting grounds, etc blocked)								
4.4.2.2	<i>Potential Positive Impacts During Constructions/Operations Phase.</i>									
(a)	Economic Opportunities Employment (job creation)	<ul style="list-style-type: none"> Improved cattle rearing approaches. Improved Agricultural practices. Availability of many small-scale initiatives. setting-up of businesses in the agriculture value chains. 	<ul style="list-style-type: none"> improvement on their income generation. Improvement of livelihoods maintained land output gain. capacitation on entrepreneurial skills 	Positive	4	4	3	4	15 High	16 High

THE ENVIRONMENTAL, AND SOCIAL MANAGEMENT PLAN (ESMP).

This chapter outlines the Environmental, and Social Management Plan (ESMP) for the CALRF.

4.1 THE ESMP

The ESMP for the proposed CALRF, provides guidelines for the management of potential environmental and social aspects at the project sites. The ESMP also identifies parties responsible for monitoring actions, and any training or capacity building needs.

Mitigation measures have been identified to reduce present and potential impacts associated with both the existing and new agricultural activities on the proposed project. In addition, mitigation measures are identified as either social or physical measures. Social mitigation includes the measures used to mitigate effects such as noise, land use, and other effects to the human environment. Physical mitigation includes measures that address impacts to the physical environment, such as biological communities, vegetation, air quality, and others.

Table 4-281 Environmental and Social Management Plan (ESMP).

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
4.3	ENVIRONMENTAL IMPACTS			
4.3.1	PLANNING PHASE			
4.3.1.1	<i>Potential Negative Impacts During Planning Phase.</i>			
(a)	<ul style="list-style-type: none"> Vegetation Clearing for cutlines. Dust generation and soil erosion 	<ul style="list-style-type: none"> Cutline clearance is to be minimized as far as possible to reduce the potential for dust generation and other impacts. Dust suppression measures are to be implemented, which shall include Water sprinklers and covering moulds with nets. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors.	
4.3.1.2	<i>Potential Positive Impacts During Planning Phase.</i>			
(a)	None identified			
4.3.2	CONSTRUCTION PHASE			
4.3.2.1	<i>Potential Negative Impacts During Construction Phase.</i>			
(a)	Vegetation Clearing			
	<ul style="list-style-type: none"> Limited Vegetation clearing may occur during the establishment of the CALRF project as new infrastructure will be erected. <ul style="list-style-type: none"> Preparation of land for Agriculture and pastures. Construction of agricultural infrastructure. excavations for pipelines and foundations construction of irrigation systems. Construction of agro-processing and storage facilities. preparations of farmlands etc 	<ul style="list-style-type: none"> Sensitive habitats should be avoided. (Wetlands and stream banks) Clearing should be limited to working areas only, and these include areas for foundations for agriculture infrastructures. Revegetation and reforestation must be prioritized. (e.g., Planting grass, and trees as appropriate) Over abstraction of construction materials like sand and gravel should be avoided. Habitat restoration must be done where effects have been caused i.e., refilling burrows pits and regressing bare areas. Sustainable range management must be practiced including rotational grazing, etc. Dust suppression: <ul style="list-style-type: none"> Dust suppression measures are to be implemented, which shall include covering soil moulds, spraying water, etc. Site clearance is to be minimized as far as possible to reduce the potential for dust and other impacts. Water sprinklers to be used, especially on the road leading to the project side. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors.	Environmental awareness training

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
(b)	Temporary Visual Intrusions (Marred landscape)			
	<ul style="list-style-type: none"> Construction and repairs of Feeder roads, crossing places, micro dams and irrigation scheme systems, agricultural infrastructure, and other possible facilities will change the characteristics of the area and leave a marred landscape. 	<ul style="list-style-type: none"> Contractors should ensure minimum footprint of construction activities and provide decent accommodation for workers. All altered landscapes (Sand pits, borrow pits, brick moulding sites etc) should be rehabilitated by the contractor, i.e., filled and re-grassed. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors. District Agriculture Office.	none
(c)	Soil Erosion			
	<ul style="list-style-type: none"> Exposure of land during preparation of land for crop and pasture farming. Point source contamination from diesel, lubricants etc around working areas. Increased soil erosion due to vegetation clearing, soil trampling and compaction. Increased rapid runoff due to vegetation clearing and soil compaction diminishing infiltration capacity during construction phase. Deterioration of soil characteristics due to increased erosion. 	<ul style="list-style-type: none"> Appropriate containment measures for all operational areas and proper disposal of used lubricants. Soil erosion control measures (e.g., re-vegetation, reseedling of grasses, land preparation, terracing, use of gabions, stabilization of banks etc) Restoration of borrow pits, sand and quarry stone abstraction sites and brick moulding sites. Revegetation, re-grassing of all bare surfaces Minimisation of vegetation clearing to working areas only Installing soil erosion control structures like, gabions, contour ridges, swells and catch dams. Use existing roads to access the fields and farm sites and employ drainage control measures and culverts to control natural runoff and overland flow. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors. District Agriculture Office.	Environmental awareness training
(d)	Solid waste nuisance			
	<ul style="list-style-type: none"> Pollution of soil and water resources Littering and indiscriminate dumping. Deterioration of the aesthetics of the areas. 	<ul style="list-style-type: none"> Seek guidance of local environmental officers to identify acceptable disposal sites. Collection of all construction debris for proper disposal at designated landfills. Waste from agricultural activities can be further processed into other uses, e.g., organic manure. Reuse and recycling must be preferred over disposal of the waste. Establish proper treatment facilities for effluents from abattoirs. May generate biogas from the waste by erecting Bio-gas digesters. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors. District Agriculture Office. Local Environment Officers	
(e)	Loss of natural and cultural heritage			
	<ul style="list-style-type: none"> Natural features, antics and relics destroyed in the project area e.g., during excavations. 	<ul style="list-style-type: none"> Conduct feasibility studies, fencing, introduce proper antiquity education programmes. Come up with a Physical cultural resources' management plan. Establish procedure for chance finds. 	CALRF PCU. Local Leadership. Beneficiaries. Contractors.	Requirement of the National Monuments Act.

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
		<ul style="list-style-type: none"> If any natural features, antics, and relics are encountered the trenching should stop immediately and the chance finds procedure be followed. 	Local Environment Officers Museums Department.	
(f)	Habitat loss and biodiversity disturbances.			
	<ul style="list-style-type: none"> Noise and vibrations cause small wild animals to migrate and disturb their normal roaming patterns. contamination of the rivers may cause fish kills and destruction of other aquatic life, 	<ul style="list-style-type: none"> Enforcement of parks and wildlife law. Avoid contamination of soil and water Environmental flows must be reserved at all times. Noisy operations should be conducted at certain times of the day. Always use well serviced equipment that will be less noisy. Noise management measures are to be implemented and shall include maintenance of vehicles and equipment to run quietly, and avoidance of leaving engines running unnecessarily. Traffic management measures are to be implemented and travel speed of contractors and suppliers' vehicles will be restricted. _____ 	CALRF PCU. Local Leadership. Beneficiaries. Contractors. Local Environment Officers Museums Department. District Agric. Officer.	Requirement of the Parks and Wildlife Act.
(g)	Ambient air pollution			
	<ul style="list-style-type: none"> Pollution of air Increases in bronchial disorders. Impaired Visibility on the roads Disturbs normal developments of vegetation. Causes acid rain 	<ul style="list-style-type: none"> Animal waste must be handled properly to avoid smell. Contractors should use dust screens or nets in windows, doorways, and ventilators of rooms where demolition or other dusty construction activities are occurring. Dust suppression measures must be instituted at all sites which shall include covering soil mounds and spraying bare areas with water. Site clearance is to be minimized as far as possible to reduce the potential for dust and other impacts. _____ 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office.	None
(h)	Ambient Water pollution			
	<ul style="list-style-type: none"> discharges of debris from civil works, oil spills, and other pollutants generated from construction works including onsite sewage and rainwater run-off. Discharge of effluent from agricultural processing plants. Soil and water pollution resulting from the accumulation of solid and liquid waste. Soil and water pollution from chemicals & fertilizers meant for production. Littering and indiscriminate dumping of solid waste pollutes land and water resources. 	<ul style="list-style-type: none"> Contractors to erect proper sanitary facilities. - Toilets at convenient locations throughout the project area. Pollution from lubricants and other wastes to be avoided. Contain all oil leaks at workshops and surfaces by collecting in oil separators. Controlled disposal of wastes and effluent by use of appropriate disposal facilities, use of appropriate drainage structures, use of cleaner technologies, proper storage of materials, awareness campaigns. Waste must be recycled and reused to avoid dumping in waterways. 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office.	None

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
	<ul style="list-style-type: none"> Poisoning of aquatic and inland ecosystems. 	<ul style="list-style-type: none"> Polluted water shall be treated prior disposal to watercourse. activities related to slaughtering of cattle should be carefully conducted. Maintain all vehicles and equipment to avoid oil and grease leaks. Install oil and grease separators to collect rain runoff around workshops and parking areas. 		
4.3.2.2	Potential Positive Impacts During Construction Phase.			
(a)	Revegetation			
	<ul style="list-style-type: none"> In the process of establishing well managed rangelands and pastures the vegetation will be restored and enhanced. _____ 	<ul style="list-style-type: none"> Study and identify the correct indigenous plants that can thrive in the area. Conduct deliberate exercise to revegetate the project area using fodder and other grasses. 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office.	
4.3.3	OPERATION PHASE	<ul style="list-style-type: none"> _____ 		
4.3.3.1	Potential Negative Impacts During Operation Phase.	<ul style="list-style-type: none"> _____ 		
(a)	Soil Erosion			
	<ul style="list-style-type: none"> Much less potential for soil erosion loose soil at the sides of levelled irrigation pipelines as well as roads on steep slopes will still be susceptible to erosion 	<ul style="list-style-type: none"> Revegetation, re-grassing of all bare surfaces Minimisation of vegetation clearing to working areas only – fields under preparation. Installing soil erosion control structures like gabions, contour ridges, swells and catch dams. Establishment of grassed drainage systems to prevent erosion. 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office.	
(b)	Solid waste			
	<ul style="list-style-type: none"> Less quantities of solid wastes generated include domestic wastes, plastics, and animal dung. _____ 	<ul style="list-style-type: none"> Collection of all solid waste in a systematic manner for disposal at designated landfills. Placing of waste collection bins at strategic positions throughout the project area. Solid waste should never be burnt on site. Develop a solid waste management plan and implement it. 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office. Contractors.	
(c)	Effluent Discharges			
	<ul style="list-style-type: none"> Most agricultural, livestock, agro-processing, packaging, and marketing operations produce liquid effluent 	<ul style="list-style-type: none"> Installation of appropriate effluent treatment facilities next to any processes that generate effluent. i.e., Septic tanks, oxidation ponds, etc 	CALRF PCU. Local Leadership. Beneficiaries.	

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
		<ul style="list-style-type: none"> Collecting and channelling all effluent to a properly constructed effluent treatment plant, which could be oxidation ponds, septic tanks or bio-gas digesters Monitoring the quality of the effluent that is ultimately discharged to the environment so that it meets the national effluent discharge standards. 	Local Environment Officers District Agriculture Office.	
(d)	Agro chemicals			
	<ul style="list-style-type: none"> Poisoning of farmers by chemicals. Poisoning of aquatic and inland ecosystems by the chemicals. Poisoning of the soil by the chemicals. Poisoning of farm products consumers by chemicals. 	<ul style="list-style-type: none"> Encourage organic farming and limit the use of Agro chemicals like inorganic fertilizers. Use integrated Pest Management approaches to minimize pesticide use. Conduct awareness training & workshops on safe handling of chemicals. Erect separate storerooms for all agro chemicals so that they are always under lock and key away from food staffs. Use split application of fertiliser to avoid excess being washed away. No application before major storms Don't store fertilisers and agrochemicals and food in the same store room. All workers to use appropriate PPE every time. Use the least potent variants of pesticides to minimise poisoning. 	CALRF PCU, Local Leadership Beneficiaries, Local Environment Officers District Agriculture Office.	
(e)	Ambient Water pollution			
	<ul style="list-style-type: none"> Oil and grease leak and spills prevalent in most work areas like the farm sheds. Leaks can be washed into water ways and end up polluting the water resources. 	<ul style="list-style-type: none"> Contain all oil leaks at workshops and surfaces. Maintain all vehicles and equipment to avoid oil and grease leaks. Install oil and grease separators to collect rain runoff around workshops and parking areas. 	CALRF PCU, Local Environment Officers District Agriculture Office.	
(f)	E-waste generation			
	<ul style="list-style-type: none"> Potential of E-waste generation from the laptops, computers and solar panels supplied for e-learning. Potential for Hazardous waste pollution. Littering and indiscriminate dumping of solid waste E-waste pollution 	<ul style="list-style-type: none"> Seek guidance of local environmental officers to identify acceptable disposal sites for the e-waste. All e-waste must be securely stored on site prior to collection by competent personnel for proper disposal at designated landfills. Collect and store in a lockable area, all potentially hazardous waste (end of life laptops and computer components, 	CALRF PCU, Local Environment Officers District Agriculture Office.	

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
		batteries, solar panels, etc.), for onward transportation back to supplier, recycling facility or proper disposal site.		
4.3.3.2	<i>Potential Positive Impacts Durina Operation Phase.</i>			
(a)	<i>Revegetation</i>			
	<ul style="list-style-type: none"> planting of grass and continuous rehabilitation of the pastures. _____ 	<ul style="list-style-type: none"> identify the correct indigenous plants that can thrive in the area. Conduct deliberate exercise to revegetate the project area using fodder and other grasses. 	CALRF PCU. Local Environment Officers District Agriculture Office.	
4.4	SOCIAL AND HEALTH IMPACTS			
4.4.1	PLANNING PHASE			
4.4.1.1	<i>Potential Neaative Impacts During Planning Phase.</i>			
(a)	<i>Limited Stakeholder Involvement</i>			
	<ul style="list-style-type: none"> Low chances of success and sustainability Failure to take up ownership of the project 	<ul style="list-style-type: none"> Conduct a comprehensive participatory stakeholder mapping exercise including roles and responsibilities. Timeous dissemination of information. Always target buy in at decision making level. Stakeholders are continuously appraised of the project progress. Assistance is provided to affected people to improve, or at least restore incomes and living standards to at least the equivalent level prior to project implementation, if not better. Affected persons should be consulted on decisions that affect their livelihoods and well-being and shall be fully informed of their options and the compensation rates. Grievance redress mechanisms are developed and accessible. 	CALRF PCU. Local Leadership. Beneficiaries. Local Environment Officers District Agriculture Office.	Team building
(b)	<i>Poor project Inception/Introduction</i>			
	<ul style="list-style-type: none"> Anxiety and anticipation Limited cooperation Suspicion and hence concealing important of information. _____ 	<ul style="list-style-type: none"> Efforts must be made to stick to agreed timelines. Transparency and full disclosure of key elements of the project Production of proper plan of action with timelines Presenting full disclosure of project decisions and actions to all concerned stakeholders The planning phase should not drag for far too long as people tend to lose despair. _____ 	CALRF PCU. Local Leadership. Local Environment Officers	None
4.4.1.2	<i>Potential Positive Impacts During Planning Phase.</i>			

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
(a)	None Identified.			
4.4.2	CONSTRUCTION/OPERATIONS PHASE			
4.4.2.1	Potential Negative Impacts During Constructions/Operations Phase			
(a)	<u>Conflicts between local people and external work force</u> <ul style="list-style-type: none"> Conflict over employment opportunities Conflict over relationships. Conflict over available resources 	<ul style="list-style-type: none"> First preference for employment should be given to locals, including for technical work. Migrant workers encouraged to bring their spouses along. 	CALRF PCU, Local Leadership, Local Environment Officers	
(b)	<u>Occupational Health and Safety Issues</u> <ul style="list-style-type: none"> Temporary and permanent physical injuries. Bronchial diseases from dust. Diseases and illness from agricultural activities such as pesticide handling. Loss of life. Accidental Injuries of local people accessing construction sites. Accidents from operation of various equipment. 	<ul style="list-style-type: none"> A Health/Safety/Environment officer should be present during construction. All safety precautions must be enforced. Provide PPE to all workers. Institute dust and noise suppression measures. 	Health Dept, CALRF PCU, Local Leadership, Local Environment Officers	Application of various types of PPE and their proper use.
(c)	<u>Poor Public Health</u> <ul style="list-style-type: none"> Spread of communicable diseases such as HIV/AIDS. Increase in the prevalence of water-borne diseases (intestinal and urinary bilharzia and malaria) 	<ul style="list-style-type: none"> Education on Public health issues. Awareness raising within local communities and workers through Information, Education and Communication (IEC) and distribution of free condoms and counselling and treatment will help alleviate the impacts. Provision of toilets that are constructed in such a way that they cannot leak into water resources. Provision of potable water supply that will include the use of groundwater resources that can be used as a reference to the performance of the project surface water supply. 	Health Dept, CALRF PMU, Local Leadership, Local Environment Officers	HIV/AIDS and related communicable diseases
(d)	<u>Gender Based Violence</u> <ul style="list-style-type: none"> Physical body harm Lack of productivity Communicable disease incidences 	<ul style="list-style-type: none"> Zero tolerance to gender-based violence Ensure sexual harassment Policy at all levels involved in the project. 	CALRF PCU, Local Leadership, Local Environment Officers	Gender Based Violence and Sexual Harassment
(e)	<u>Displacements or shifts of livelihood activities</u>			

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
	<ul style="list-style-type: none"> Usual routes closed. Long routes in use - women, the elderly and school children affected. Removal/alteration of usual source of livelihood. (Cattle grazing and hunting grounds) long-term hardship, impoverishment, and social unrest among the affected community. Migration to alternative livelihoods. 	<ul style="list-style-type: none"> Engage in good irrigation scheme designs. Relocate the footpaths and construct foot bridges where possible. Create alternative sources of livelihood e.g., by involving the affected parties in the scheme. 	CALRF PCU, Local Leadership, Local Environment Officers	
4.4.2.2	<i>Potential Positive Impacts During Constructions/Operations Phase.</i>			
(a)	Economic Opportunities Employment (job creation)			
	<ul style="list-style-type: none"> improvement on their income generation. Improvement of livelihoods maintained land output gain. capacitation on entrepreneurial skills 	<ul style="list-style-type: none"> Set up favourable partnership agreements. Meet all promises. Endeavour for a win-win situation 	CALRF PCU, Local Leadership, Local Environment Officers	<ul style="list-style-type: none"> Entrepreneurial approaches. Good animal Husbandry Commercial farming approaches.

ENVIRONMENTAL AND SOCIAL MONITORING PLAN

5.1 INTRODUCTION

The PMU with the help of relevant authorities will monitor the environmental and social effects of project implementation and the success of mitigation measures. Monitoring is an important part of managing the impacts of the project. The environmental and social monitoring will be the responsibility of the PMU Environmental Officers who will be coordinating all safeguards issues.

The objective for monitoring is twofold:

- To provide timely information about the effectiveness of the environmental and social management screening process as outlined in the ESMP. Information generated will inform continuous improvement to the process,
- To establish the progress in implementation of the mitigation measures, the extent to which they are effective in maintaining environmental and social integrity and if any changes are required to improve the ESMP implementation.

Monitoring is done on the basis of agreed upon indicators. Examples of typical environmental indicators include:

- (i) Evidence of anti-soil erosion measures such as terraces,
- (ii) Re-planted vegetation,
- (iii) Constructed drainage channels,
- (iv) Filled up burrow pits, etc.

Social indicators include:

- (i) Representation on the community management committees,
- (ii) Equitable sharing of benefits from the programme intervention,
- (iii) Numbers of members attending programme planning and implementation meetings,
- (iv) Effect of programme implementation on local household economies.

5.2 MONITORING, EVALUATION AND LEARNING

The monitoring and evaluation of the measures stipulated in this ESMP are integrated into the project's overall monitoring and evaluation procedures, as follows:

- The PMU will monitor the environmental and social risks and mitigation measures identified through the different procedures identified in this document,
- The PMU will regularly review and synthesize data from these sources to identify most important issues as well as emerging themes,
- The PMU will integrate environmental and social sustainability issues into its regular reporting to IFAD.

The outcomes of these monitoring and evaluation practices should be integrated into the regular learning and training programmes of the line ministries involved, picking up the emerging themes from the monitoring data and inviting experts to provide insights on best practices as well as new technologies.

5.3 AREAS TO BE MONITORED

5.3.1 Environmental issues

a) Soils

Soil degradation may occur as the soils are exposed and or compacted during the construction of agriculture infrastructure and agricultural activities, potentially affecting the drainage of the

areas.

The beneficiary communities must ensure that no gullies or rills develop in the programme areas. This can be avoided by taking such soil erosion control measures as construction of embankments and designing drainage along work areas. The absence of gullies and rills will be used as a measure of the success of the control measures.

The soil can also be scotched by chemical spillages. This will render the soil poisonous, and it must be discouraged at all cost.

b) Vegetation

Unnecessary vegetation clearing and grass fires must be prevented at all costs. The trees should not be gathered for firewood or cut for other purposes. The local residents must be monitored to ensure that firewood is not excessively collected.

c) Wildlife

Under such situations, farmers may want to snare small animals. All wildlife should be treated in accordance with the Wildlife Act.

d) Marginal lands/fragile ecosystems

Marginal lands and fragile ecosystems must be protected against abuse.

e) Chemical pollution

A great likelihood of chemical pollution of the water and the soil exists and in order to monitor the amount of pollutants in the soil or water, samples must be taken regularly from them for pollution testing.

f) Water resources

Both quality and quantity of water resources in the rivers must be properly managed for sustainable irrigation activities to persist.

g) Ambient air quality

All air polluting activities need to be checked regularly to minimise their effect on air quality.

h) Climate Resilience

It will be important to regularly inspect agricultural infrastructure for its resilience to climate change and variability and also any agricultural practices, if they are still relevant in the given climatic conditions.

6.3.2 Social Issues

a) Loss of natural and cultural heritage

The rehabilitation/construction of roads, dams, warehouses and other agricultural infrastructure and fields may affect some natural features, antics and relics in the programme area. Measures must be put in place for chance finds and any such incidences must be treated as required by the relevant Act.

b) Socio-Cultural Issues

Regular health checks of the work force/farmers are a way to monitor disease patterns of the members of the community to ensure that no new strains of diseases are being introduced.

c) Noise and Vibrations

It will be important to routinely monitor noise levels from the machinery to ensure that it conforms to the limits recommended for noise levels.

It is recommended that all environmental parameters mentioned above be monitored during the implementation and operation stages and any impacts should be mitigated as soon as possible. The farmers and the CALRF-PMU should monitor on a periodic basis.

In the course of monitoring, if and when any significant impacts are detected, the monitoring team should meet and address the issue. All team members should keep records of such meetings.

5.4 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Sub-project screening will ensure that no activities in the project exclusion list will be accommodated under CALRF. Thus, the first action by the Environmental Officers will be to monitor whether any subprojects:

- i) Require acquisition of land and displacement of people,
- ii) Block the access to or use of land, water points and other livelihood resources used by others,
- iii) Encroach onto fragile ecosystems, marginal lands or important natural habitats,
- iv) Impact on physical cultural resources of national or international importance and conservation value.

The following is an outline of the proposed environmental and social monitoring plan for the CALRF programme:

The Monitoring Plan is summarized in Table 6-1 below.

Table 5-294 Monitoring Activities and Indicators

ISSUE	METHOD OF MONITORING	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
Soils	In the process of constructing roads, bridges, micro-dams and other agriculture infrastructure, the contractors should make a daily inspection of earth works and ensure that slopes are suitably graded. Once earthworks are complete the Implementing Agent should monitor the restoration measures implemented by the Contractor, such as re-vegetation	<ul style="list-style-type: none"> Soil erosion Conservation activities Rangelands management 	An absence of rills, gullies or other erosion features occurs	Daily and ongoing as project is implemented	<ul style="list-style-type: none"> Ministry Of Green Economy and Environment. Ministry of Agriculture (MoA) CALRF-PMU Zambia Environmental Management Agency (ZEMA).
Vegetation	Vegetation clearance must be limited to areas to be used and site works only.	<ul style="list-style-type: none"> Clearing of the project sites and disturbance of animals. flora and fauna 	No unnecessary vegetation cleared	Weekly and ongoing as project is implemented	<ul style="list-style-type: none"> Ministry Of Green Economy and Environment. Ministry of Agriculture (MoA) CALRF-PMU Zambia Environmental Management Agency (ZEMA).
Birds Habitats	Interference with nesting sites	<ul style="list-style-type: none"> Nesting sites Migratory routes 	Reproductive patterns of birds undisturbed	Weekly and ongoing as project is implemented	<ul style="list-style-type: none"> Zambia Environmental Management Agency (ZEMA). Department of National Parks and Wildlife
Small mammals habitat loss	Ensure that no unnecessary habitat loss occurs, and that poaching is curtailed.	<ul style="list-style-type: none"> Animal habitats Poaching 	No Mammals are displaced from their habitats. Number of poaching incidences reduced or eliminated.	Weekly and ongoing as project is implemented	<ul style="list-style-type: none"> Zambia Environmental Management Agency (ZEMA). Department of National Parks and Wildlife Police department
Crime	The CALRF-PMU Secretariat should Liaise with police department if crime/theft becomes a problem.	<ul style="list-style-type: none"> Criminal activities in the area 	Crime theft kept to a minimum. Incidences of stock theft and house breaking minimized.	Weekly and ongoing as project is implemented	<ul style="list-style-type: none"> Department of National Parks and Wildlife Police department District Administrators

ISSUE	METHOD OF MONITORING	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
Noise	Noise monitoring should be carried out on an ad-hoc basis by the Environmental Monitor or the CALRF-PMU to establish noise levels in the work areas.	<ul style="list-style-type: none"> Noise Levels 	Noise levels at the nearest sensitive receiver would be kept to a minimum.	Weekly and ongoing as project is implemented.	<ul style="list-style-type: none"> Ministry of Health Zambia Environmental Management Agency (ZEMA). CALRF-PMU.
Health	CALRF-PMU must ensure that education and awareness campaigns are implemented and must mainstream HIV/AIDS issues into the project implementation programme.	<ul style="list-style-type: none"> Public health Waste management at Sub-project sites. Disease outbreak due to concentration of people at the Sub-project sites. Disease outbreak due to dust and water pollution. 	Reduction in number of cases of such diseases as Avian flu, AIDS/STD related diseases recorded at hospital and medical clinic	Monthly and ongoing as project is implemented	<ul style="list-style-type: none"> Health ministry CALRF-PMU Ministry of Agriculture (MoA)
Archaeology	This should concentrate on chance finds. Provision should be made to allow archaeologists to be present on site during the excavation periods if they so wish. The CALRF-PMU should inspect all excavations, and where archaeological remains are found work must stop until the CALRF-PMU has been given the all clear to proceed. The CALRF-PMU should contact the National Museums Board of Zambia in the event of a significant archaeological find.	<ul style="list-style-type: none"> Archaeological Findings 	Archaeological remains not excavated, disturbed or destroyed.	<ul style="list-style-type: none"> Daily and ongoing as project is implemented Room for chance finds 	<ul style="list-style-type: none"> National Museums Board of Zambia. Zambia Environmental Management Agency (ZEMA).
Energy	The Developers must inspect the provisions made by the Contractor to supply energy to the workforce, and ensure that fuel wood is not being collected. The Zambia Environmental Management Agency (ZEMA). should enforce legislation which prohibits cutting down of trees. The Zambia Environmental Management Agency (ZEMA), CALRF and local leadership (cultural and political) should sensitize the workers against cutting down of trees.	<ul style="list-style-type: none"> Types of energy sources used in the project 	Energy supplied by electric generator or other suitable source. Deforestation and resultant erosion controlled and reduced	Regularly	<ul style="list-style-type: none"> Department of Forestry. Zambia Environmental Management Agency (ZEMA). Local Leadership
Air Pollution	Observations should be made on the level of dust generated during the construction and Agricultural activities by the Environmental Monitor or CALRF PMU. Dampening should be carried out if levels are unacceptable.	<ul style="list-style-type: none"> Levels of dust emissions 	Deposition of dust on surfaces should decrease with increased dampening	Daily	<ul style="list-style-type: none"> Health ministry Project CALRF-PMU Ministry of Agriculture (MoA)
Water resources	<ul style="list-style-type: none"> Water resources should be managed well. The Ministry of Health should test borehole water quality in the area to ascertain the suitability for human consumption. 	<ul style="list-style-type: none"> Watercourses and impoundments. Surface water quality Ground Water Quality Recommended distances from watercourses. 	<ul style="list-style-type: none"> Water made available for environmental concerns. Pollution of water resources monitored/detected early and remedial measures taken on time 	<ul style="list-style-type: none"> Tests for water pollution to be done Monthly. 	<ul style="list-style-type: none"> Health ministry Project CALRF-PMU Ministry of Agriculture (MoA) Department of Water Development, (DWD)

ISSUE	METHOD OF MONITORING	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
		<ul style="list-style-type: none"> Possible dam construction sites. 			<ul style="list-style-type: none"> Zambia Environmental Management Agency (ZEMA).
Landscape	<p>The CALRF-PMU should make visual inspection of earth works to ensure that excessive excavation is not being carried out. Temporary screening may be appropriate in some cases.</p>	<ul style="list-style-type: none"> Visual intrusions. Aesthetics. 	Landscape alteration reduced to a minimum	Monthly	<ul style="list-style-type: none"> National Museums Board of Zambia. Zambia Environmental Management Agency (ZEMA).
Complaints	<p>The CALRF-PMU should inspect the record of complaints made by local residents, to be kept by the sub-project proponents, and should check that action is taken quickly and that the number of complaints do not rise significantly.</p>	<ul style="list-style-type: none"> Complaints. 	Number of complaints decreases.	Monthly	<ul style="list-style-type: none"> CALRF PMU Ministry of Agriculture (MoA) Zambia Environmental Management Agency (ZEMA).

BUDGETARY ALLOCATIONS

6.1 INTRODUCTION

The following is a breakdown of the cost estimates for the various activities in the environmental and social management plan. This detailed budget is meant for implementing and monitoring the recommended mitigation measures throughout the project life. **The budget has been integrated into the overall programme costs to ensure that the proposed mitigation measures are implemented.**

6.2 SITE-SPECIFIC ESIA AND ESMPs

This component will comprise mitigation issues to do with Site-specific environmental and social workplans and ESMPs:

Site Specific ESMPs

These will be required for a few sub-projects which will be of “Moderate Risk”. These are sub-projects that may have some adverse environmental and/or social impacts on human populations or environmentally significant areas, but the impacts are less adverse than those for “high Risk Category”; are site-specific and few are irreversible in nature; and can be readily remedied by appropriate preventive actions and/or mitigation measures.

Site-specific E&S workplans

The majority of the subprojects will be of “Low Risk” Category and will generally not require additional environmental analysis because the activities have positive environmental impacts, or negligible or minimally adverse environmental impacts. Only **Site-specific E&S workplans** can be produced and the sub-project then proceeds to implementation.

Table 6-304 Site-specific ESMPs Budget

No.	ACTIVITY	ESTIMATED COST (US \$)
1.0	Twenty (10) Site-specific ESMPs (Develop and train beneficiaries to implement).	55,000.00
2.0	The rest develop site specific E&S workplans (Develop and train beneficiaries to implement).	30,000.00
3.0	Environmental License fees for all the sub-projects (These will not be required since the main ESMP would have been approved)	-----
	Sub-Total	85,000.00

6.3 MITIGATION MEASURES

This provision is for implementing mitigation measures in each project Governorate. These resources will provide for:

- prevention of soil erosion,
- protection of critical natural habitats (wetlands, mountain tops, etc.),
- prevention of water-borne diseases,
- Climate change resilient activities,
- prevention of HIV/AIDS, and
- Gender and Youth mainstreaming.

Mitigation and enhancement measures were discussed in detail in table 5-1 and the following is a summary of some of the measures with cost implications.

Most of the mitigation measures will be part of the main project implementation and has been budgeted there through the various project components.

Table 6-312 Mitigation and enhancement measures Budget

No.	MITIGATION/ENHANCEMENT	ESTIMATED COST (US \$)
1.0	Feasibility studies <ul style="list-style-type: none"> Site specific feasibility studies should be carried out first for the major infrastructure @ US\$ 15,000.00 each 	75,000.00
2.0	Capacity Building <ul style="list-style-type: none"> Capacity Assessment needs to be conducted before bringing infrastructure Intensive capacity building commensurate with proposed infrastructure/equipment Build Social management skills for effective leadership 	
3.0	Stakeholder Participation <ul style="list-style-type: none"> Conduct a comprehensive participatory stakeholder mapping exercise including roles and responsibilities at national, provincial, district and local area level Conduct adequate situational assessment to determine different vulnerability dimensions. 	
4.0	Revegetation and reforestation <ul style="list-style-type: none"> Revegetation and reforestation must be prioritized. Institute rangeland management and catchment conservation. Habitat restoration must be done where effects have been caused All altered landscapes (Sand pits, borrow pits, brick molding sites etc.) should be rehabilitated. 	
5.0	Soil erosion control measures <ul style="list-style-type: none"> Institute measures to reduce and control soil erosion like contouring and terracing, stabilising slopes and banks, re-vegetation, reseedling of grasses, land preparation, use of gabions, etc) 	
	Sub-total	75,000.00

6.4 MONITORING AND EVALUATION

This provision is for training both the CALRF staff and the beneficiaries in participatory environmental monitoring. This entails monitoring the implementation of mitigation measures at the sub-project level (e.g., each irrigation scheme, Value addition centre, etc.). The component will comprise:

- the monitoring and evaluation issues of the whole programme,
- Research and Development work to come up with more environmentally friendly agricultural processes for value chains,
- Monitoring and Evaluation of the progress of the implementation of the CALRF. Assessing whether it is being effective or not.

The general monitoring and evaluation will be conducted as part of the main project programmes and is adequately budgeted for there. Specific separate environmental and social compliance monitoring, will be done once every 6 months?

Table 6-323 Monitoring and Evaluation Budget

No.	ACTIVITY	Estimated Cost (US \$)
1.0	Monitoring and evaluation exercises	50,000.00
	Sub-Total	50,000.00

7.0 REPORTING

To monitor the progress of the implementation of the measures that have been identified in this

ESMP, annual reviews will be carried. The principal output of the annual reviews is an annual review report that documents the review methodology, summarizes the results, and provides practical recommendations. Distinct sections should address:

- a. ESMP performance and,
- b. cumulative impacts.

Annexes should provide the detailed results of the field work and summarize the number of approved sub-projects by district and their characteristics according to the annual report format (Appendix 3). Copies of the annual review report (Appendix 2) should be delivered to the CALRF Technical Committee (CTC), to each District office responsible for appraisal, approval, and implementation of sub-projects, and to IFAD.

CONCLUSIONS AND RECOMMENDATIONS

The CALRF programme has great potential to significantly improve the livelihoods of the rural people of Zambia. The proposed CALRF programme has potential to significantly improve the rural farmers production, productivity, and income in the target project areas of Zambia. An improvement in the income of the of the households will translate to improved food security as they now will have cash to secure other needs. The implementation of CALRF will provide considerable economic opportunity for material/equipment suppliers, construction contractors and agricultural professionals.

The envisaged environmental and social impacts include disturbance of soil from digging of pits and foundations, and irrigation and value addition infrastructures construction activities, Solid and liquid waste generation, tree cutting and general vegetation clearing, emission of dust and generation of noise. These envisaged environmental impacts will generally be localized, minimal, short term and can be mitigated. However, this will entail incorporating all the requisite mitigation measures and adhering to the requirements of the current ESMP. The Final *benefits of this programme to the nation will, by far outweigh potential neqative effects.*

It is therefore recommended that:

- The land around any sub-project works should be left intact and pollution free.
- Bush clearance should be confined to the necessary part, buffer strips be maintained, and revegetation effected to affected areas.
- Sensitive environments like wetlands and hillsides should be preserved and managed well to avoid their rapid deterioration.
- Labour intensive methods should be encouraged as they benefit the local community in terms of job creation. For this the project should employ locals as much as possible to ensure that benefits remain in the area where development is taking place.
- The use of destructive machinery should be avoided as much as possible. Machinery will adversely affect soils and undergrowth.
- The recommended mitigation measures should be implemented to reduce significant environmental impacts.

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Annex 43: Community consultations

Community consultations in Central Province for CARLF Project Development



ZAMBIAN RAINBOW DEVELOPMENT FOUNDATION
PLOT No. MASANSA-FIWILA ROAD P.O. BOX 840037 MKUSHI
ZAMBIA

Stakeholder consultation for the development of Climate Change Adaptation of Livelihoods through Rural Finance project funded by the Adaptation Fund

*Contacts Person: Brandy M. Mungaila
Director
ZRDF, Mkushi
Central Province of Zambia
E-mail: directorzrdf@gmail.com
Contact No. +260 972 813 200*

Summary

The objective is to solicit and get views from beneficiaries in different communities on climate change adaptation financing programme. The information will be used in the proposed design of the new programmes.

Introduction

The Zambian Rainbow Development Foundation (ZRDF) is an organisation working in Luano and Mkushi District. The organisation has four thematic areas: livelihood and food security, Economic Empowerment, Education support and Health support. The organisation promotes community-led and owned development project and uses participatory approaches in all of its interventions.

ZRDF working in collaboration with RUFEP conducted focus group discussions with communities in central province with an objective engage and create a platform for community members to share their views on the Climate Change Adaptation of Livelihoods through Rural Finance (CALRF) project under development. CARLF has been approved for funding by the Adaptation Fund. It has been designed around three components, namely: Component 1: building and promoting diversified, resilient and sustainable community livelihood options; Component 2: Innovative local financing systems to build community adaptive capacities in climate sensitive sectors; and Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building.

Views expressed in this report have been used to inform the preparation of CARLF project. Therefore, community voices are reflected in the project. In this way, CARLF has community input, activity prioritization, project ownership and it sustainability.

Methodological approach

In order to get information on climate change adaptation, a focus group discussion were organized. The approach was adopted because it is participatory and captures in-depth information from participants.

Demographics of participants

The demographics comprised of women, men and youths. Women were 19 and men were 14, of which 10 were youths (5F, 5M). Below is a summary of participant's demographics.

Women	Men	Youth		Differently-abled	Total
19	14	F: 5	M: 5	0	33

Findings - people perspectives

1. Occupation

Residents of the communities are majorly small scale farmers who grow maize, soya beans and have vegetable gardens. They rear livestock such as cattle, goats and chickens. A few are marketers while others run businesses such as tailoring, selling of second hand clothes, selling of food stuffs and groceries.

2. Pressing Challenges in order of Priority

The communities have almost similar challenges due the fact they rural in nature. Firstly, lack of access to clean water. Water is drawn from wells and streams. Secondly, poor/infertile land for agriculture. This has been generally attributed to poor methods of land preparation for farming such burning fields. Thirdly, lack of community clinics for proper medical attention in all the communities. Thus, services are accessed at the nearest community with a facility. Fourthly, school infrastructure especially teachers houses at communities with schools while communities without emphasis building a classroom block. Lastly, poor road network and infrastructure, which hinders communities access to markets especially in the rain season.

3. Addressing the challenges (Solutions)

In addressing the challenges the communities resolve is to accessing funds and as a community to raise necessary resource. Thus, sinking communal hand pumps is an immediate and feasible solution to have access to clean water. Practicing conservation farming, crop rotation and avoiding burning of fields during land preparation improves soil fertility for agricultural practices. To mitigate inaccessible health services, at community level building of a structure to serve as health post is ideal with at least one health personnel. Build a community school in which communities can organise material such as bricks. Grading roads as grave and putting bridges in on streams.

4. Factors Hindering from addressing the challenges

The communities have factors that are internal and external however, internal factors are significant. External factors are lack of support from Government Ministries and District offices. While internal, include lack of good community leadership and trust in the leaders, limited cooperation among community members and lack of knowledge on how to apply for funding such as Constituency Development fund.

5. Access to Farming Inputs

Difficulties in accessing inputs due to poor roads leading to the market areas (On Average distance is 27 km)

6. Access of Inputs through Cooperatives, Others or Shops

Existing cooperatives usually benefit a few people and only help with supply of animal feeds. However, farming inputs are bought from shops at the distant markets.

7. Price Increments in recent years

Prices of inputs have been on the raising side. Currently, prices are the highest they have ever been. This is further exaggerated by distance farmers have to travel to access the market for the inputs.

8. Effects of Increased prices of farming Inputs

Firstly, farmers have no autonomy in setting prices for their farming output, the buyers dictate the prices. Hence, selling prices have been on the lower side leading to significant losses. Secondly, reduced farming capacity due to low returns from sells coupled with high input prices. (E.g., farmer reduced farming land from 11 ha to 6 hectares). Thirdly, household savings have reduced significantly affecting their livelihood and have resorted to unsustainable practices of charcoal burning.

9. When changes in prices

Changes in began being unstable from 2016 and are increasing until date. For example, a farming implement such a plough was bought K1300 in 2019 and in 2021 was being bought for 2400.

10. Aspects of Natural resource men are interested in more than women and vice versa.

Men are mainly interested land for farming settlements and rearing livestock such as cattle. Further forest are of interest for mainly production of charcoal by cutting down trees. Water source are mainly for fishing. Women are mainly interested in water sources as streams for their gardening activities of growing vegetables.

11. Use of Natural Resources by Men and Women

	Land	Water sources	Forests
Men	Farming settlements,	Fishing	Bee Keeping, Charcoal
Women	Farming	Gardening	Firewood
youth	Farming	Moulding bricks	Charcoal, hunting

12. Traditional practices and customs the regulate men and women access and use natural resources.

There no significant practices and customs to access of natural resources however, their trends of men owning more land than women. Men argue biblical concepts still give them more authority over natural resources.

13. Observed changes in temperature and rainfall pattern.

Rainfall patterns have changed. Currently rains are delayed to start and usually amounts vary each season. Temperature changes are evidenced by higher temperatures in the hot season.

14. How changes in temperature and rainfall pattern are affecting livelihoods activities.

Heavy rains destroy properties and crops. Further delayed rainfall disturbs the seasonal farming cycle. Diseases prevalence is high of Malaria and Diarrhoea.

15. How changes affect Women, differently-abled and youth.

These people are affected more compared to men because of lack empowerment to survive the harsh conditions. Agricultural activities of women are disturbed when streams dry up fast and youths have no sources of water for brick moulding.

16. How changes affect Health (especially malaria or diarrhoea)

Pregnant women are affected by heat exhaustion. There is an increase in people complaining of Blood pressure symptoms. Malaria cases are also dominant coupled with diarrhoea due to temperature changes.

17. How changes affect livelihood options (people migrating to urban areas)

On the contrary, people are migrating to rural areas to be farmers. People only move to settlements within the same location to continue farming.

18. Benefits from building and promoting diversified, resilient and sustainable community livelihood options.

Livelihoods of most communities are agricultural dependant, thus, most benefits accrued are based on conservation the environment to avoid harsh weather conditions, increased nutrition at household level, minimised farming losses due to improved soil fertility.

19. Benefits from local financial service providers to build community adaptive capacities in climate sensitive sectors.

Corporate social responsibility through planting of trees and promotion of sustainable agricultural activities. Access to micro-financing to small scale farmers to adopt better farming methods and increase their production capacity. Further, benefits would be provision of insurance to farmers with equipment their yields. Lastly, benefits of knowledge on financial literacy and saving to the communities.

20. Benefits from enhanced district-level planning and awareness raising for evidence-based resilience and adaptive capacity building.

Benefits are capacity building in climate change through agricultural extension officers to promote conservation farming. Rehabilitation works rural roads, clinics and schools. To improve accessibility to good health services and transportation of farming inputs and outputs.

21. Role played in building and promoting diversified, resilient and sustainable community livelihood options.

Community cooperation and participation.

22. Role played in financing build community adaptive capacities in climate sensitive sectors.

Community mobilization can be conducted to help in financing, especially material contribution from local resources.

23. Role played in enhanced district-level planning and awareness raising for evidence-based resilience and adaptive capacity building.

Adoption of various initiatives that are put in place in the communities. This entails acceptance and ownership of various initiatives.

Recommendations

Based on the views and responses from the participants, the following highlight key areas of interest to community members:

- The unequivocal need to continue community engagement through participatory approaches – and this includes during actual project implementation to ensure benefits directly accrue to communities. This will facilitate community ownership of the project and its sustainability.
- Important government ministries and non-government actors that are more immediately related to community needs (such as Agriculture, Forestry, Community Development and Financial Service Providers) need to be more present in communities to provide the much needed technical capacity to communities. These will also be critical in rolling out the project activities during the implementation phase of the project.
- Conservation agriculture, the use of bio-fertilizers and soil management practices, access to clean water and sanitation and awareness campaigns on climate change and mitigation, links to markets are some of the critical areas the cut across all the districts needing urgent support to the communities.

Annex 54 Consultations with various stakeholders

In pictures, various consultations conducted in CARLF's target districts



Consultation with community members (including women and men) in Chibombo district, Central Province.



Focus group discussion during consultation with community members in Monze district, Southern Province –men, women, the youth and differently-abled represented.



With a clear blue sky, this landscape is in a CARLF-target district in Southern Province that is found in the eco-zone with the lowest annual precipitation levels in Zambia - highlighting land degradation, seasonality of water courses for both human and animal consumption. The socioeconomic space is small for coping and rebuilding from flash floods, zoonotic outbreaks, malaria and other shocks. Generally, crop and pastoral production landscapes in Southern Province share similar characteristics captured in this picture.



A stakeholder consultation at national level in Lusaka with different players that included representatives from bilateral and multilateral development partners, as well as government officers, with the Director DPP from the Ministry of Agriculture in attendance.

Attendance lists of various stakeholders consulted in CARLF's target districts

ADAPTATION
CLIMATE CHANGE ADAPTATION MEETING
Stakeholder Consultation Exercise - Village Level
Attendance Register
Date: 11/1/2022

SN	FULL NAMES	NRIC	MOBILE NUMBER	SIGNATURE
1	MURUPA FERRIS C	1536370451	0182179955	[Signature]
2	JASON KAPPA	1751627311	074872423	[Signature]
3	WVA	0515417311	077049523	[Signature]
4	CHRISTOPHER J. J. J. J.	100262151	041818344	[Signature]
5	CHICAGO MARIANA	294628151	054154151	[Signature]
6	PIZIE - MARIANA	167924151	070324782	[Signature]
7	ELIZABETH ELIZABETH	267221021	077013172	[Signature]
8	MARIA CAROLINE GARDNER	174416511	076224227	[Signature]
9	ANNE ANNE	102424211	0755242	[Signature]
10	MARIE MARIANA	202424211	077242422	[Signature]
11	MARIE MARIANA	102424211	0755242	[Signature]
12	HELEN CHRISTINE	2811001511	0710505813	[Signature]
13	MARY MARY	15002111	076274222	[Signature]
14	MARIE MARIANA	274221311	077862224	[Signature]
15	MARIE MARIANA	270221311	077475624	[Signature]
16	MARIE MARIANA	267221311	076274222	[Signature]
17	MARIE MARIANA	253221311	0755242	[Signature]
18	MARIE MARIANA	195221311	076274222	[Signature]
19	MARIE MARIANA	240421311	073222222	[Signature]
20	MARIE MARIANA	282221311	077774222	[Signature]
21	MARIE MARIANA	167221311	077422222	[Signature]
22	MARIE MARIANA	270221311	077422222	[Signature]
23	MARIE MARIANA	102621311	071122222	[Signature]
24	MARIE MARIANA	105221311	072222222	[Signature]
25	MARIE MARIANA	105221311	072222222	[Signature]
26	MARIE MARIANA	052221311	0755242	[Signature]
27	MARIE MARIANA	153421311	077222222	[Signature]
28	MARIE MARIANA	202421311	077222222	[Signature]
29	MARIE MARIANA	102421311	0755242	[Signature]
30	MARIE MARIANA	102421311	0755242	[Signature]
31	MARIE MARIANA	102421311	0755242	[Signature]
32	MARIE MARIANA	102421311	0755242	[Signature]
33	MARIE MARIANA	102421311	0755242	[Signature]
34	MARIE MARIANA	102421311	0755242	[Signature]
35	MARIE MARIANA	102421311	0755242	[Signature]
36	MARIE MARIANA	102421311	0755242	[Signature]
37	MARIE MARIANA	102421311	0755242	[Signature]
38	MARIE MARIANA	102421311	0755242	[Signature]
39	MARIE MARIANA	102421311	0755242	[Signature]
40	MARIE MARIANA	102421311	0755242	[Signature]

Adaptation Fund (AF) Project Design Meeting
Stakeholder Consultative Meeting at VAD Country Office
DATE: 11/1/2022

Attendance List

No	Name	Organization	Designation	Contact Info
1	David Mwangi	MWAF	Director	MWAF
2	Angela Davis	GI2	Site Admin	Angela Davis
3	Donald De Goo	MWAF	Program Manager	Donald De Goo
4	James Mwangi	MWAF	Consultant	James Mwangi
5	Andrew Chuma	MWAF	PLPG	Andrew Chuma
6	Geoffrey Mwangi	MWAF	CVO	Geoffrey Mwangi
7	John Mwangi	MWAF	Executive	John Mwangi
8	Elizabeth Mwangi	MWAF	PLG	Elizabeth Mwangi
9	Emmanuel Mwangi	MWAF	PLG	Emmanuel Mwangi
10	AMY Mwangi	MWAF	Consultant	AMY Mwangi
11	John Mwangi	MWAF	PLG	John Mwangi
12	Michael Mwangi	MWAF	PLG	Michael Mwangi
13	John Mwangi	MWAF	PLG	John Mwangi
14	Elizabeth Mwangi	MWAF	PLG	Elizabeth Mwangi
15	Brian Mwangi	MWAF	PLG	Brian Mwangi

ADAPTATION FUND ATTENDANCE SHEET

Date	Activity	Facilitator	Preparer	Monitor
11/1/2022	Stakeholder Consultative Meeting	[Signature]	[Signature]	[Signature]

No	Name of Participant	NRIC No.	Gender	Age	Village Location	Phone	Signature
1	Elizabeth Mwangi	202421311	F	1980	MWAF	077222222	[Signature]
2	Maria Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
3	Jonathan Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
4	Grace Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
5	Maria Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
6	Edy Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
7	Michael Mwangi	102421311	M	1980	MWAF	077222222	[Signature]

ADAPTATION FUND ATTENDANCE SHEET

Date	Activity	Facilitator	Preparer	Monitor
11/1/2022	Stakeholder Consultative Meeting	[Signature]	[Signature]	[Signature]

No	Name of Participant	NRIC No.	Gender	Age	Village Location	Phone	Signature
1	Elizabeth Mwangi	202421311	F	1980	MWAF	077222222	[Signature]
2	Maria Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
3	Jonathan Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
4	Grace Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
5	Maria Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
6	Edy Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
7	Michael Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
8	Elizabeth Mwangi	102421311	F	1980	MWAF	077222222	[Signature]
9	Edy Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
10	Michael Mwangi	102421311	M	1980	MWAF	077222222	[Signature]
11	Jonathan Mwangi	102421311	M	1980	MWAF	077222222	[Signature]

ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2021	Community Meetings - Mchinge	Southern	Matieland

No	Name of Participant	SBC No.	Gender	Age	Village location	Phone	Signature
1
2
3
4
5
6
7
8
9
10
11



A focus group discussion with local communities in Chibombo district, Central province.

ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2021	Community Meetings - Mchinge	Southern	Matieland

No	Name of Participant	SBC No.	Gender	Age	Village location	Phone	Signature
1
2
3
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5
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11



A herd of cattle on an already overgrazed, denuded and water scarce landscape with poor soil status in Southern Province.

ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2021	Community Meetings - Mchinge	Southern	Matieland

No	Name of Participant	SBC No.	Gender	Age	Village location	Phone	Signature
1
2
3
4
5
6



A group picture with members of the Mabyu Savings and Credit Cooperative Society (SACCO) after focus group discussion with them in Chibombo district, Central province – the success of this SACCO partly hinges on social cohesion that has been built over time of a sociocultural life lived together in the same community – facing the same socioeconomic and environmental challenges.

DAFTAR DAFTAR PESERTA PROGRAM ADAPTASI FUND FUNDING BERKAITAN DENGAN LULUSAN DI KABUPATEN DISTRICT

No	NAMA	SEX	PROFESI/KELOMPOK	NIK	KELOMPOK
1	Kusnanto Kusnanto	MA	PEKERJA	7676219011	...
2	Widada Simanungkal	MA	PEKERJA	7777219011	...
3	Muslimah Alimatus	F	PEKERJA	8888219011	...
4	Muslimah Alimatus	F	PEKERJA	9999219011	...
5	Rahmawati Kusnanto	M	PEKERJA	1010219011	...
6	Sarifudin Kusnanto	M	PEKERJA	1111219011	...
7	Muslimah Alimatus	F	PEKERJA	1212219011	...
8	Muslimah Alimatus	F	PEKERJA	1313219011	...
9	Muslimah Alimatus	F	PEKERJA	1414219011	...
10	Muslimah Alimatus	F	PEKERJA	1515219011	...
11	Muslimah Alimatus	F	PEKERJA	1616219011	...
12	Muslimah Alimatus	F	PEKERJA	1717219011	...
13	Muslimah Alimatus	F	PEKERJA	1818219011	...
14	Muslimah Alimatus	F	PEKERJA	1919219011	...
15	Muslimah Alimatus	F	PEKERJA	2020219011	...
16	Muslimah Alimatus	F	PEKERJA	2121219011	...
17	Muslimah Alimatus	F	PEKERJA	2222219011	...
18	Muslimah Alimatus	F	PEKERJA	2323219011	...
19	Muslimah Alimatus	F	PEKERJA	2424219011	...
20	Muslimah Alimatus	F	PEKERJA	2525219011	...
21	Muslimah Alimatus	F	PEKERJA	2626219011	...
22	Muslimah Alimatus	F	PEKERJA	2727219011	...
23	Muslimah Alimatus	F	PEKERJA	2828219011	...
24	Muslimah Alimatus	F	PEKERJA	2929219011	...
25	Muslimah Alimatus	F	PEKERJA	3030219011	...

Disusun oleh: *[Signature]* Tanggal: *[Date]*
 Disetujui oleh: *[Signature]* Tanggal: *[Date]*

DAFTAR DAFTAR PESERTA PROGRAM ADAPTASI FUND FUNDING BERKAITAN DENGAN LULUSAN DI KABUPATEN DISTRICT

No	NAMA	SEX	PROFESI/KELOMPOK	NIK	KELOMPOK
1	Kusnanto Kusnanto	MA	PEKERJA	3131219011	...
2	Kusnanto Kusnanto	MA	PEKERJA	3232219011	...
3	Kusnanto Kusnanto	MA	PEKERJA	3333219011	...
4	Kusnanto Kusnanto	MA	PEKERJA	3434219011	...
5	Kusnanto Kusnanto	MA	PEKERJA	3535219011	...
6	Kusnanto Kusnanto	MA	PEKERJA	3636219011	...
7	Kusnanto Kusnanto	MA	PEKERJA	3737219011	...
8	Kusnanto Kusnanto	MA	PEKERJA	3838219011	...
9	Kusnanto Kusnanto	MA	PEKERJA	3939219011	...
10	Kusnanto Kusnanto	MA	PEKERJA	4040219011	...
11	Kusnanto Kusnanto	MA	PEKERJA	4141219011	...
12	Kusnanto Kusnanto	MA	PEKERJA	4242219011	...
13	Kusnanto Kusnanto	MA	PEKERJA	4343219011	...
14	Kusnanto Kusnanto	MA	PEKERJA	4444219011	...
15	Kusnanto Kusnanto	MA	PEKERJA	4545219011	...
16	Kusnanto Kusnanto	MA	PEKERJA	4646219011	...
17	Kusnanto Kusnanto	MA	PEKERJA	4747219011	...
18	Kusnanto Kusnanto	MA	PEKERJA	4848219011	...
19	Kusnanto Kusnanto	MA	PEKERJA	4949219011	...
20	Kusnanto Kusnanto	MA	PEKERJA	5050219011	...

Disusun oleh: *[Signature]* Tanggal: *[Date]*
 Disetujui oleh: *[Signature]* Tanggal: *[Date]*

ADAPTASI FUND

NABRO

Daftar No. 1

No	NAMA	SEX	PROFESI/KELOMPOK	NIK	KELOMPOK
1	Kusnanto Kusnanto	MA	PEKERJA	5151219011	...
2	Kusnanto Kusnanto	MA	PEKERJA	5252219011	...
3	Kusnanto Kusnanto	MA	PEKERJA	5353219011	...
4	Kusnanto Kusnanto	MA	PEKERJA	5454219011	...
5	Kusnanto Kusnanto	MA	PEKERJA	5555219011	...
6	Kusnanto Kusnanto	MA	PEKERJA	5656219011	...
7	Kusnanto Kusnanto	MA	PEKERJA	5757219011	...
8	Kusnanto Kusnanto	MA	PEKERJA	5858219011	...
9	Kusnanto Kusnanto	MA	PEKERJA	5959219011	...
10	Kusnanto Kusnanto	MA	PEKERJA	6060219011	...
11	Kusnanto Kusnanto	MA	PEKERJA	6161219011	...
12	Kusnanto Kusnanto	MA	PEKERJA	6262219011	...
13	Kusnanto Kusnanto	MA	PEKERJA	6363219011	...
14	Kusnanto Kusnanto	MA	PEKERJA	6464219011	...
15	Kusnanto Kusnanto	MA	PEKERJA	6565219011	...
16	Kusnanto Kusnanto	MA	PEKERJA	6666219011	...
17	Kusnanto Kusnanto	MA	PEKERJA	6767219011	...
18	Kusnanto Kusnanto	MA	PEKERJA	6868219011	...
19	Kusnanto Kusnanto	MA	PEKERJA	6969219011	...
20	Kusnanto Kusnanto	MA	PEKERJA	7070219011	...

Daftar No. 2

NABRO

No	NAMA	SEX	PROFESI/KELOMPOK	NIK	KELOMPOK
1	Kusnanto Kusnanto	MA	PEKERJA	7171219011	...
2	Kusnanto Kusnanto	MA	PEKERJA	7272219011	...
3	Kusnanto Kusnanto	MA	PEKERJA	7373219011	...
4	Kusnanto Kusnanto	MA	PEKERJA	7474219011	...
5	Kusnanto Kusnanto	MA	PEKERJA	7575219011	...
6	Kusnanto Kusnanto	MA	PEKERJA	7676219011	...
7	Kusnanto Kusnanto	MA	PEKERJA	7777219011	...
8	Kusnanto Kusnanto	MA	PEKERJA	7878219011	...
9	Kusnanto Kusnanto	MA	PEKERJA	7979219011	...
10	Kusnanto Kusnanto	MA	PEKERJA	8080219011	...
11	Kusnanto Kusnanto	MA	PEKERJA	8181219011	...
12	Kusnanto Kusnanto	MA	PEKERJA	8282219011	...
13	Kusnanto Kusnanto	MA	PEKERJA	8383219011	...
14	Kusnanto Kusnanto	MA	PEKERJA	8484219011	...
15	Kusnanto Kusnanto	MA	PEKERJA	8585219011	...
16	Kusnanto Kusnanto	MA	PEKERJA	8686219011	...
17	Kusnanto Kusnanto	MA	PEKERJA	8787219011	...
18	Kusnanto Kusnanto	MA	PEKERJA	8888219011	...
19	Kusnanto Kusnanto	MA	PEKERJA	8989219011	...
20	Kusnanto Kusnanto	MA	PEKERJA	9090219011	...

ATTENDANCE REGISTER FOR ALL ACTIVITIES AND FOOD SECURITY PROGRAMS/STAKEHOLDERS MEETING IN CY/2020 IN WASHOE COUNTY

NO	NAME	SEX	ORGANIZATION	PHONE	SIGNATURE
1	KENNEDY MURPHY	M	CROF	762027731	[Signature]
2	ARVIND SINGH	M	MILWAUKEE	727248/851	[Signature]
3	MURRAY KRAMER	F	EDUCATION	2544221211	[Signature]
4	MURRAY SCHROEDER	F	MILWAUKEE	183342211	[Signature]
5	Edouard Bastien	M	MILWAUKEE	32121/851	[Signature]
6	MARCOLO BASTIEN	M	MILWAUKEE	101144/851	[Signature]
7	SIMONE BASTIEN	BA	EDUCATION	122820/871	[Signature]
8	BORN M. BASTIEN	M	FARMER	16921/851	[Signature]
9	Maitheia Trapanis	BA	FARMER	152647/871	[Signature]
10	Linda D'Amico	BA	PROFESSOR	152575/851	[Signature]
11	Maitheia M.	F	MILWAUKEE	174657/851	[Signature]
12	THOMAS M. BASTIEN	F	MILWAUKEE	156407/851	[Signature]
13	CHRISTOPHER BASTIEN	M	COUNSELLOR	17211/851	[Signature]
14	MARCOLO BASTIEN	M	Agricultural Scientist	11421/851	[Signature]
15	Arvind Kumar Singh	M	FARMER	152653/851	[Signature]
16	Helen Hest Nelson	BA	EDUCATION	2657/821	[Signature]
17	ARVIND SINGH	M	FARMER	182047/851	[Signature]
18	Simone Bastien	BA	FARMER	162020/851	[Signature]
19	MURRAY SCHROEDER	F	FARMER	45123/851	[Signature]
20	MURRAY SCHROEDER	M	FARMER	13825/851	[Signature]
21	Edouard Bastien	M	FARMER	120044/851	[Signature]
22	Edouard Bastien	M	FARMER	133209/851	[Signature]
23	CHRISTOPHER BASTIEN	BA	EDUCATION	22524/851	[Signature]
24	MARCOLO BASTIEN	F	FARMER	11823/851	[Signature]
25	MURRAY SCHROEDER	F	FARMER	916693/851	[Signature]