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: 2/9/2023

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

A.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] 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 disproportionally 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] World meter: Zambia's population
[2] Fad (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.

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

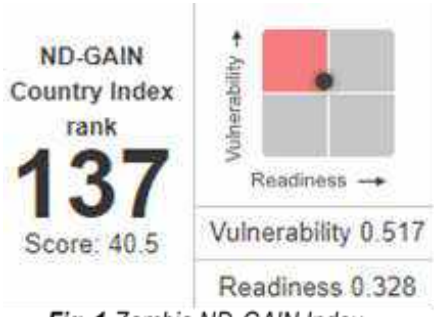

Fig. 1 Zambia ND-GAIN Index

7. 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 CO_2 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.

8. 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 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

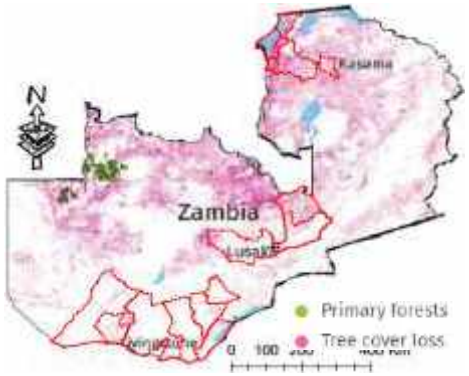

Fig. 2 Tree cover loss in Zambia (2010-2020) and CALRF target districts

[4] Irish Aid (2018). Country Climate Risk Assessment Report: Zambia
[5] The ND-GAIN Country Index: Zambia
[6] Global Forest Watch (n.d). Tree cover loss in Zambia
[7] Global Forest Watch (n.d). Tree cover loss in Zambia

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.

9. 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 pesticides[9] – 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

10. 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.

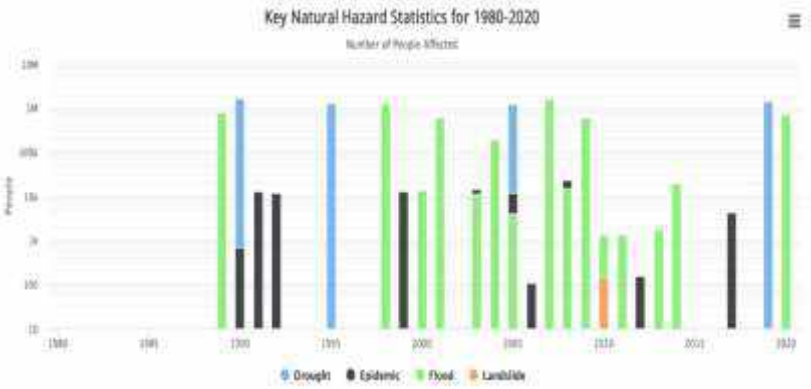

Fig. 3 *Overview of the most frequent natural disasters in Zambia and number of affected people*

11. 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]

12. Zambia's development is based on three major economic pillars: agriculture, mining, and tourism. Agriculture and tourism are the most affected by the effects of climate variation and change. It should be noted that agriculture employs 52% of the country's working-age population, the majority of whom are women and rural people, and sustains around 85% of the country's population.[13] This turns the spotlight on the socioeconomic implications of climate change impacts on the agriculture sector.

[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.

[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.

13. 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 ^{o}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

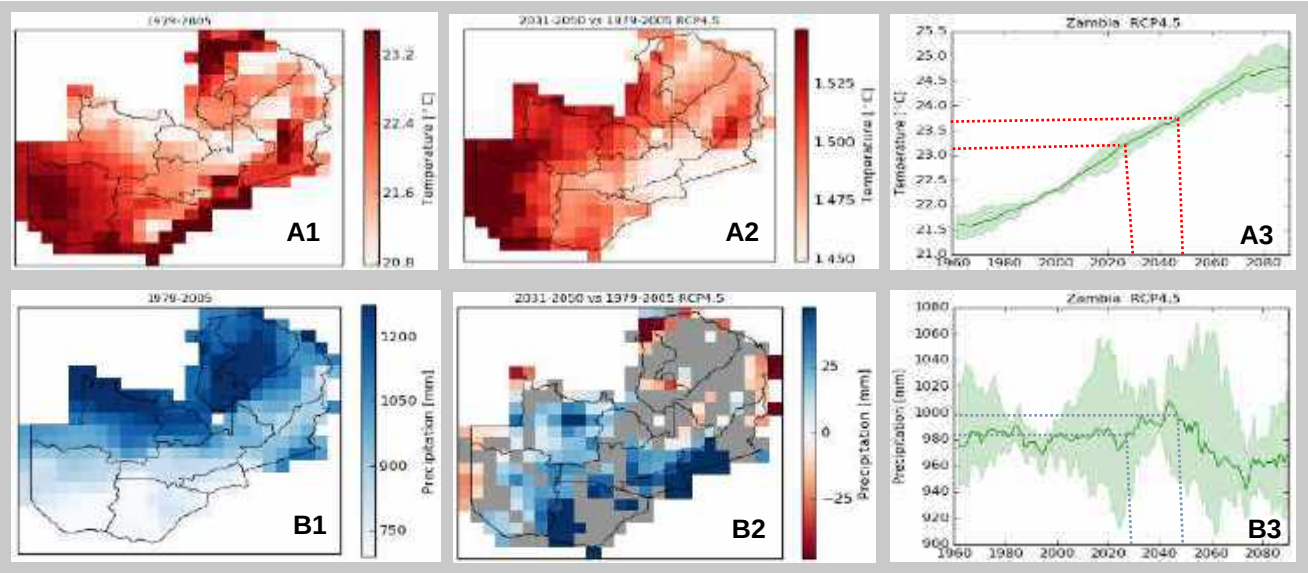

Fig. 4 *Under the RCP4.5 scenario 1979-2005 (A1) period is projected to get warmer in the 2031-2050 (A2) period, with temperature projected to continue to rise (A3). Across the country, the temperature variation will be between +1.45^{o}C and +1.52^{o}C. Under the same periods, rainfall pattern is projected 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).

14. 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 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

[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

[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*

further lower yields under water and nutrient stress (Figure 3 (**C**)) - threatening food security, production landscapes and the ecosystem services and disease outbreaks.

15. 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.

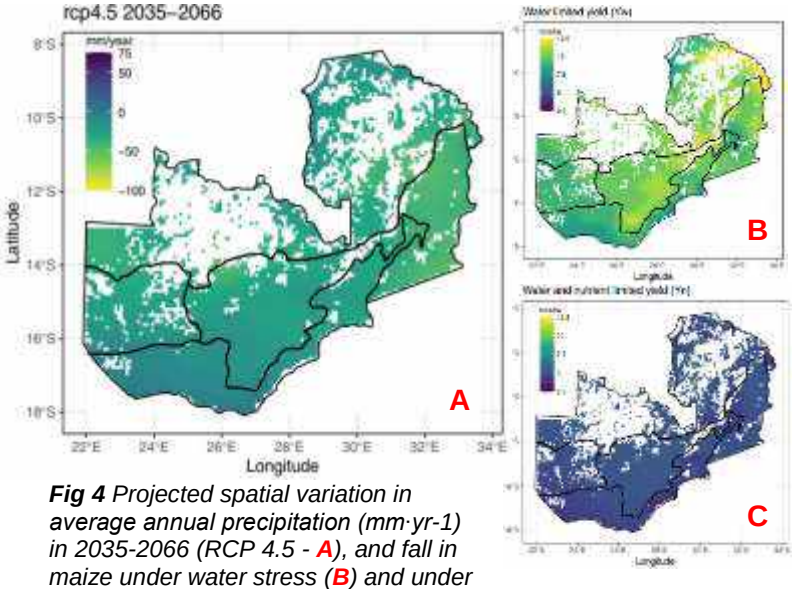

Fig 4 *Projected spatial variation in average annual precipitation (mm·yr-1) in 2035-2066 (RCP 4.5 -* ***A****), and fall in maize under water stress (****B****) and under*

16. 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.

17. 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]

18. 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]

[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.
[22] Climate Analytics: The economic damages of 3°C warming for SIDS and LDCs - Zambia
[23] Makondo et al. 2014, MTENR 2007, Sishekanu 2013

19. 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:

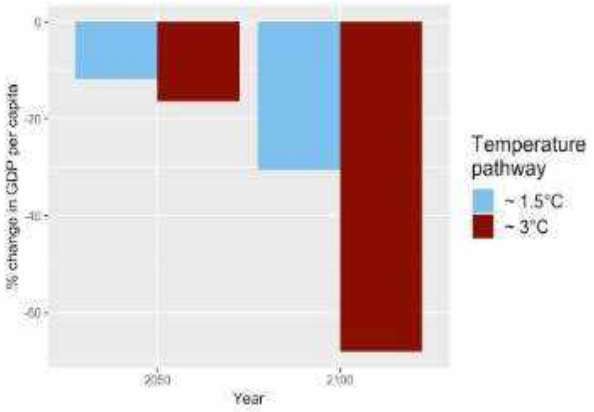

Fig 5. *Impact of climate change on GDP Zambia's GDP*

- 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;
- 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.

20. 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

21. 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] Aid Irish, 2017. Zambia Climate Action Report 2016 1–20
[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

22. 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.

23. 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, disproportionally 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.

24. 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 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.

25. 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. 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.

26. 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.

27. 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.

28. 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.

29. 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 line[29].

30. Changes in rainfall have been substantial with the north experiencing more intense rainfall, while the 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.

31. 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]

32. 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 the 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, the implementation of the Climate Change Adaptation of Livelihoods through Rural Finance (CALRF) project will target the Central, Luapula, Southern and Western provinces.

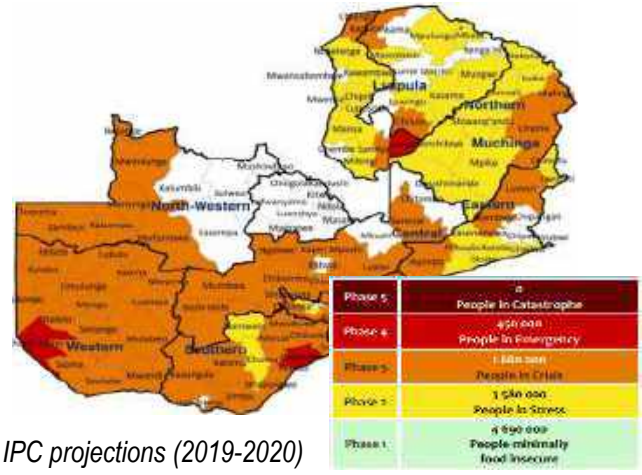

***Fig. 6** IPC projections (2019-2020)*

33. 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;

[29] National Policy on Climate Change
[30] Climate Service Center, 2016; IFAD/WFP 2016
[31] Vulnerability Assessment Committee Results (2019): Zambia

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.

Fig. 7 *Reduction in yields of selected crops*

34. 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 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]

35. Consistent with CARD (**Figure 7** above), another study[34] 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.

36. 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, and 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 soyabeans 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]

37. 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,

[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

affecting most countries in Southern Africa, weakened the coping capacity and lowered many farmers' resilience towards ongoing dry spells. There have been flooding in some regions of Zambia and droughts in others (**see Figure 8**).

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

Barriers to Climate Change adaptation in the Context of Climate Vulnerability

38. 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

39. 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.

40. 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 because communities have lean asset portfolios. In other words, they have specialized in natural

[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

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]

41. 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

42. 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.

43. 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).

44. 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 institutions will be supported to try out and test new, promising avenues for expansion of services to the

[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.

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.

45. 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.

46. 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.

47. 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).

48. 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.

49. 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.

50. 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]

51. 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

52. 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

53. 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.

54. 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.

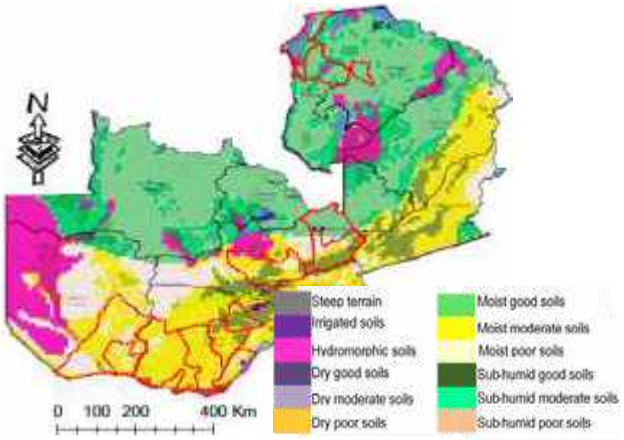

***Fig. 9** Zambian soils and CALRF target districts*

55. 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 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.

56. The most fertile soils and the majority of the country's commercial plantations are found in agro-ecological zone II. The average annual precipitation in Region II is 800-1000 mm, and the length of the growth season is 100-140 days. The distribution of precipitation is not as erratic as in Region I, but frequent dry periods reduce crop yields, particularly on sandy soils. Average mean daily temperatures range from 23-26°C in October, the warmest month, to 16-20°C in June and July, the coldest months. The predominant soil types in this zone are moderately to intensely leached red to brown clayey to loamy soils. Low water-holding capacity, scant rooting depth, and top soils prone to rapid deterioration and erosion are physical characteristics of soils that influence crop production. In addition to having limited nutrient reserves and retention capacity, these soils are acidic, deficient in organic matter and nitrogen, and phosphorus-deficient. The zone's abundant irrigation potential enables a variety of produce and livestock enterprises. In addition to maize, numerous other crops are cultivated, such as beans, groundnuts, sorghum, cassava, millet, sweet potato, sunflower, cotton, rice, tobacco, paprika, vegetables, and fruits. In this agroecological zone, the Central Province districts of Mkushi, Luano, and Chibombo have been designated for CALRF implementation.

57. 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

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

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.

58. It should be emphasized 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]

59. 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.

60. 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. **Figure 11**[44] depicts how CALRF's and RUFEP's districts overlap to synergize in some cases, and scale-up best practices in others.

61. 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.

62. **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-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.

[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;

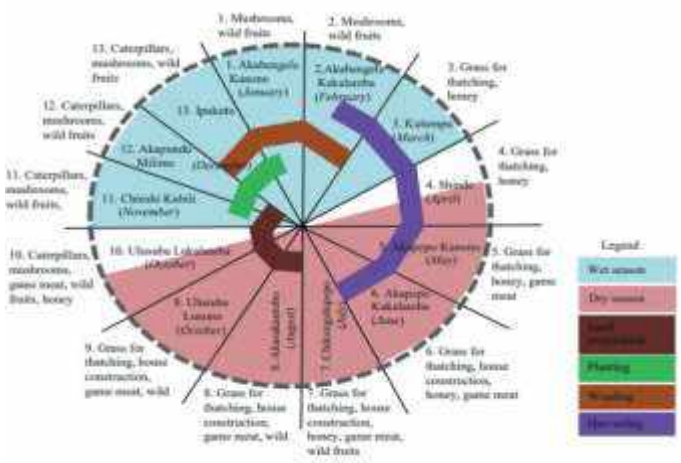

Fig. 10 *Community use of land and forest resources January -*

63. 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 10**[45] 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.

64. The vulnerability of people is characterised by their specialisation in use of natural resources within a rural context of economic scarcity. The natural resources on which they depend almost entirely for survival are at the mercy of extreme weather events, especially 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 the availability of wild fruits, which play a crucial role as a food source during times of scarcity. It should also be noted that certain districts in the northern region of Zambia contain caterpillars, which are a readily available, inexpensive, and essential source of protein. Drought has had a negative effect on the life cycle of caterpillars, becoming rare in terms of frequency and quantity.

65. Regarding flooding, it is a pipe fantasy for rural communities in CALRF's designated districts to rebuild their lives after flash floods have destroyed their property. The asset portfolio of certain rural districts is insufficient to enable residents to recover quickly from extreme weather events. In order to establish and increase their resilience to vulnerability, it is crucial to support diverse and resilient livelihood options to avoid placing "all their eggs in one basket," referring to their dependence on the exploitation of natural resources, susceptible to climate change and human influences.

66. 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 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]

[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*

[46]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

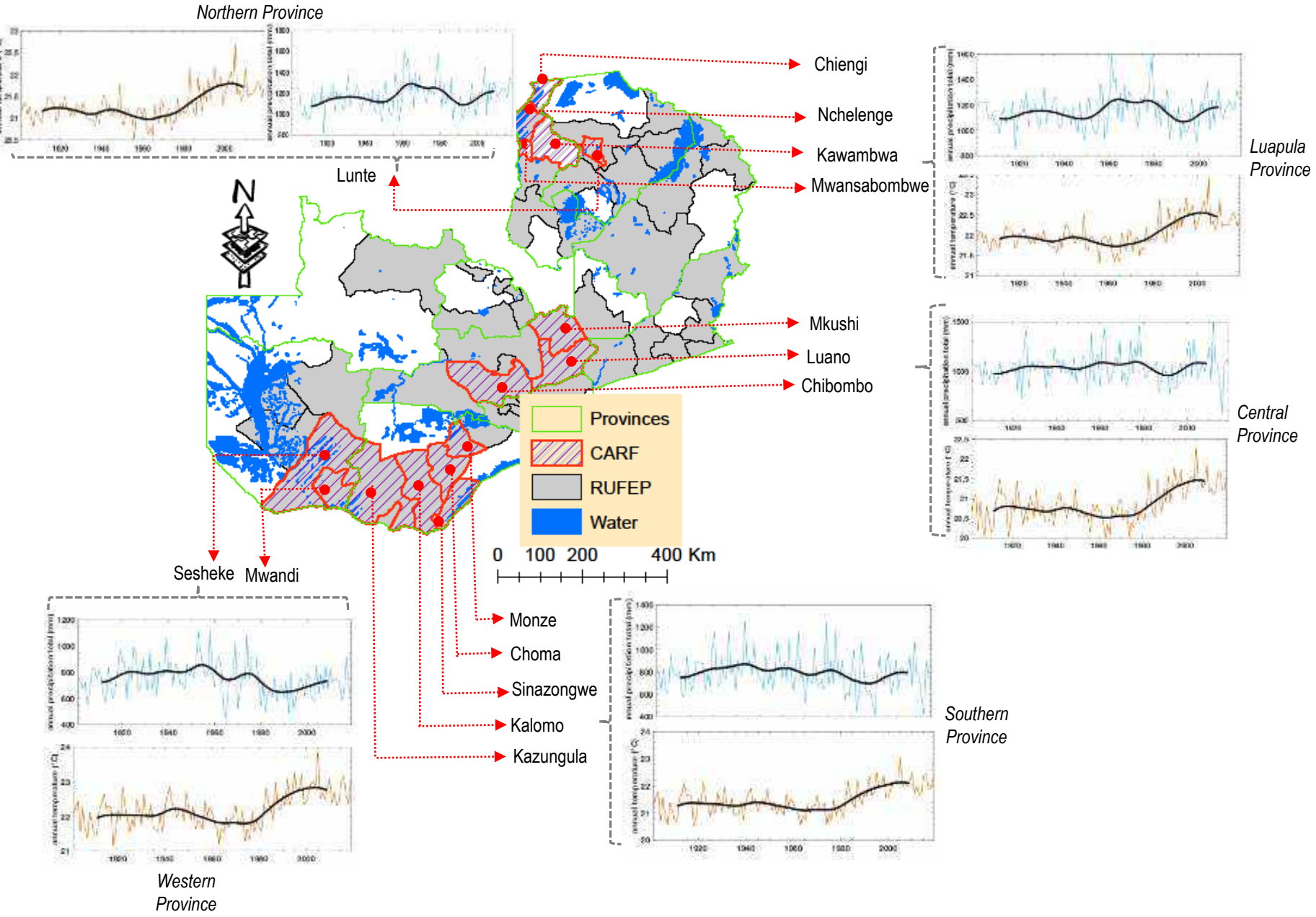

Fig. 11 *Map showing CALRF and RUFEP districts and historical trends in temperature and precipitation patterns*.

67. 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.

68. 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 8,680[47] households as detailed in the table below:

Province	**District**	**Est. beneficiaries**		**Total per province (% of pop.)**	**# of households**	**District population**	**Provincial head count poverty48**
		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				

B. Project Objectives:

69. 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 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

[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

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.

70. 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

71. 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.

C. 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

72. 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 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:

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

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.

73. 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]

D. Projected Calendar:

Milestones	Expected Dates
Start of Project Implementation	January, 2024
Mid-term Review (if planned)	September, 2025
Project/ Closing	June, 2028
Terminal Evaluation	September, 2028

PART II: PROJECT JUSTIFICATION

A. Project components

74. 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.

75. Consistent with the barriers that have already been identified, the project is designed around the following three components:
    - 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

76. 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:

[50] Government of Zambia (2014). National Forest Policy

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

77. 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]

78. 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)

79. 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 recognizes 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.

80. 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 institutional arrangement to manage equipment and machinery hires for precise and prompt

[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*

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.

81. 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]

82. *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 communities[58]. For example, a significant shift in temperature can have deleterious effects on fish[59,60] by degrading fish breeding sites, modifying its distribution and the productivity of other freshwater organisms[7], 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 project will support initiatives such as the establishment of a fish-hatchery (to be

[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

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 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 focused more in Luano Valley in Luano district. The project will therefore support plantations, processing, and market development, among other targeted interventions.

83. 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.

84. ***Output 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 positive impacts on the crop and animal production landscapes. Key activities will include:

Activity 1.1.1.1: Support towards livelihood diversification: Actions to improve livelihood diversification will include promoting off-season agriculture, providing training to farmers in sustainable practices, offering business support, initiating agroforestry initiatives, and establishing market linkages. These activities will be implemented across three provinces including five districts in Southern, two in Central and three in Western. To support communities in adopting off season production, climate and regenerative agriculture practices such as crop rotation, minimum tillage, cover cropping, and water management techniques will be taught to farmers through the camp extension officers from the Ministry of Agriculture. As such, existing manuals on agriculture water management and natural resources management will be updated and used as the basis for local-level training sessions with farmers. Furthermore, agroforestry initiatives will be promoted, encouraging target communities to establish nurseries for the production of tree seedlings. Priority will be given to multi-purpose tree species, including *Acacia spp, Moringa oleifera, gliricidia sepium, faidherbia albida, Sesbania sesban, and Pericopsis angolensis*. The aim is to establish nurseries capable of producing tree seedlings for a 1,000-hectare area. In addition to technical skills, farmers will receive training in business management to enhance their entrepreneurial capabilities. They will also be connected to markets and supported to access services such as finance, further training, agricultural inputs, and off-season production.

Activity 1. 1.1.2: Facilitate investments in climate smart agriculture on 1,000 ha, focusing on climate resilient seed crop varieties: To achieve this, the project will focus on improving farmers' access to locally adaptable seed and pasture varieties and enhance their crop production capabilities. The project will collaborate with selected value chain actors to increase access to support services such as finance, insurance, and extension. Specifically, CALRF will collaborate with the Zambia Agricultural Research Institute (ZARI) and selected seed companies in Zambia to facilitate the production of climate-resilient seeds in the 15 target districts, ensuring that farmers can access high-quality seeds tailored to their local conditions. The project will train selected local farmers as seed growers, enabling them to produce and supply climate-resilient seeds within their communities. It is envisaged that this localized approach will establish a reliable seed supply chain that will ensure consistent access to seeds for farmers. Furthermore, the project will train farmers in sustainable agriculture production, business management, and group governance. As outlined in Activity 1.1.1.1, agriculture extension officers will be engaged to facilitate training sessions covering various topics. During these sessions farmers will be trained on the use of climate-resilient seed varieties, integrated pest management (IPM) techniques, agricultural entrepreneurship, market literacy, and business management. By equipping farmers with these skills, CALRF will enable them to engage in climate-smart agriculture, enhance their yields, and effectively market surplus produce.

Activity 1.1.1.3: Support towards land rehabilitation and restoration: This activity will focus on supporting land rehabilitation and restoration through various approaches, covering an area of 1,000 hectares. Specifically, the project will promote the adoption of the assisted natural regeneration (ANR), to facilitate the successful regrowth and replenishment of indigenous species. At the broader level, the project will support the implementation of agroforestry practices through intercropping food crops with Acacia species. As such CALRF will support farmers in planting fruit trees to enhance nutrition and also facilitate income generation by selling surplus fruits. Furthermore, the project will support the adoption of restorative activities in the target 15 districts through the local agriculture extension officers and traditional leaders. The agriculture extension officers with support from the traditional leaders will provide guidance, share knowledge, and ensure the successful implementation of practices such as ANR, agroforestry, and the production of fodder seeds. Fodder seed production will focus on *Velvet beans, Cowpea, Red Sun hemp, Rhodes grass, and Panicum maximum*. By implementing the above mentioned activities, the project will contribute towards the restoration and rehabilitation of the landscapes in the target districts while fostering sustainable agricultural practices and benefiting local communities.

85. ***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*:** 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.

86. 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.

87. Key activities will include:

Activity 1.1.2.1: Promote adoption of sustainable agricultural practices in mixed crop and livestock systems: To promote the adoption of sustainable agricultural practices, the project will emphasize a mixed farming production system, involving a combination of crops and animal as well as promoting diversified and integrated interventions based on specific household cases. Specifically, the project will promote the adoption of sustainable agricultural practices. This will be done by (1) increasing access to more productive and drought-tolerant seeds, (2) establishing community seed banks, and (3) promoting the stocking of climate-resilient livestock and fish species. As a way of ensuring farmers continued access to extension services and markets, the project will collaborate with the government agriculture extension officers in the targeted districts together with selected input suppliers, as outlined in Activity 1.1.1.1. In view of the low literacy levels among the target farmers, a combination of theoretical and practical training approaches will be implemented. As such, theoretical training will be conducted by the camp extension officers using updated manuals, while demonstration plots will be used to showcase the practical aspects.

To unlock the fish and fruit tree value chains, the project will focus on addressing the issues that affect smallholder value chain profitability, particularly women and youths. These challenges include limited access to inputs, finance, training, poor infrastructure such as roads and market access. In the case of aquaculture, the project will focus on endemic fish species found in the target areas, such as the cichlid species (*notably Tilapia baloni, Tilapia jallae*) that hold significant market value in the target districts. The project will establish fish farms specifically for the endemic cichlid species. For the fruit tree value chain, the project will mainly improve farmers' capacity in mango processing and establish market linkages. This will involve establishing a processing plant and procuring the necessary equipment for collecting and transporting the produce. Farmers will be engaged as out growers and receive capacity building and training from the project and government extension officers.

Activity 1.1.2.2: Build capacities to improve extension services in target districts: In improving the capacity of extension services in the targeted districts, project efforts will focus on addressing the challenges faced by agriculture extension officers in providing efficient agricultural extension services to farmers. At the moment, many agricultural camps are unmanned, while in manned camps, officers are limited by resources like transport and training materials to deliver extension services effectively. In addition to the lack of resources, most government extension officers will need a refresher training so they can be updated with emerging trends and practices in sustainable agriculture.

To address the challenges highlighted above, the project will among others; (1) Update the training manuals on sustainable agriculture in collaboration with the Ministry of Agriculture and the Ministry of Fisheries and Livestock. This will ensure that the extension officers have access to relevant and up-to-date extension techniques tailored to the local agro-ecological conditions. (2) Offer a comprehensive refresher training course on sustainable agriculture targeting 150 camp extension officers from the 15 districts. This training will equip them with the necessary knowledge and skills needed to provide effective extension services to farmers in a practical manner. Furthermore, the project will actively support the development and implementation of district-specific plans. The district plans will outline all the communities' aspirations in mitigating against climate changes impacts and outline the strategies and activities to enhance extension services, focusing on the supported value chains.

Activity 1.1.2.3: Conduct detailed value chain mapping and development of fruit tree and fish value chains. The activity entails conducting a detailed value chain analysis for the fish and fruit tree value chains in 15 target districts. HODI and Really Sustainable Environmental Initiatives (ReSEI) will be responsible for the fruit tree value chain analysis. At the same time, the Copperbelt University will handle the fish value chain analysis in Kawambwa, Mwansabombwe, Nchelenge, and Chienge districts.

The value chain analysis process will delve into the intricacies of these value chains, aiming to identify lucrative opportunities while evaluating their potential to bolster smallholder resilience and adaptive capacity. The analysis will encompass several key aspects, including market size, current productivity levels, and value chain actors, obstacles faced by smallholders in participating, environmental impacts, and prospects for value addition.

With the findings from the value chain analysis in hand, the project will move forward to establish crucial parameters to improve the efficiency of these value chains. One of the primary objectives is to connect smallholders to markets effectively, breaking down barriers like limited access to finance and value-addition opportunities. Furthermore, farmers will receive specialized training in efficient production methods to enhance productivity while upholding environmental sustainability.

88. ***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: To promote local level processing and value addition, this activity will address the issues limiting farmers' ability to add value to their produce and access profitable markets. As such, the project will enhance farmers' ability to engage in value addition activities to expand their marketing opportunities. Therefore, based on farmer preferences, project efforts will assess the potential for value addition within selected agro-enterprises, including fruit trees, fish, ground nuts, chickens, goats, and cattle. This assessment will help to direct the project's effort to the specific opportunities for value addition.

On the fruit tree value chain, the project will support HODI in establishing a fruit processing plant to produce mango pulp, dried mango slices, jams and jellies in collaboration with small-scale farmers. Similarly, within the fish value chain, the project will support Coperbelt University in enabling fish farmers to invest in fish filleting and packaging facilities or fish smoking and curing processes. These potential investments illustrate the diverse possibilities for value addition and the subsequent improvement in farmers' profitability.

The project will facilitate access to grant financing to support farmers in taking up value addition. Farmers will have the chance to apply for funding on a competitive basis, enabling them to invest in value addition ventures. This financial assistance will help them acquire the necessary technology, infrastructure, and training to effectively establish and manage value addition enterprises.

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**: The project's efforts under this activity will aim at increasing farmer's access to climate-smart, low-cost irrigation and mechanization equipment. In so doing, the project will train farmers in climate-smart agriculture practices such as water use efficiency, soil conservation and how to use agriculture mechanization equipment alongside these practices. Therefore, the project will collaborate with suppliers of low-cost agricultural equipment (irrigation and storage facilities) and design equipment leasing schemes for farmers at individual and group levels. It is envisaged that this approach will provide affordable access to mechanization resources even for low-income farmers. Three mechanization models will be established in each district, including two group models and one individual model in partnership with the private sector and agriculture extension officers. This partnership will create a permanent service and input support system for farmers to ensure continued access to mechanization services, spare parts, and technical support.

To minimize the negative environmental impacts, the project will promote using climate-smart irrigation options such as drip irrigation alongside other conservation agriculture practices such as minimum tillage, cover cropping and crop rotation to minimise water wastage. Additionally, farmers will be trained on the proper use of mechanisation equipment and maintenance and support them in identifying potential off-takers even before engaging in production. In this way, farmers can confidently produce crops and livestock with guaranteed market demand, reducing the risk of post-harvest losses and ensuring profitability.

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

89. Lack of financial resources reduces communities' resilience and their ability to respond to the challenges of climate change promptly and squarely. 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 engage with various financial service providers to design, develop, pilot and scale innovative and inclusive financial products, delivery platforms and channels to increase access to climate change responsive financial services. Financial institutions that successfully delivered inclusive financial products, platforms, distribution channels and networks during the implementation of RUFEP, will be prioritized for partnership to deliver financial services to the last rural mile. The RUFEP model is designed to deliver inclusive financial products and services using demand and market driven approaches that guarantee sustainability. Implementing partners are selected based on their responsiveness to the needs of target beneficiaries. The sub-projects to be implemented under this component and the risks attendant to these activities and the corresponding mitigating strategies are only identifiable at the selection stage during programme implementation. RUFEP has an elaborate and tested process for selecting service providers to be provided with matching grants and the sub-projects that are to be implemented. The quality and success rate of the projects funded, confirms a robust due-diligence and project oversight process. Applicants must submit a Concept Note (CN), which is reviewed by the Internal Review Committee (IRC) within the Programme Management Unit (PMU). Approved applicants are asked to submit a detailed proposal. Each proposal is subject to rigorous internal review by the Internal Review Committee (IRC) and technical review by external experts. The proposal, and recommendations from the IRC and external review panel, is then assessed by an independent Programme Vetting Committee (PVC), who have the authority to review and approve, defer approval or reject the applications.. Both the CN and the proposal must rhyme with programme goals, development objectives, chosen strategies and meet the terms and conditions of the grant agreements. The process identifies risks, embeds mitigation strategies and provides the indicators that are monitored to guarantee compliance. RUFEP will apply IFAD's Social Environmental and Climate Assessment Procedures (SECAP) to ensure that risks are correctly identified, mitigated and monitored. This means prior to the commencement of onboarding of projects, the PMU will review and amend RUFEP's Programme Implementation Manual (PIM) to incorporate AF's project conditions.

90. 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. This affects rural communities, and women are particularly more affected compared to the men folk. 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.

91. 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.

92. 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.

93. 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. The project will be deliberate about women inclusion in the access to financial services under Component 2. CALRF will streamline both gender and climate change considerations in the application templates, risk acceptance criteria and grant agreements with implementing partners. Implementing Partners 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 climate change adaptation 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 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.

94. 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-take 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.

95. 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.

96. 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. As noted above, the Component will be gender responsive to ensure female beneficiaries are equitably represented in enhancing community resilience and building adaptive capacity through access to financial services to capitalize on critical livelihood strategies. 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.

97. 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]

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

99. 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.

100. 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.

101. 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 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.

102. ***Output 2.1.1*** *Financial Service Providers with favorable adaptation financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to*

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

*increase their community-level financing towards: Lack of financial resources to i*nvest 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.

103. Under this output, CARLF will enable FSPs to provide tailored financial products, user-friendly platforms and distribution channels. In addition, they will promote digital and financial literacy to ensure effective demand for their services. CALRF will leverage the Digital Financial Services that RUFEP assisted create in rural areas to offer cash in, cash out, payment services, loan disbursement and repayment and make transfers. With this digital footprint, FSPs will access behavioral data on users and thus be in a position to use credit scoring for quicker and more nuanced decision making. Micro leasing of solar driven productive assets will be promoted to enhance smallholder farmers' capacity to irrigate crops all year round, store and preserve produce and facilitate value addition through processing facilities.
The project will promote innovation around the collateral constraint. Aggregation of produce will provide opportunity to use off-take contracts to collateralize financing positions. Self-liquidating financing mechanisms will be promoted deliberately. A key lesson learnt from RUFEP has been that women are more likely to repay loans than men. CALRF will leverage this knowledge to promote the design and development of collateral-free products.

104. As RUFEP's innovation and outreach facility budget was running out, the pipeline of inclusive finance projects demanding grant funding remained long and participating institutions continued to indicate their desire to return for second projects. This level of demand continues as enquiries have continued. This is indicative of the level of potential support the project will garner from FSPs and other participating institutions. The consultative process leading to this application, targeted actively interested and proven partners operating in the designated project geographies. These partners continue to support communities in the target areas. RUFEP's network of partners remains intact and will be exploited deliver the CALRF outcomes.

105. Key activities will include:

Activity 2.1.1.1: **Conduct financial value chain analysis and risk assessment:** To gain a better understanding of the financial value chain and the associated risks, CALRF will conduct a structured financial value chain analysis study focusing on the demand and supply sides. On the supply side, the study will focus on mapping the existing FSPs and the nature and types of financial products they offer including the eligibility requirements, mode of financing and future plans. Accordingly, the study will also include an evaluation of the risks associated with each financial product and how to mitigate them. On the demand side, the study will focus on exploring the potential of smallholder agriculture and the demand for financial services alongside the targeted value chains. As such, the study will assess the number of existing farmers at a thematic level (per value chain or sector), type of production system, market potential, value-addition opportunities, and the types of financial products already accessible to farmers.

Based on the findings from the study, the project will collaborate with suitable FSPs to design and pilot tailored financial products to bridge the identified gaps and capitalise on the existing potential among smallholder farmers. Therefore, four new financial products along the targeted value chains will be designed and rolled out in collaboration with the FSPs. To ensure the success of these new financial products, the project will offer embedded technical assistance to the FSPs as part of the implementation arrangements. This support will help the financial service providers to effectively implement and manage the new products, thereby fostering financial inclusion and supporting the growth of the smallholder agriculture sector.

Activity 2.1.1.2: Provide tailored financing solutions for agro dealers and other larger businesses working in the rural finance space: This activity will leverage the financial analysis conducted under 2.1.1.1, to develop customized financial products in partnership with selected FSPs. CALRF will ensure that the design of these products takes a climate resilience angle and support climate mitigation initiatives such as increasing access to renewable energy and improved seed varieties. To achieve this, the project will work in collaboration with input suppliers and FSPs who will be willing to increase access to these services for farmers. Therefore, a list of solutions will be offered, with a focus on agricultural mechanization, increasing access to climate smart inputs and weather index insurance.

In increasing access to agriculture mechanization, the project will design and roll out an asset leasing scheme in collaboration with the private sector. Operating at group and individual levels, these schemes will enable farmers to access equipment on lease at affordable rates without the need for huge upfront payments. Efforts to increase access to climate-smart agriculture inputs will include, designing custom-made input financing products and supporting the bulking of input purchase at the farmer level. This approach will enable farmers to adopt sustainable practices and use high-quality inputs that promote ecological farming methods. A weather index insurance scheme will be established in partnership with selected insurance service providers. Bundled with the input financing, this insurance will protect farmers against climate-related risks, ensuring financial security and encouraging sustainable farming practices.

To guarantee the financial sustainability of the tailored financial products, a thorough risk assessment will be undertaken in order to establish the risk-sharing mechanisms aimed at mitigating the potential financial losses for both the smallholders and the FSPs. Regarding environmental sustainability, the project will prioritize climate-smart technologies and practices. The promotion of weather index insurance will encourage farmers to adopt climate-resilient agricultural practices, reducing their vulnerability to extreme weather events. Furthermore, the focus on agricultural mechanization with renewable energy solutions will contribute to reducing the carbon footprint associated with conventional farming methods. CALRF will also emphasize sustainable management practices, such as water conservation, soil health improvement, and biodiversity preservation, to ensure the long-term ecological integrity of the mixed cropping system.

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 an honest broker between service providers and communities.

Activity 2.1.2.1: Establishing the blended finance options to benefit 2,500 individuals: Through this activity, the project acknowledges that blended financing leverages the strengths of public and private sectors, enabling greater scale, efficiency, and effectiveness in tackling climate change challenges while promoting sustainable development. In the context of the project's target district, financial resources from single actors to support communities to adapt to the impacts of climate change are hardly sufficient. Therefore, this project will close this gap by establishing the blended finance option to promote community and individual level engagement in sustainable activities in the agriculture sector.

To increase accessibility to financing for various adaptation actions and to empower farmers in the context of climate change mitigation, the project will establish innovative blended finance options that will utilise both public and commercial financing sources. It is envisaged that combining public sector grants with official development assistance will catalyse inclusive innovations and encourage private sector contributions.

As such, the financing models will be carefully designed and implemented to address the diverse needs of beneficiaries based on their vulnerability to climatic changes and based their socio-economic status.

Therefore options will vary and may include one-off grants, matching grants, loans, equity investments, and micro-leasing facilities. CALRF will leverage the successful results and experiences of blending financing under RUFEP, which managed to raise US$5.6 million, surpassing its initial target of US$3.6 million from the private sector. This experience will serve as a valuable blueprint for implementing blended financing approaches under the CALRF financing.

- 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 financing approach will offer an opportunity to viable smallholders to access a variety of financing – benefiting 2,500 across all the 15 districts. Finally, the blended financing will benefit poor smallholders, and will be an engine for mobilizing financing to strengthen their resilience to the impacts of extreme weather events.

- **Activity 2.1.2.2: Enhancing access to market systems and partnerships (production alliance model)**: Under this activity, CARLF aims to increase access to improved market access for 3,000 farmers in 15 target districts. This will be done by establishing 5 community-level aggregation centres which will enable the consolidation of small produce into economically viable quantities for marketing. New and existing farmer groups such as cooperatives will be mobilized to identify suitable locations and empowered with grants to set up these bulking centres. The project will provide training in leadership, governance and business management to capacitate local committees to manage these bulking centres in collaboration with the local authority and private sector. Having a ready market will enable beneficiaries have stronger cash flows (which are the primary consideration when FSPs are considering lending to borrowers) and will make possible the use of alternative collateral mechanisms which shift recourse from the beneficiaries to third parties, eliminating the collateral barrier associated with conventional credit.
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  Experience has shown that enabling farmers to pool their produce at aggregation centres, they can benefit from economies of scale and negotiate better prices in the market. This will further enhance their income and economic viability while encouraging more stable and sustainable farming practices. By enhancing market access and promoting environmentally friendly practices, CALRF will uplift the livelihoods of farmers, strengthen local economies, and contribute to the overall sustainable development of the 15 targeted districts.

107. ***Output 2.1.3*** *Catalytic Smart Grant facilities established:* Building on output 2.2, the project will support the creation of two catalytic financing facilities; one to support community-level investment finance supply initiatives, and the second for business and livelihood recovery to respond to livelihood loss, in case of extreme weather in the target districts. The following will be the key activities. The following will be the key activities:

Activity 2.1.3.1: Digitalization of Savings Groups and Savings and Credit Cooperative Societies (SACCOs): Experiences from the implementation of RUFEP have shown that digital financial services can enhance financial inclusion of even the most marginalized farmers. As such, CALRF will leverage this experience and support the digitalization and access to digital payment platforms for 2 Savings and Credit Cooperatives (SACCOs) and 30 Savings Groups (2 per district). Depending on the specific needs and challenges of each group, digitalization options will range from simple linkage to mobile payment platforms to creating tailored digital solutions for SACCOs.

However, while the benefits of digitalisation are clear, CALRF is fully aware of the cyber security threats that it presents. As such, the project will work closely with the Zambia Communication and Regulatory Authority (ZICTA) to increase consumer awareness of potential cyber security risks as they use digital financial services. Therefore, collaboration with Mobile Network Operators (MNOs) will be crucial in implementing the digitalisation initiatives. By working closely with community based financial institutions in the targeted districts, CALRF will not only enhance farmer's confidence in using digital financial tools but also equip them with the skills to make informed financial decisions. At the SACCO level, the digitalisation will lead to increased viability as it enhances operational efficiency, and expanding the range

of services available to members.

Activity 2.1.3.2: Finance market driven- profitable climate resilient business solutions of viable producer organizations: In supporting the resilience and business viability of producer organizations, CALRF will build the capacity of 15 cooperatives, one in each district. Informed by a rapid capacity needs assessment, the project will provide a comprehensive training in business and financial management targeting board members and employees of each cooperative. The training will enable cooperatives and producer organisations to develop profitable and practical business and investment plans tailored to their specific commodities. To contribute towards climate resilience, CALRF will particularly support cooperatives who provide climate smart services to their members. The target is to facilitate the integration of these cooperatives into the financial ecosystem, leveraging both grant funding and commercial financing options.

Different activities will be implemented across the 15 districts depending on the specific opportunities and challenges. As such, cooperatives will be encouraged to implement diverse climate smart models ranging from equipment leasing, input financing, and farmer capacity training in climate smart agriculture. By enhancing the cooperatives' capabilities and enabling access to financial resources, CALRF will significantly contribute to the economic development and sustainable practices in the targeted regions, fostering positive impacts on both local communities and the environment.

- **Activity 2.1.3.3: Establish a counter-cyclical financing facility to benefit 4,000 households:** In collaboration with the Zambia Disaster Management Unit (ZDMU), the project will establish an emergency food security fund to address the urgent needs particularly food insecurity and utter livelihood loss in case of extreme weather in the target districts. 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. The design and roll out of the fund will be guided by ZDMU who will provide technical know-how based on the experience they have in responding to flood and drought emergencies. Embedding the food security fund within the ZDMU will be critical in ensuring the sustainability of the fund beyond the life of the project. Therefore, the fund will ride on the existing institutional arrangements and governance structures at ZDMU. The project implementation unit will work with ZDMU to establish the governance mechanisms within institutional arrangements at ZDMU. It should be noted that the allocation of the food security fund will be based on the vulnerability assessment that is conducted by the ZDMU – and this will further strengthen project support from the government institution. The vulnerability assessment considers food insecurity, exposure to climatic hazards, frequency of droughts and floods, among others. Women, differently-abled and the youth, as vulnerable groups are favourably considered in the vulnerability assessment. As an emergency fund, it will be implemented in conformity with the triggers that have been established at ZDMU.

108. ***Output 2.1.4*** *Adaptation options based on district-level development plans supported, prioritized and implemented:* 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 piece-meal to a perennial phenomenon. The key activities under this component will be structured around:

- **Activity 2.1.4.1: Support the development of 15 strategies at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement:** 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. Depending

on the specific needs of each district, the project will support the consolidation of district plans through existing structures such as the District Development Committees. It will provide operational support and training to the planning committees to ensure they prioritize adaptation actions and allocate sufficient resources to climate adaptation initiatives. As a starting point, CALRF will conduct a rapid assessment of existing capacities per district to aid the development of tailored capacity development interventions. Based on this, each district will be supported to identify key climate change priorities based on their level of vulnerability to set clear mitigation and resilience targets.

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

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.

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 famers 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 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

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 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 benefits

The project is designed to provide social and economic benefits to vulnerable communities in the target districts. It should be noted that the social and economic wellbeing are intricately linked. The project will contribute to social and economic wellbeing of the target communities, thus contributing to the overall prosperity of individuals and communities.

Economic benefits:

114. Overall, the implementation of this project will have positive economic impacts associated with the implementation of the project including (i) job creation; (ii) Improvement of women's incomes and development; and (iii) Improvement of farmers' production and incomes.

115. 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. The quantitative estimates are as below:

    - 4,000 households (or 46% of the target household) are food secure during extreme weather events in 7 districts. The project will ensure that at least 1,000 households to be food secure during extreme weather conditions are those of the marginalized and vulnerable groups.
    - About 1,200 jobs through the support towards value chains. Of these jobs, 200 jobs will be reserved uniquely for the marginalized and vulnerable groups.
    - 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. Of the 50% who will qualify for access to financial resources for crop insurance, 15% will be allocated to the marginalized and vulnerable groups.
    - 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 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.

116. The design of the project includes direct financial compensation and access to employment (e.g. value chains) or training opportunities (stakeholder and government personnel at subnational levels) that will have an overall positive economic implication on the beneficiaries.

117. *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.

Social benefits:

118. As alluded to above, economic benefits have an overall positive impact on the social context of individuals and their communities. Economic wellbeing leads to poverty reduction, particularly for vulnerable community members. 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.

119. 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.

120. 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, the criteria will 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.

121. Overall, the implementation of this project will have positive social 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) contribution to food security; (iii) Improving the nutritional health of populations; (iv) reducing rural-urban migration; and (v) enhancement of social capital and improvement of community life, including for the marginalized and vulnerable community members.

122. *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, including those of the marginalized and vulnerable members of communities. 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.

123. 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.

124. 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.

125. 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 chains that address gender issues and promote inclusion of the most vulnerable.

126. *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.

127. *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, of vulnerable and marginalized groups will be part of the targeting strategy for the project.

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

128. 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.

129. *Improving food security and nutrition:* CARLF 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.

130. 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

131. *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 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.

132. *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

[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

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 (CSA) 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.

133. As noted above, the project will primarily focus on climate resilient seed crop varieties and pasture production, land rehabilitation and restoration (including the use of assisted natural regeneration, agroforestry practices) to generate global environmental benefits – with social and economic benefits to the communities. The envisaged CSA practices will contribute to enhancing soil health, reduce erosion, and preserve biodiversity. By adopting climate-resilient crop varieties and efficient water management techniques, smallholders will contribute to mitigating the environmental impacts of climate change. CSA also emphasizes the use of organic fertilizers and integrated pest management, reducing reliance on chemical inputs and minimizing water pollution. Moreover, it should be emphasized here that CSA encourages the adoption of renewable energy solutions, such as solar-powered irrigation systems, reducing greenhouse gas emissions that are associated with traditional agricultural practices. Through the implementation of CSA on 1,000 ha and the afore-mentioned environmental benefits, the project will contribute to preserving ecosystems, mitigating climate change, and ensuring the long-term sustainability of agriculture in the target districts.

134. 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.

135. *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]

136. *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

[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

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 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

137. 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. The alternative approach would have been to focus solely on 'soft' interventions such as policy alignment and capacity development through trainings – which are important, however insufficient for the socioecological systems in the target district.

138. Overall, the project is building a system to strengthen the smallholders' ability to better cope with the impacts of climate change in the targets. The project will build capacities and infrastructure which will help to sustain the adaptive capacities of communities beyond the life of the project by working with existing systems, including the government and finance service providers. In this regard, the project will continue to provide services in a sustainable manner. It is not a 'hand-out' project, but one that strengthens communities to be able to cope with impacts of climate change. In the short and long terms, the interventions will remain cost-effective. The delivery mechanism will include a market-driven approach to work with already existing players to provide financial services to communities – making it overall, cost-effective, ensuring that operational costs are at a minimum and the rest of the resources go to building adaptive capacities of communities.

139. 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. CARLF 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. RUFEP, using the proposed model, was able to reach over 685,000 households at a cost of US$22 per beneficiary.

140. 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. The alternative approach would have been to focus on concrete adaptation measures without awareness-raising which would not give beneficiaries the ability to make informed decision and know how to respond in the face of extreme weather events, particularly floods.

141. 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. The alternative approach would be to invest limited resources in all sectors without prioritization. Conducting a needs assessment will therefore make it cost-effective and efficient so that priority areas are prioritized.

142. 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. The alternative approach would be to rely on external resources without community involvement and capacity development so much so that even quick fixes would have to be done by outsourcing labour. The approach of community will also ensure sustainability.

143. 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.

144. In summary, CARLF's cost-effectiveness is summarized in the following succinct points:

- Resource allocation and investments in concrete interventions that have the potential to transform and enhance the resilience of the socioecological context of the targeted district – in this regard, a transformed and resilient socioecological context due to concrete interventions will not prohibitively be expensive to 'repair' compared to a system or context that has not had concrete interventions;
- Capacity development and sustainability ensure continuity and minimal additional support – this is the 'teaching someone to fish vs giving someone fish' aspect that will ensure cost-effectiveness. The alternative would have been a 'hand-out' approach to respond to emergencies without capacitating communities to better cope with extreme weather events that befall them;
- 'Forewarned is forearmed' – consistent with the point two above, through knowledge and early response through capacity building, social and economic benefits, the communities will be better able to cope with the extreme weather events – i.e. preventing the worst from happening that would be more expensive to repair;
- Community engagement and participation that will ensure that local resources are used as opposed to 'high tech' procurement processes that would have meant more expensive processes to administer and maintain; and
- CALRF has a blueprint in RUFEP which means that the learning curve is neither steep nor long, overall, making the implementation of the project cost-effective.

145. 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 $223[68] 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 communities will be direct beneficiaries plus more indirect beneficiaries beyond a decade.

146. 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.

147. 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

[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.

interventions in climate change critical sectors are strategic ways to make CALRF more cost-effective.

148. 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.

Component	Without project	With AF project	Difference
Component 1: Building and promoting equitable, diversified, resilient and sustainable community livelihood options	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 extreme weather events, but they are not able to invest in adaptation measures.	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. The approach is preventive than curative, making it cheaper 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%.	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.
Component 2: Innovative local financing systems to	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	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	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-

build community adaptive capacities in climate sensitive sectors	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.	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.	sensitive sectors is a game changer that will transform livelihoods and production landscapes.
Component 3: Enhance district-level planning and awareness-raising for evidence-based resilience and adaptive capacity building	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.	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.	Improved knowledge and awareness of climate change risks to support effective evidence-based adaptation planning at district level

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

149. 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.

150. 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.

151. 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
• *Zambia National Adaptation Programme of Action (NAPA) in 2007*: 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. • *National Climate Change Response Strategy (NCCRS) in 2010*: 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. • *Nationally Determined Contribution (NDC) in 2015 and updated in 2020:* The NDC intends to reduce CO_2 emissions by implementing: (i) sustainable forest management; (ii) climate-smart agriculture (CSA); and (iii) 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 Systems, 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

[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).

[72] GRZ 2015

Zambia National policies/strategies consistent with CALRF

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 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

152. 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;

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

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 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]

153. 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

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

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.

154. The project will fund 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 which 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.

155. The project activities 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.

156. 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.

157. 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.

158. The project has an ESMF and will always refer to it during the implementation of activities to ensure compliance with all the environmental and social safeguards – it should also be mentioned here that the ESMF has a grievance redress mechanism (GRM) embedded in it. Additionally, to ensure compliance to the national standards, the project will collaborate with national authorities. As per

project development and implementation modalities, the project will apply to relevant authorities for clearance before implementation. The project will engage the relevant authorities for guidance on the nature of certification that will be required for an activity to be implemented. This can only be done before the activity is implemented. The table below summarizes the potential areas of concern that the project will apply for clearance:

(ESP AF PRINCIPLES)	Areas of concern	Authorities to be consulted/for clearance	Law legislation
Compliance with the law	Compliance with the national law: requisite permits and licences to operate.	Police department Legal	Employment Act, No. 15 of 2019
Access and equity	access by women and youth to training, equipment, infrastructure and services,	Ministry of Gender and Child Development	Zambia's Act of Gender equality and equality (Act No.22 of 2015)
Marginalized and vulnerable groups.	Inclusivity of stakeholder engagement processes Inclusion of women and youth in decision making structures.	Ministry of Gender and Child Development	Zambia's Act of Gender equality and equality (Act No.22 of 2015)
Human rights			
Gender equity and women empowerment	Inclusion of women and youth in decision making structures. Level of participation of women and youth, Occurrence of GBV/SEAH	Ministry of Gender and Child Development.	Zambia's Act of Gender equality and equality (Act No.22 of 2015)
Core labour rights	Working conditions and standards of labour. Freedom of association and freedom to form unions, Use of child Labour in agriculture	MoA	The Occupational Health and Safety Act, No. 36 of 201
Ethnic diversity		None	
Involuntary resettlement	Removal/alteration of usual source of livelihood. Forced migrations. Dissatisfied PAPs.	MoA, The Ministry of Lands and Natural Resources	Land Act, Chapter 184 of the Laws of Zambia
Protection of natural habitat	Vegetation clearing, Construction activities impacts, Land exposure for agricultural purposes, Soil erosion. Deterioration of soil characteristics, flora and fauna	Ministry of Green Economy and Environment. MoA, ZEMA	Zambia's Environmental Management Act - 2011
Conservation of biological diversity	Noise and vibration levels from construction activities, Contamination of rivers and soils. Flora and fauna, Interference with nesting sites. Migratory routes, Animal habitats, Poaching	Department of National Parks and Wildlife Police department District Administrators , ZEMA	Zambia's Environmental Management Act - 2011
Climate change	Land clearing for developmental/agricultural purposes, Stocking levels by the farmers.	ZEMA MoA	Zambia National Policy on Climate Change 2016.
Pollution prevention and resource efficiency	Discharges from agro-processing facilities, Oil and grease leak and spills prevalent in most work areas like the farm sheds. Use of agro-chemicals (Fertilisers and Herbicides)	Health ministry MoA Ministry of Green Economy and Environment	Zambia's National Public Health Act No.19 of 2020 Environmental Protection and Pollution Control 1990
Human Health	Incidences of communicable diseases. Reports of injuries, Public health Waste management at Sub-project sites.	Ministry of Health ZEMA	The Occupational Health and Safety Act, No. 36 of 2010.
Physical and cultural heritage	Archaeological Findings during excavations. The presence in or near the project area of areas of physical and cultural heritage	National Museums Board of Zambia, ZEMA	National Heritage and Conservation Act of 1989

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

159. 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.

160. 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.

161. 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:

Project title	Project description	Areas of complementarity and justification
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 various service providers which will include new and already existing partners of RUFEP is network in complementarity with Savings and Credit Cooperative Societies (SACCOs). These will be selected using a competitive process.
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
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.
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,	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

	improving rural livelihoods, conservation of ecosystems and reducing emissions and providing assistance in case of emergency relief or disaster	achievement of both goals.
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 TRALARD which has also focused more on cooperatives and service providers on the ground than individuals. Focusing on cooperatives or groups of people offers a better multiplier effect of a project's achievement. It should be noted that TRALARD and CARLF overlap in terms of geographical coverage in Luapula province.
UNEP Ecosystem-based Adaptation project UNEP - Implemented	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. 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.
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. CALRF's inspiration from SEPA relates to community engagement mechanisms to strengthen community ownership.
Smallholder Productivity and promotion Programme (S3P) – IFAD implemented	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), agro-forestry and system for crop intensification. S3P has a legacy in Luapula where it will overlap with CALRF
Enhanced-Smallholder Livestock Improvement Programme (E-SLIP) – IFAD implemented	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 raising communities through the insurance, breeding heifer loans and capacity development for improved crop and animal husbandry. Drawing on E-SLIP, CALRF will support producers with fodder production using Velvet beans, Cowpea and Red Sunhemp, Rhodes grass and *Panicum maximum.*

Support to Climate Adaptation through Rural Finance (SCARF) – IFAD implemented $20 m (Funded by the Global Agriculture and Food Security Program)	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.	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.

162. 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 meetings as well as during project progress reviews/evaluation such as mid-term reviews, and inception workshop. It should be noted that development partners will also be engaged through bilateral meetings and also project progress reviews and workshops to which they will be invited – this will be part of the mechanism of engaging with partners. Regarding coordination, the implementation arrangement sufficiently details partners who will be involved and their roles. Essentially, the project management unit will coordinate the engagements with development partners.

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

163. 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.

164. 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.

165. 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.

166. 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.

167. 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.

168. 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.

169. 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.

170. 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.

171. 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.

172. 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

173. 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. 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.

174. 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). 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.

175. 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.

176. 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.

177. 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.

178. For an adaptation project such as CALRF, participatory engagement of women has been critical. This is because the impacts of climate change affect women is 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]

179. 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.

180. At national, provincial and district levels, consultations were facilitated by the Ministry of Finance and National Planning, 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	• 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)	• 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: RUFEP's current network of financing partners and potential partners to be selected through a competitive selection process	• To identify opportunities for private sector engagement in financing adaptation activities.
4	Civil society: CHAZ, NACRO, Zambia Rainbow Development Foundation	• 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' groups: beneficiaries from IFAD-funded programmes	• To identify needs and current challenges 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.	• 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

[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*

#	Stakeholders	Contribution to the proposal development
		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	• Identify value chains and develop them within priority districts for implementation for meaningful impact in terms of addressing adaptation gaps.

181. 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.

182. 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.

183. 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.

184. 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.

185. In the implementation of project activities related to the value chains, the project will collaborate with The Copperbelt University, HODI and ReSEI – as important implementing partners in their areas of expertise. The Copperbelt University will partner with CARLF on fisheries, and HODI and ReSEI will collaborate with the project on fruit tree value chain development.

186. 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
• Soil and land degradation affecting both crop and livestock production	The project intends: • To rehabilitate and restore degraded land using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds on 1,000 ha.
• 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: • 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.
• Traditional customs and practices that keep women from playing certain key roles in society, including the manner of using natural resources	The project intends: • 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).
• 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.	The project intends: • 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.
• '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.	The project intends: • 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).

187. In addition to the issues raised that are tabulated above, it should be mentioned that elite capture and lack of inclusive mechanisms in the socio-cultural settings in the targeted districts is common phenomenon. This excludes women, the youth and the differently-abled from participating meaningfully in development projects. There is no 'positive discrimination' in rural areas in favour of vulnerable groups. Therefore, this issue was raised particularly by this group of vulnerable people (women, the youth and differently-abled). The youth reported that they are excluded when it comes to accessing financial services because they are perceived to lack financial knowledge, experience in managing finances or enterprises mobile – and sometimes, they are simply viewed as financially indisciplined. Overall, the youth have a high risk profile in the financial market.

188. It was also mentioned that because FSPs target affluent individuals capable of paying back, women, the youth and differently-abled face exclusion from accessing financial resources. This is because women, the youth and differently-abled are hardly involved in economically lucrative activities for them to be 'trusted' by FSPs. The project therefore, will be deliberate about their involvement in the project activities, particularly in the access of financial resources and services under component 2 – as has already been noted in the description of Component 2. Their involvement in the project will include prioritization of project activities, implementation and monitoring, besides accessing the social, economic and environmental benefits. For example, they will be represented in the Technical Advisory Group of the project so that their interests are duly reflected in the implementation of the project (see women, youth and differently-abled groups in the implementation arrangement section). In addition financial products and delivery mechanisms tailored to the persona of these marginalised groups will be designed, developed, tested and then scaled with the removal of the said barriers as a key objective. These will, among others, include one off grants, Groups Savings, SACCOs and Income Generating Activities loans.

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

189. 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.

190. 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.

191. 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	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. 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.	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. 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.
Component 3: Innovative local financing systems to build community 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.	In the target districts, credit availability is a challenge due to geographic 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.	The project under AF scenario will intervene through concrete activities that will 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. Additionally, the project will also lead to ttailored 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	Outcome 3.1 Improved knowledge and awareness of climate change risks to	National and subnational level capacities to more effectively implement adaptation activities are limited in Zambia. This is at two levels:	The project under AF scenario will intervene through concrete activities that will support formation of commodity based

Component	Project Outcome	Baseline scenario (without AF funding)	Alternative AF scenario
evidence-based resilience and adaptive capacity building	support effective evidence-based adaptation planning at district level	anecdotal evidence about climate change impacts; and inadequate number of trained staff and their understanding of climate change adaption. 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 service providers are seeking to provide	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 apacity development of individual and farmer groups in entrepreneurship and market literacy, group business management, group governance, and advocacy

192. 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 and National Planning (MoFNP) 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 MoFNP(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 and 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. Youths in communities will be trained in the installation, maintenance and repair of infrastructure where applicable to retain such skills within the

communities to reduce cost and downtime that would be necessary if these services were offered externally. Natural resource management skills will also be built to retain them within the community.

192. 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.

193. Riding on the administrative levels in Zambia, local councils play an important role in communities. The local councils' role is complemented by the ward officer bearers whose primary function is to link local communities to local council authorities. Also, ward officer bearers work closely with traditional authorities to support local-based development projects and programs. To fully support local-level development projects, local councils have different departments, including civil engineers and planners. Additionally, local councils receive government support disbursed through the Ministry of Local Government, and therefore, they are an institutional structure that is fully part of the government project implementation and development mechanism and infrastructure.

194. CARLF-supported 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, replicating the model of TRALARD as mentioned above, local communities will get technical support from local council engineers and planners who are present in all the districts targeted by this project. It should also be noted that pieces of infrastructure and 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. It is reminded here that CARLF is a government project, cleared by the DA and has received significant input and validation by the government. Additionally, CARLF is aligned with government development priorities, and therefore, embedded in local government structures to be supported through established systems and financial arrangements. In this regard, the valid assumption is that the government will not validate the design and development of a rural development project which is against its development priorities, and a project which will be abandoned in the face of socioeconomic and serious adaptation challenges in the target districts.

195. In sum, to maintain infrastructure and installations, the sustainability approach of CARLF is trifurcated into: i) having non-sophisticated systems and infrastructure that will not require high-level technical know-how beyond the reach of government existing development institutional structures at local level (the local council); ii) the infrastructure and installations will be responsive to local community contexts and community needs building on a participatory approach where community members themselves will be engaged and make contributions including planning, labour during the actual implementation stage and monitoring – that is, pieces of infrastructure will be community-driven and community needs-informed; and iii) knowledge and capacity development of community-level structures such as cooperatives in leadership, financial literacy, business management, among others related to managing agricultural-based enterprises. This will also include tailored support through extension services. In short, these aspects will be supported through the local authorities in partnership with allied ministries (Ministry of Agriculture, Ministry of Green Economy and Environment, Ministry of Local Government and Ministry of Finance and National Planning) at district and ward levels through government-embedded institutional structures for development.

196. Finally, to consolidate CARLF's efforts in terms of infrastructure and installations, the current government has embarked on a decentralization process to make resources more accessible to local communities through what is known as the Community Development Fund (CDF). CDF funds projects include sustaining viable development projects in districts through capacity development of community members, additional infrastructure or refurbishing dilapidated ones, among others. Funded projects and initiatives through CDF are decided by community committees that are pooled from different villages and local structures. Therefore, given the socioeconomic viability and importance in terms of empowering local communities in target districts, CARLF's pieces of infrastructure and installation have another viable mechanism of

sustainability. It should be mentioned that the local authorities mentioned above are part of the core team that supports the prioritisation and disbursement of CDF resources to development projects in districts and wards based on community expressed needs. This is done through active and participatory engagement with traditional leaders and community members. Therefore, based on the government-established development structures at national, provincial, district and ward levels, and the direction that the government has taken to decentralize community funds, there are guaranteed opportunities for sustainability of CARLF's infrastructure and installations.

K. Overview of the environmental and social impacts and risks

197. 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.

198. The relevant Adaptation Fund environmental and social safeguards will be incorporated and mainstreamed in all project activities to the extent that they are applicable. 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.

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
Compliance with the Law	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.
Access and Equity	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.
Marginalized and Vulnerable Groups	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. 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.
Human Rights	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.
Gender Equality and Women's Empowerment	**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
Core Labour Rights	**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. Additionally, as has been noted above, no child labour will be tolerated in adherence to the Zambian laws and international best practices.
Indigenous Peoples	**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.
Involuntary Resettlement	**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.
Protection of Natural Habitats		**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.
Conservation of Biological Diversity		**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.
Climate Change	**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.
Pollution Prevention and Resource Efficiency	**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.
Public Health		**Low risk:** Livelihood activities will contribute to improving the health of

	x	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.
Physical and Cultural Heritage	x	**No risk:** No investments will be made in areas with physical and cultural resources of importance.
Lands and Soil Conservation	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.

199. 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.

200. 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 population – 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.

201. 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.

202. 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 peoples[80] 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

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

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

203. CARLF has conducted extensive consultations with various stakeholders at national and sub-national levels. Despite the buy-in, enthusiasm and commitment from different stakeholders, CALRF 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.

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

205. 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 resolutions[81].

206. 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.

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

207. 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 PMU that will be established under the Ministry of Finance and National Planning The PMU 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

206. The PMU 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 PMU will be constituted to reflect the expertise in key thematic areas of the project. However, at this stage, it can be confirmed the PMU will be headed by a National Project Coordinator who will be supported by an M&E Specialist and Financial Controller. 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 PMU to ensure gender mainstreaming throughout the project activities. At more strategic level, the Technical Advisory Group 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, policy direction and coordination between key government institutions. The PSC shall be headed by the Permanent Secretary from the MoFNP, with representatives from MoFNP, Ministry of Green Economy and Environment, Ministry of Agriculture, Ministry of Fisheries and Livestock Ministry of Small and Medium Enterprises and Bank of Zambia as members. The PSC will review and approve the Manual of procedures, schedules, and progress and audit reports of the project. The PSC will have quarterly progress review meetings with a technical orientation planning workshop organized prior to the first session of the Steering Committee.

208. CALRF will have Technical Advisory Group (TAG) to provide programme implementation support to the PMU in the coordination of all project implementation activities. This will include giving inputs in the annual work plan and budgets, provide guidance in possible areas of implementation, adaptive management strategies and review project progress reports. The TAG is a Committee of all stakeholders that participated in the design process of CALRF. A representative of MGEE shall chair the TAG. Members will include representatives from the PSC, ZEMA, Zambia Alliance of Women, Zambian Women in Agriculture), Youth Development Organization Zambia Agency for Persons with Disabilities, The Zambia Federation of Disability Organisations, Association of Microfinance Institutions of Zambia (AMIZ), Savings Led Microfinance Network of Zambia (SaveNet), National Association of Savings and Credit Unions (NASCU) and Bankers Association of Zambia The TAG will have half yearly meetings with a technical orientation planning workshop organized prior to the first session of the TAG.

209. *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 ReSEI 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 PMU, PSC and local councils in target districts. The Copperbelt University will partner with CALRF on fisheries, and HODI and ReSEI will collaborate with the project on fruit tree value chain development.

210. *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 FSPs 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.

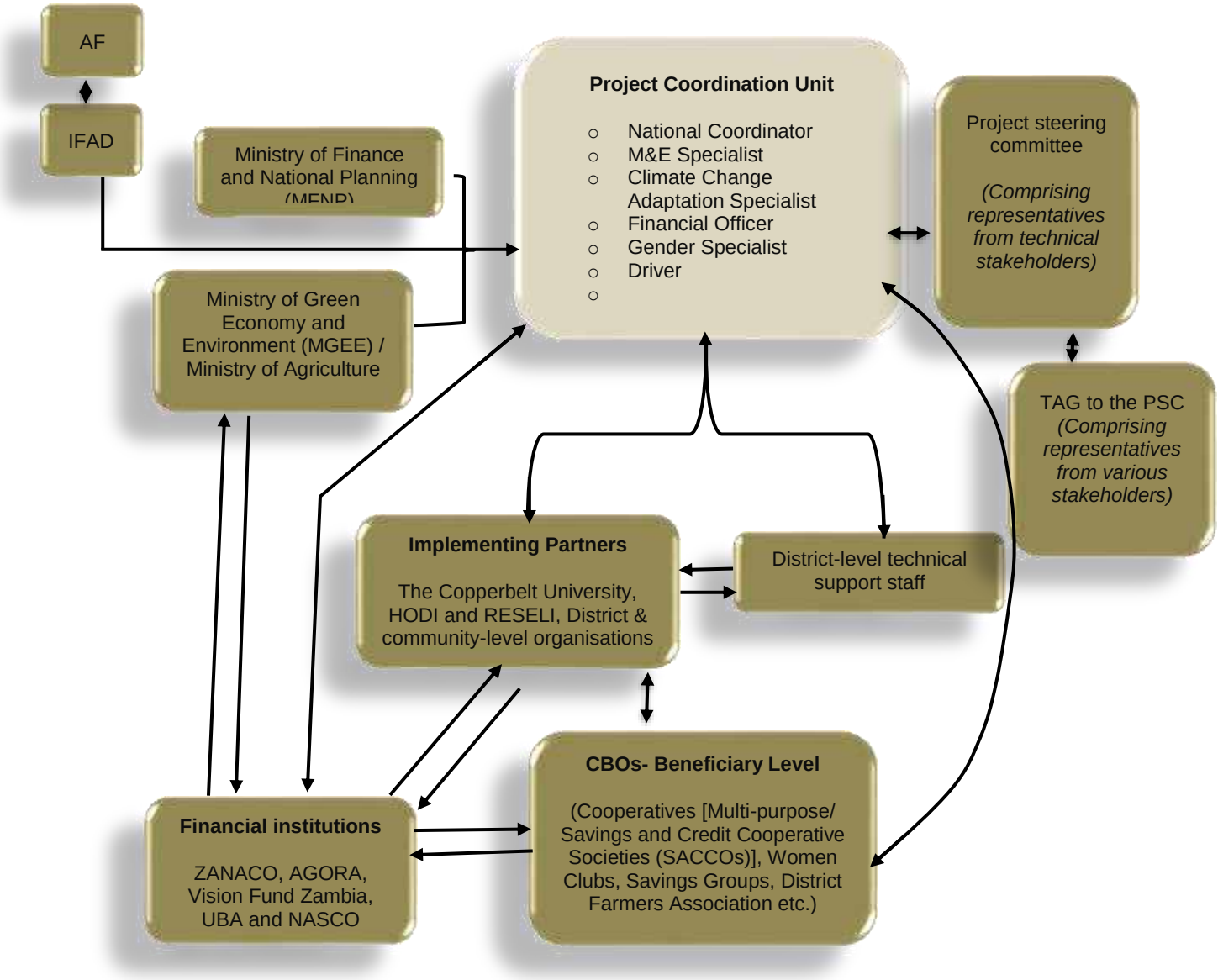

Fig. 12 showing the implementation structure of CALRF

211. 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.

212. 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).

213. Based on the project implementation arrangement, the table below summarises the description of the roles of key executing entities that have been part of the consultations that have informed the development of the project, but also who will be involved in the implementation of project activities.

Entity	Role	Priority component
Ministry of Green Economy and Environment (MGEE)	No direct execution role in project activities, however closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with government environment and natural resources policy priorities. MGEE will be represented on the PSC and will chair the TAG.	All the three components
Ministry of Agriculture	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with government agriculture policy and development priorities in the country – agriculture as an engine of rural development in Zambia. MoA will be represented on the PSC and the TAG.	All the three components
Ministry of Finance and National Planning (MFNP)	No direct execution role in project activities, however will anchor the project and will closely offer technical and policy directions with regards to government fiduciary obligations to development partners but also tracking climate finance, particularly funding adaptation activities in the country to key priority areas as identified in Zambia's updated NDC and the on-going NAP process. MoFNP will chair the PSC and will be represented on the TAG.	All the three components
The Copperbelt University	The university will lead the development of the fisheries aspects of the project to diversify livelihoods but also to strengthen community capacity to adapt to the impacts of climate change and human overexploitation of the resource in the target district. The University's principal role will be to develop fish value chains in the priority districts from cradle to the grave -including understanding the impacts of climate change and human pressure on fresh water fish resources in the target districts – which has not been done to inform more adaptive responses to the loss of fresh water fish resources among fishing communities. CBU will be represented on TAG.	Component 1
HODI and ReSEI	HODI and RESELI will support communities in horticultural activities to develop important value chains fruit tree value chain, including capacity development, technology transfer and linking community fruit enterprises to initiatives such as Forest Africa Zambia[82] that are producing fruit juices. HODI and ReSEI will be represented on TAG.	Component 1
District-level Local Councils	The Local Councils will support supervision of project activities, and will be particularly crucial in the sustainability of project-supported pieces of infrastructure and installation by providing capacity development and maintenance of infrastructure – relying on the Local Councils' responsibility for a range of infrastructure and services, including policing; water and sanitation; fire services; roads; and agricultural support services. Therefore, their role will be during implementation and after the project closure, recognizing that CARLF's supported infrastructure and installations are government property though rural development and enhancing community capacity to adapt to the impacts of climate change.	All the three components
Private Financial Services Providers selected using a competitive process	These institutions will be important as sources of financial resources to finance adaptation activities and will work closely with Savings and Credit Cooperative Societies (SACCOs) that are more present in rural communities. These stakeholders will be represented on the TAG by AMIZ and BAZ.	Component 2
Cooperatives [Multi-purpose/ Savings and Credit Cooperative Societies (SACCOs)	This category of partners have financial pieces of infrastructure at local levels where most conventional commercial banks do not find it economically profitable to be. Therefore, SACCOs, as service providers in this project will bring closer to the communities and user-groups and cooperatives financial resources that beneficiaries need to build socioeconomic livelihood portfolios to enhance their ability to cope with the impacts of climate change. They will be conduits of financial resources from financial institutions. These stakeholders will be	Component 2

[82] Forest Africa Zambia is an agro-processing company that produces juices from wild fruits and looking at expanding their production, including product diversification. The link to Forest Africa Zambia and other players in the market will break some important barriers that rural communities face in adding value to wild fruits which usually simply rot. HODI and RESELI are the key that communities need to open doors to various socioeconomic opportunities from fruit tree production.

Entity	Role	Priority component
	represented by NASCU and SaveNet.	
Zambia Agricultural Research Institute (ZARI) and Seed companies	The role of these entities will be in the production and making available to beneficiaries 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.	Component 1
Ministry of Fisheries and Livestock	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with government fisheries and livestock policy and development priorities in the country – fisheries and livestock as an engine of rural development in Zambia. MoFL will be represented on the PSC and the TAG.	
Ministry of Small and Medium Enterprises	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with government MSME policy and development priorities in the country – micro, small and medium enterprises being an engine of rural development in Zambia. MSME will be represented on the PSC and the TAG.	
Zambia Alliance of Women (ZAW) and Zambian Women in Agriculture (ZWA),	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with women development initiatives. ZAW and ZWA will be represented on TAG	
Youth Development Organization	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with youth development initiatives. They will be represented on the TAG.	
Zambia Agency for Persons with Disabilities (ZAPWD) and The Zambia Federation of Disability Organisations (ZFDO)	No direct execution role in project activities, however will closely offer technical and policy directions so that the implementation of the activities remain compliant and consistent with persons with disabilities development initiatives. ZAPWD and ZFDO will be represented on TAG	

214. To ensure more effective implementation of project activities at beneficiary level, the PMU 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 PMU. While the PMUCU, PSC and TAG 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.

215. 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.

216. 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 majeur 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.

217. 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.

218. The PMU 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. This will be monitored through project progress reports.
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. This will be monitored through project progress reports and technical visits to the project sites.
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. This will be monitored through project progress reports and technical visits to the project sites.
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. This will be monitored through project progress reports and technical visits to the project sites.
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. This will be monitored through project progress reports and technical visits to the project sites.
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. This will be monitored through reports and technical visits to the project sites.

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. This will be monitored through reports.
Financial service providers do not cooperate and decide to withdraw their commitment to the project	Low	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.
Occurrence of extreme weather events (floods and droughts)	High	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.

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.

219. 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.

220. 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.

221. 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

222. 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 Management Unit (PMU).

223. 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.

224. The overall responsibility for project monitoring, evaluation and reporting will rest with IFAD in liaison with the CALRF PMU. 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.

225. 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.

226. 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.

227. 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 PMU; (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 PMU. The PMU 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 PMCU 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

M&E Activity	**Responsibility**	**Timeframe**	**AF budget**
Inception workshop and report	IFAD, PMU	Start of project	15,000
Project meetings including PSC	PMU	Annually	18,000
Measurement of Means of verification and Project Purpose Indicators	PMU	Start, mid and end of project	9,000
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)	PMU, IFAD	Semi-annually	10,000
Semi-Annual Progress Report	PMU	Semi-annually	-
Supervision missions	IFAD	Annually	Covered by IE fee
Mid-Term Evaluation	PMU	Mid-point	25,000
Annual Work Plans and Budget	PMU, IFAD	Annually	-
Site visits	PMU, IFAD	Annually	8,000
Terminal Evaluation	IFAD, External consultants	End of project	35,000
		Total	**120,000**

E. 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[83] 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.	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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) 21,500 smallholder farmers		
	Number of communities with increased adaptive capacity to climate change-driven hazards affecting their specific locations.	0	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:				• Project M & E	○ Community engagement is

[83] 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	• Number of people benefiting directly from equitable, diversified and sustainable livelihood options	0	43,400 direct beneficiaries	reports • Field technical visits • Progress reports • Mid-term evaluation; and • Final project evaluations	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 & and other producer groups) own adaptation processes associated with climate change.	• 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	• Project M & E reports • Field technical visits • Progress reports • Mid-term evaluation; and • Final project evaluations	○ 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 smallholder farmers trained in climate smart agriculture in selected value chains (promote climate resilient varieties, soil management, water use efficiency etc.)	0	1,500		
	• 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		
	• Number of individual and farmer groups trained in entrepreneurship and market literacy, group business management, group governance, and advocacy	0	1,500 individuals 45 farmer groups		
	Number of hectares under off-season production systems using irrigation–rainwater harvesting systems - agro-forestry – linked to nurseries at community level	0	1,000 ha		○ 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
	Number of hectares under climate smart agriculture focusing on climate resilient seed crop varieties and pasture production adaptable to the ecoregions of	0	1,000 ha		

Project Objective(s)[1]	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
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.).	the 15 districts.			• Project M & E reports • Field technical visits • Progress reports • Mid-term evaluation; and • Final project evaluations	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 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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 hectares under adopted sustainable agricultural practices (including procuring more productive and drought-tolerant seeds) aquaculture; crop diversification Number of beneficiaries	0	1,500 ha 1,000 beneficiaries (50% female-headed)		
	Number of detailed selected value chains studies conducted	0	4 (Mango, Fisheries, agro-forestry, 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 outbreaks (crop husbandry services in general and aquaculture).	0	150		
Output 1.1.4 Crop and animal marketing services and infrastructure supported and strengthened in response to climate	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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and	○ 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

Project Objective(s)[1]	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
variability and change -associated extreme weather events and impacts			services	final project evaluations	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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 financial products/services, and innovations relevant to climate-sensitive priority socio-economic sectors identified and supported to increase their community-level financing towards	Number of measures integrated in community-level business models and financial products after conducting financial value chain analysis and risk assessment	0	4		
	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	• Project M & E reports • Field technical visits • Progress reports	○ 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
	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	0	15		

Project Objective(s)[1]	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
	of the livestock weather index insurance			• Mid-term and final project evaluations	continue ○ Extreme weather events such as floods and droughts don't disrupt project activities, including causing migration of beneficiaries
	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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 people benefiting from enhanced access to market systems and partnerships (production alliance model) that facilitate for climate resilient agricultural value	0	3,000		
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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 (50% being female-headed)		

Project Objective(s)[1]	Project Objective Indicator(s)	Baseline	Target	Means of Verification	Risks and Assumptions
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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 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		
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)	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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	• 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	• Project M & E reports • Field technical visits • Progress reports • Mid-term and final project evaluations	○ 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 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		
	• Number of climate change risks awareness-raising campaigns conducted	0	30		
	• Number of crop and livestock production and environmental data hub in target provinces established	0	1		
	• Number of tools developed for knowledge generation, management and dissemination mechanisms	0	6		

F. 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				
1.1:Promoted and diversified livelihood	• Number of people participating in the: i) fish value chain; and ii) fruit tree value chain	Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	Type of income sources for households generated under climate change scenario	

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	• Number of critical crossing points repaired to facilitate market linkages between producer groups and buyers.	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	5,839,400
	• Number of people benefiting directly from equitable, diversified and sustainable livelihood options	Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	Type of income sources for households generated under climate change scenario	
	• Number of needs assessments conducted to support the selection of farmer groups and households (ensuring participation of women, youth and other vulnerable community members)	Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning.	No. of technical committees/associations formed to ensure transfer of knowledge	
	• Number of hectares under land rehabilitation and restoration using mixed approaches including assisted natural regeneration, agroforestry practices, fruit plants and fodder seeds.	Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	
	• Number of hectares under off-season production systems using irrigation–rainwater harvesting systems - agro-forestry – linked to nurseries at community level.	Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	
	• 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.	Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	
	• Number of established individual and community-level livelihood strategies for the vulnerable members in the target districts.	Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	
	• Number of crop and animal marketing services and infrastructure supported and strengthened in the vulnerable targeted districts	Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, 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.	• 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
	• 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	
	• 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		
	• 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	
	• Number of strategies developed at district and community-levels in target provinces to incorporate climate change priorities and support capacities for enforcement.	Improved integration of climate-resilience strategies into country development plans	No. of targeted development strategies with incorporated climate change priorities enforced	

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	• 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
	• 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	
	• 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	
	• 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	
	• Number of tools developed for knowledge generation, management and dissemination mechanisms			

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 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

Activity	Budget Notes	Annual AF Grant
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 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	Budget Notes	Annual AF Grant
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 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	Budget Notes	Annual AF Grant
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)		418,590
Project vehicle		57,000
Office operational costs, including computers, furniture		47,000
All staff travel expenses		66,000
Inception Workshop, mid-term and terminal evaluations (M&E)		120,000
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**

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 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: 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: 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
	680,000	50,000	300,000	300,000	30,000		680,000

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
Activity 1.3.3 Identify and prioritize to repair 5 critical crossing points to facilitate market linkages between producer groups and buyers.							
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 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 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

Activity	Cost (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Annual Total
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
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**

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	417,102	8,342,002
Project execution costs	87,459	306,107	306,107	131,189	43,728	874,590
Implementing Entity Fee $	78,341	274,193	274,193	117,511	39,170	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 policy support	IFAD, PCU	23,000	Annually
Portfolio management	IFAD, PCU	120,000	Biannually
Oversight	IFAD, PCU	112,000	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 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 government[2]

Mr Francis Mpampi, National Coordinator-National Designated Authority for GCF and AF Ministry of Green Economy and Environment	Date*: 10 January 2022*

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, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Implementing Entity Coordinator

Mr Juan Carlos Mendoza Casadiegos

Director,
Environment, Climate, Gender and Social Inclusion Division
International Fund for Agricultural Development

Date: 18 August 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

All communication should be addressed to the Permanent Secretary
Telephone (260 211) 252388
(260 211) 252394
(260 211) 253591

NDA/71/21/9

REPUBLIC OF ZAMBIA

MINISTRY OF GREEN ECONOMY AND ENVIRONMENT

OFFICE OF THE PERMANENT SECRETARY
CORNER OF JOHN MBITA & NATIONALIST ROADS
P.O. BOX 30147
LUSAKA, ZAMBIA

10th January, 2022

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

ENDORSEMENT FOR THE CONCEPT NOTE TITLED: CLIMATE CHANGE ADAPTATION THROUGH RURAL FINANCE

In my capacity as National Focal Point person for the Adaptation Fund in Zambia, I confirm that the above national project proposal is in accordance with our national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Zambia. The project advances the role in climate proofing the vulnerable communities in the rural and remote areas. I am aware that the project will 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.

Accordingly, I am pleased to endorse the above concept note for submission to the Adaptation Fund. I am aware that if approved, the project will be implemented by International Fund for Agricultural Development (IFAD) and executed by Ministry of Green Economy and Environment.

Please accept the assurances of my highest consideration

Sincerely,

Francis Mpampi
National Coordinator – National Designated Authority for the GCF & AF
MINISTRY OF GREEN ECONOMY AND ENVIRONMENT

Annex 2: Gender analysis for CARLF Project

1. **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. This assessment presents a gender context within which CARLF will be implemented. The assessment draws the attention to differentiated impacts of climate change due to the gender divide – largely attributed to socio-cultural and traditional practices that ascribe roles and statuses to women that consequently keep them away from strategic decision-making processes and access to socioeconomic opportunities that would put them at the same level of resilience as men. The implementation of the project will therefore, remain deliberate about ensuring equal and equitable representation of men and women in decision-making processes, implementation of activities and monitoring of project outcomes – in sum, the assessment strengthens the call for women participation as equal players in the management of natural resources but also beneficiaries of both monetized and non-monetized benefits from project activities. Finally, in the conclusion, the assessment includes a set of gender integration levels and approaches that are consistent with the AF gender policy guidelines.

Methodology:

2. 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:

3. 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.

4. 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.[84] It must also be noted that Zambia's GII

[84] 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

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.

General gender context and challenges in Zambia

5. In Zambia, like many other countries, gender challenges persist despite efforts towards equality and empowerment. Women and girls face numerous specific challenges that hinder their social, economic, and political progress. The status of women in Zambia is very low and this makes them to be more vulnerable to poverty as well as social and cultural disadvantages compounded by gender imbalances. Available information indicates that gender-based disparities persist in favour of males in education, decision-making, health, agriculture and many others areas. The social economic situation in Zambia has been worsening due to failing industries, rising unemployment levels, which are a result of the structural adjustment programmes. The Zambian government recognizes the gender imbalances in social, economic, cultural and political spheres that have prevented females from contributing effectively and benefiting from the development process.[85] Here are some of the key gender challenges in Zambia:

6. *Gender-Based Violence (GBV):* Zambia experiences high levels of GBV, including domestic violence, sexual assault, and harmful cultural practices such as child marriage and female genital mutilation. These forms of violence undermine women's physical and psychological well-being, limit their opportunities, and perpetuate gender inequality. GBV also takes the form of physical, mental, social or economic abuse against a person because of that person's gender and includes violence that may result in physical, sexual or psychological harm and suffering to the victim.[86]

7. *Limited Access to Education*: Gender disparities in education persist in Zambia, with girls facing barriers such as poverty, early marriage, teenage pregnancy, and cultural norms that prioritize boys' education. This limits their potential and perpetuates gender inequality in employment and decision-making.

8. *Economic Empowerment*: Women in Zambia face limited access to economic opportunities and resources, including land ownership, credit, and entrepreneurship support. They often work in the informal sector, earning less than men and facing challenges in accessing markets, financial services, and business networks.

9. *Political Underrepresentation*: Women are significantly underrepresented in political leadership and decision-making positions in Zambia. While progress has been made with increased female

[85] JICA. (n.d). Country Gender Profile: Zambia
[86] UN Africa Renewal. (n.d). Fighting gender-based violence as fresh cases continue to emerge: Zambia

representation in parliament, women still face barriers such as gender stereotypes, cultural biases, and limited access to resources for political campaigns.

10. *Health and Reproductive Rights*: Women in Zambia encounter challenges in accessing quality healthcare services, particularly related to sexual and reproductive health. High maternal mortality rates, limited access to contraceptives, and inadequate sexual education contribute to women's vulnerability and perpetuate gender inequalities.

11. *Cultural and Social Norms*: Traditional gender roles and norms reinforce inequality in Zambia. Women are often burdened with multiple responsibilities, including household chores, caregiving, and income generation, limiting their opportunities for personal development and decision-making power.

12. Addressing these gender challenges requires deliberate efforts meant to support a transition towards equal but also equitable representation of women and men in decision-making processes, socioeconomic empowerment programs. It should be noted that efforts to address gender imbalances in Zambia will not only benefit women and girls but also contribute to the overall social and economic development of the country.

Dual Structure of Statutory Law and Customary Law

13. 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 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.

14. 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.

15. Some ethnic groups have maintained the custom of the sexual cleansing[87] 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

[87] 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

discrimination and the current efforts of the government to revise the Constitution is an important step

Access and ownership of Assets –Land

16. 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, 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.

17. 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

18. **Access to education** The Gender Inequality Index estimates that, between 2010 and 2017, only 39.2 per cent of women aged 25 and older had at least some secondary education, compared with 52.4 per cent 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

rates[88]. 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.

19. **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 country[89]. 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, pregnancy complications occur, and poor access to emergency obstetric care services[90]. Furthermore, mothers' level of 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

20. 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.

21. ***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.

22. ***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

[88] World Bank. 2016. *Gender Data Portal*. Gender Indicators Report for Zambia

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

[90] Ministry of National Development Planning (Zambia). 2017. *Seventh National Development Plan*; Ministry of Health (Zambia). 2017. *National Health Strategic Plan.*

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

23. ***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 shocks in Zambia[91]. 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.

24. ***Unpaid family labour*:** According to the Labour Force Survey data (constructed from Central Statistics 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).

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

26.	27. Paid employees	29. Apprentices/ interns	31. Employers	33. Self-employed	35. Unpaid family workers	37. 38. Total

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

	28. Per cent	30. Per cent	32. Per cent	34. Per cent	36. Per cent	
39. Men	40. 7.3	41. 0.1	42. 0.1	43. 70.0	44. 22.5	45. 100
46. Women	47. 1.8	48. 0.0	49. 0.0	50. 38.8	51. 59.3	52. 100

Source: CSO: Labour Force Survey data 2012

53. 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.

54. ***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 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 FAO[92], 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.

55. ***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 per cent. 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.

56. Table 2: Average harvest per hectare (kgs)[93]

57.	**58. Male-headed hhs**		**59. Female headed hhs**	
	60. Mean	**61. Median**	**62. Mean**	**63. Median**

[92] Farmer Input Support Response Initiative (FISRI 2013)
[93] CSO post-harvest survey raw data 2012

64. Maize	65. 2 053	66. 1 035	67. 1 058	68. 575
69. Groundnuts	70. 172	71. 96	72. 114	73. 75
74. Sorghum	75. 264	76. 166	77. 181	78. 132
79. Millet	80. 272	81. 185	82. 217	83. 154
84. Rice	85. 624	86. 364	87. 328	88. 202
89. Sunflower	90. 206	91. 139	92. 132	93. 139
94. Soya beans	95. 360	96. 196	97. 306	98. 163
99. Mixed beans	100.185	101.108	102.128	103.54
104. Bambara nuts	105.136	106.60	107.81	108.69
109. Cowpeas	110.249	111.45	112.96	113.45

114. 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 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.

115. ***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.

116. ***Agricultural marketing*****: W**omen 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.

117. ***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

118. 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. In Zambia's smallholder agricultural sector, gender-specific climate change impacts and distinct adaptive capacities are evident among different

gender groups and sub-groups. Women, who constitute a significant portion of smallholder farmers, face challenges as changing rainfall patterns and increased temperatures impact crop yields and livelihoods[94]. Female-headed households in the smallholder sector may encounter compounded vulnerabilities, affecting their food security and income[95]. Indigenous and ethnic minority women smallholders, often custodians of traditional farming practices, confront disruptions in local ecosystems that affect their agricultural knowledge and practices[96]. Limited access to resources, including land and credit, constrains women's adaptive capabilities in the smallholder sector [97].

119. 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. In compliance with the Adaptation Fund's Gender Policy, it is essential to implement gender-responsive approaches that consider the differentiated impacts and capacities of various gender groups. This involves integrating gender analysis into climate vulnerability assessments, designing gender-sensitive adaptation strategies, ensuring equal access to resources and information, and promoting women's leadership and participation in adaptation planning and implementation. By recognizing and addressing these differentiated impacts and capabilities, climate adaptation efforts can be more effective, equitable, and sustainable

Institutional and Policy framework

120. 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.

[94] FAO. (2020). Zambia - Gender and climate change profile. Food and Agriculture Organization of the United Nations.
[95] World Bank. (2019). Zambia Country Gender Assessment: Economic Empowerment and Human Capital. The World Bank Group.
[96] Phiri, A., Musonda, M., & Hassan, R. M. (2019). Indigenous knowledge systems and climate change adaptation strategies in rural Zambia. African Journal of Science, Technology, Innovation and Development, 11(4), 441-451.
[97] Rosenstock, T. S., Lamanna, C., Chesterman, S., Hammond Jimu, L., Krawinkel, M., & Lefore, N. (2017). What is the potential of agricultural innovations to enhance the resilience of smallholder farmers in developing countries? A systematic review. Environmental Evidence, 6(1), 2.

121. **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.[6]The 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

122. **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 levels[98]. Zambia is also regionally and internationally mandated to incorporate consideration of women into environmental planning, and to include them in decision-making processes.

123. **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.

[98] Government of Zambia. 2016. Climate Change Gender Action Plan of the Republic of Zambia ccGAP:ZM

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 (2013)	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 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

124. The analysis summarized below presents the situation of marginalization 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.

125. Therefore, the implementation of activities will acknowledge that Zambia has norms and cultural norms that based on gender, and these influence the interactions and reactions to climate threats and opportunities in communities. Specifically, as has already been alluded to, the implementation of project activities will consider the fact climate change impacts community members differently because of existing gender inequalities, gender discrimination, social exclusion, asymmetrical access to information, skewed access to strategic decision-making spaces and systemic power imbalances.

The implementation of activities will therefore offer practical measures to ensure gender inclusion on a continuum – and consistent with the AF Gender Policy, CARLF will reflect:

- *Gender awareness*: CARLF has engaged different stakeholders who have included women, men, young and old, including the differently abled. By this openness to engaging different stakeholders, the projects acknowledges and recognises differences in socially assigned gender roles, rights, entitlements, responsibilities and obligations while accommodating and working around existing gender norms. That community members can participant in the project, irrespective of their gender, CALRF raises awareness about deliberate efforts about different gender roles, rights etc.

- *Gender balance*: CARLF has been designed to respond to different socio-cultural contexts in the target areas to ensure gender balance – that is, an equal representation of both women and men in decision-making structures and among staff in the different levels of organizational structures.

- *Gender equality*: The project will be deliberate about efforts to ensure equality between men and women as beneficiaries of project activities – premised on the acknowledgement that girls and boys, but also women and men should have the same responsibility to take care of natural resources, but also the same right to access and to use the resources, CARLF will be implemented with equal consideration of their respective interests, needs and priorities of men and women, boys and girls. By deliberately involving men and women to work together in building individual and community capacities, CARLF will provide an opportunity for men and boys to fully engage in promoting gender equality and in changing gender roles that keep women subservient.

- *Gender equity*: As has been described in this gender assessment in Zambia, CALRF recognizes the need for differential treatment of women to contribute to the undoing of biases or historical or social disadvantage or power imbalance against women due to the fact of being a women or a man. In this regard, CALRF will aim to be fair and just taking into account the different needs of women and girls, men and boys, cultural barriers and (past) discriminations against women.

- *Gender gap*: By recognizing the need for gender equality and equity, CARLF acknowledges that there are conditions of disparity and inequality between women and men's condition or position or role in Zambia, including in the target provinces. The gender gap in is terms of their participation, their access to opportunities, rights, power to influence and make decision, incomes and benefits, and control and use of resources. By engaging both men and women, CALRF has been designed to contribute to closing this gender gap.

- *Gender mainstreaming*: As detailed above under gender gap, gender equality and equity, and gender balance, CARLF will be implemented to promote gender equality. The implementation of project activities will duly assess the implications for women

and girls, men and boys of any planned action, including legislation, policies or programmes. Irrespective of gender, CARLF will continue to make the experiences and concerns of all people an integral part of the design, implementation, monitoring and evaluation of project activities so that different gender groups benefit equally, and inequality is not perpetuated. CALRF notes that the ultimate goal of mainstreaming is to achieve gender equality. In the project's gender mainstreaming effort, the project will be responsive to remain alert to gender norms, roles and relations – including contributing to addressing inequality generated by unequal norms, roles and relations through changes within a given social setting through remedial action in the target districts. In this regard, CALRF will be sensitive and consider gender norms, roles and relations by unequal norms, roles or relations and help through remedial action beyond creating gender awareness, as mentioned above.

- *Gender transformative*: It should be noted that CARLF's interventions are for the direct benefits of communities in the target districts. In the design of the project, the results framework includes gender responsive indicators to hold the project itself accountable in its contribution to transforming gender. The project will actively strive to examine, question, and change rigid social and gender norms, cultural values and to address power inequalities between persons of different genders and the root causes of gender inequality and discrimination. The goal of this approach is to transform adverse gender norms and power dynamics into positive ones, thus accelerating achievement of gender equality.

- *Women's empowerment*: CALRF will use processes by which women gain power and control over their own lives and acquire the ability to make strategic choices through an expansion of agency throughout women's lives, especially via participation and decision-making. Thus, supporting different activities, for example, CALRF's support will increase: i) women's awareness and sense of self-worth and rights; ii) women's right to have and determine choices; iii) women's right to have access to opportunities and resources; iv) women's right to have power to control their own lives both within and outside the home; and v) women's ability to influence the direction of social, political and economic change to create a more just social, political and economic order, nationally and internationally.

126. It should be reminded that CARLF's will be deliberate about gender inclusion in light of the aforementioned gender integration levels and approaches. The project will track the gender aspects of the project through the following elements which have also their targets in the results framework:

    - Number of beneficiaries (direct and indirect).

    - Number of hectares under adopted sustainable agricultural practices (including procuring more productive and drought-tolerant seeds) aquaculture; crop diversification.

    - 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.

    - Number of people directly reached out during awareness-raising for evidence-based resilience and adaptive capacity building

Recommendations

127. 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 with 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. 1.1.2 Develop gender-sensitive training programs on sustainable agriculture 1.1.3 Develop and adopt the CARLF Gender Strategy	1.1.1.1 Training needs assessment of women identified (baseline: N/A) 1.1.1.2 At least 50% women and girls trained in skills on sustainable agriculture (baseline: 0) 1.1.1.3 The CALRF Gender Strategy developed (baseline: 0)	PMU gender specialist,	Q4 2023–Q4 2025 Q3 2023 - VQ4 2024
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	2.2.3.1 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[99]	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 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	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	PMU gender Specialist and the Gender TA	Q4 2023Q1 2024 Q3 2024

[99] These measures would include time-saving technologies

	leadership and negotiation skills to make informed decisions during the community planning process.	protecting women against harassment (baseline: 0)[100] 3.1.4.1. Increase number of women in leadership positions to at least 20% (baseline: 0)		

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

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[100] 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

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 APPLICABLE POLICIES AND LEGAL INSTRUMENTS

This section covers a review of the Legal Framework of Zambia, Adaptation Fund and IFAD which the project has to honour during its implementation. It includes a summary of the reviewed laws, and regulations relevant to environmental and social management in Zambia. The Project has to be in full compliance with all applicable domestic and international laws. Recognising these laws will ensure that the project enhances the achievement of the environmental assessment policy goals which include. The Relevant local Zambian policies and laws are tabulated in table 3-1 below:

Table 3-1 Relevant Zambian Policies and Legal Instruments

No.	LEGAL INSTRUMENTS
1.0	**RELEVANT ZAMBIAN STRATEGIES, POLICIES AND PLANS**
1.1	Zambia National Agricultural Policy 2012-2030
1.2	Zambia's Second National Biodiversity Strategy and Action Plan (NBSAP - 2). 2015
1.3	National Solid Waste Management for Zambia (September 2004)
1.4	Zambia National Policy on Climate Change 2016.
2.0	**RELEVANT ZAMBIAN LEGISLATION**
2.1	Zambia's Environmental Management Act - 2011
2.2	Zambia's National Public Health Act No.19 of 2020
2.3	Zambia's Employment Act,2019
2.4	Zambia's Water act
2.5	Zambia's Lands Act, 1995
2.6	Zambia's Local Government Acts,2019
2.7	Zambia's Act of Gender equality and equality (Act No.22 of 2015)
2.8	Environmental Protection and Pollution Control 1990
2.9	Forest Act No. of 1973
2.10	Zambia Wildlife Act No. 12 of 1998
2.11	Fisheries Act of 2011
2.12	National Heritage and Conservation Act of 1989
3.0	**RELEVANT TREATIES TO WHICH ZAMBIA IS PARTY TO**
3.1	United Nations Convention to combat Desertification in those countries experiencing serious Drought and/or Desertification, particularly in Africa, 1994
3.2	Convention on Biological Diversity (1992)
3.3	United Nations Framework convention on Climate Change (UNFCC) (1992)
3.4	Stockholm Convention on Persistent Organic Pollutants
3.5	UN Watercourses Convention 1997
3.6	The convention on wetlands of significant importance.
3.7	The convention on conservation of migratory species of wild animals.
3.8	The convention concerning the protection of world and natural heritage.
3.9	The convention on desertification and drought.
3.10	African convention on conservation of nature and natural resources
3.11	Stockholm Convention on Persistent Organic Pollutants

3.4 PROJECT CATEGORISATION.

The CALRF activities from the revolving funds will fall under Category A for the ZEMA and under the moderate classification for IFAD's SECAP and Category C for the Adaptation Fund categories, due to the small size and location of investments in non-sensitive geographic areas.

3.4.1 ZEMA Classification

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.

3.4.2 Adaptation Fund Classification

The policy requires that all projects/programmes be categorized according to their potential environmental and social impacts.

- **Category A: -** Projects/ programmes likely to have significant adverse environmental or social impacts that are for example diverse, widespread, and irreversible should be categorized as Category A.
- **Category B: -** Projects/programmes with potential adverse impacts that are less adverse than Category A projects/programmes, because for example they are fewer in number, smaller in scale, less widespread, reversible or easily mitigated should be categorized as Category B.
- **Category C: -** Those projects/programmes with no adverse environmental or social impacts should be categorized as Category C.

3.4.3 IFAD Classification

IFAD's environmental and social categorization of projects/programmes comprises the following categories: (See SECAP 2021 version for Details)

- **High Risk:-** The programme/project may have most or all of the following significant adverse environmental and/or social characteristics:
  (i) Result in sensitive, irreversible or unprecedented significant risks and impacts (for example, resulting in loss of major natural habitat or conversion of wetlands),
  (ii) Result in risks and impacts that are significant in magnitude and/or spatial extent (large geographical area or size of the population likely to be affected),
  (iii) Have significant risks and impacts that affect an area much broader than the sites or facilities subject to physical interventions,
  (iv) Result in significant adverse cumulative or transboundary impacts,
  (v) High probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal),
  (vi) Risks and potential impacts are not readily remedied by preventive actions or mitigation measures.

- **Substantial Risk:-** A project should be classified as Substantial Risk when it is not as complex as a High-Risk project and its environmental and social scale is not in such a sensitive area but may pose significant risks and impacts if not adequately managed. These potential risks and impacts have most or all of the following characteristics:
  (i) They are mostly temporary, predictable or reversible, and the nature of the project makes it possible to entirely avoid or reverse them,
  (ii) There are concerns that the project's adverse social impacts and associated mitigation measures may give rise to a limited degree of social conflict, harm or impacts on human security,
  (iii) The geographical area and size of the population likely to be affected are medium to large,
  (iv) There is some potential for cumulative or transboundary impacts, but they would be less severe and more readily avoided or mitigated than in a High-Risk project,
  (v) There is medium to low probability of serious adverse effects to human health or the environment (e.g., due to accidents, toxic waste disposal), and there are known and reliable mechanisms to prevent or minimize such incidents,
  (vi) The project's effects on areas of high value or sensitivity are expected to be lower than for High-Risk projects,
  (vii) Mitigation or compensation measures may be designed more easily and be more reliable than those of High-Risk projects.

  While no formal ESIA is required for Substantial Risk programmes/projects, in many cases further environmental analysis could be undertaken during project preparation or implementation.

- **Moderate Risk: -** A project should be classified as Moderate Risk when potential adverse risks and impacts on human populations or the environment are not likely to be significant. This may be because the project is not complex or large, does not involve activities with high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. The potential risks and impacts are:
  (i) Predictable and expected to be temporary or reversible,
  (ii) Low in magnitude,
  (iii) Site-specific, without the likelihood of impacts beyond the project life cycle,
  (iv) Low probability of serious adverse effects to human health or the environment (e.g., they do not involve the use or disposal of toxic materials, or routine safety precautions are expected to be sufficient to prevent accidents),
  (v) The project's risks and impacts can be easily mitigated in a predictable manner.

- **Low Risk: -** A project should be classified as Low Risk if it will have negligible or no environmental or social implications. Examples include:
  (i) Technical assistance grants for agricultural research and training,
  (ii) Research,
  (iii) Extensions,
  (iv) Health,
  (v) Nutrition,
  (vi) Education and
  (vii) Capacity- and institution building.

3.4.4 Comparison of Classification systems

The three classification systems are compared in table 3-2 below:

Table 3-2 Comparison of South Sudan and IFAD Classification

NO.	ZAMBIAN CLASSIFICATION	IFAD CLASSIFICATION	ADAPTATION FUND
	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.	**High Risk Category:** A proposed project is classified as High-Risk Category, if it is likely to have significant adverse environmental and social impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works and may be cumulative and transboundary in nature. The risks and potential impacts are not readily remedied by preventive actions or mitigation measures. Substantial Risk Category: A proposed project is classified as Substantial Risk Category, if its potential adverse environmental and social impacts on human populations or environmentally important areas – including wetlands, forests, grasslands and other natural habitats – are less adverse than those of High-Risk category projects. its environmental and social scale is not in such a sensitive area but may pose significant risks and impacts if not adequately managed. These impacts are site – specific, mostly temporary, predictable, few if any of them are	**Category A**:- Projects/ programmes which are likely to have significant adverse environmental or social impacts that are for example diverse, widespread, and irreversible.

NO.	ZAMBIAN CLASSIFICATION	IFAD CLASSIFICATION	ADAPTATION FUND
		irreversible. They affect medium to large geographical areas and in most cases mitigatory measures can be designed more readily than for High-Risk category projects. There is some potential for cumulative or transboundary impacts, but they would be less severe and more readily avoided or mitigated than in a High-Risk project	
	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. .	**Moderate Risk Category:** A project should be classified as Moderate Risk when potential adverse risks and impacts on human populations or the environment are not likely to be significant. This may be because the project is not complex or large, does not involve activities with high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. The potential risks and impacts are predictable and expected to be temporary or reversible, Site-specific, without the likelihood of impacts beyond the project life cycle. The project's risks and impacts can be easily mitigated in a predictable manner.	**Category B:**-Projects/programmes with potential adverse impacts that are less adverse than Category A projects/programmes, because for example they are fewer in number, smaller in scale, less widespread, reversible or easily mitigated.
	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.	**Low Risk Category:** A proposed project is classified as Low Risk Category, if it is likely to have minimal or no adverse environmental and social impacts.	**Category C:-** Those projects or programmes with no adverse environmental or social impacts.

3.5 THE SCREENING PROCESS.

All projects/sub-projects must be screened to determine the extent to which they present environmental or social risks, including all risks associated with the Adaptation Fund's environmental and social principles.

The screening will lead to the thorough assessment of all the environmental and social impacts of such projects/programmes; identifying measures for avoiding, reducing or mitigating all environmental and social impacts; and monitoring and reporting of the implementation of such measures.

The project/sub-projects will be subjected to a rigorous environmental and social screening process (Figure 3-1). The screening is based on the categorization of the project, which is overall a "Moderate". The first stage of the screening is a desk appraisal of the activities planned, including designs. It will be carried out using the Environmental and Social Screening Form (Section 9).

Completion of the screening form will facilitate the identification of potential environmental and

social impacts, determination of their significance, assignment of the appropriate environmental and social category, proposal of appropriate environmental and social mitigation measures, and conducting of any further environmental and social work, if necessary. The Environmental and Social Screening Process is outlined in Figure 3-1 below.

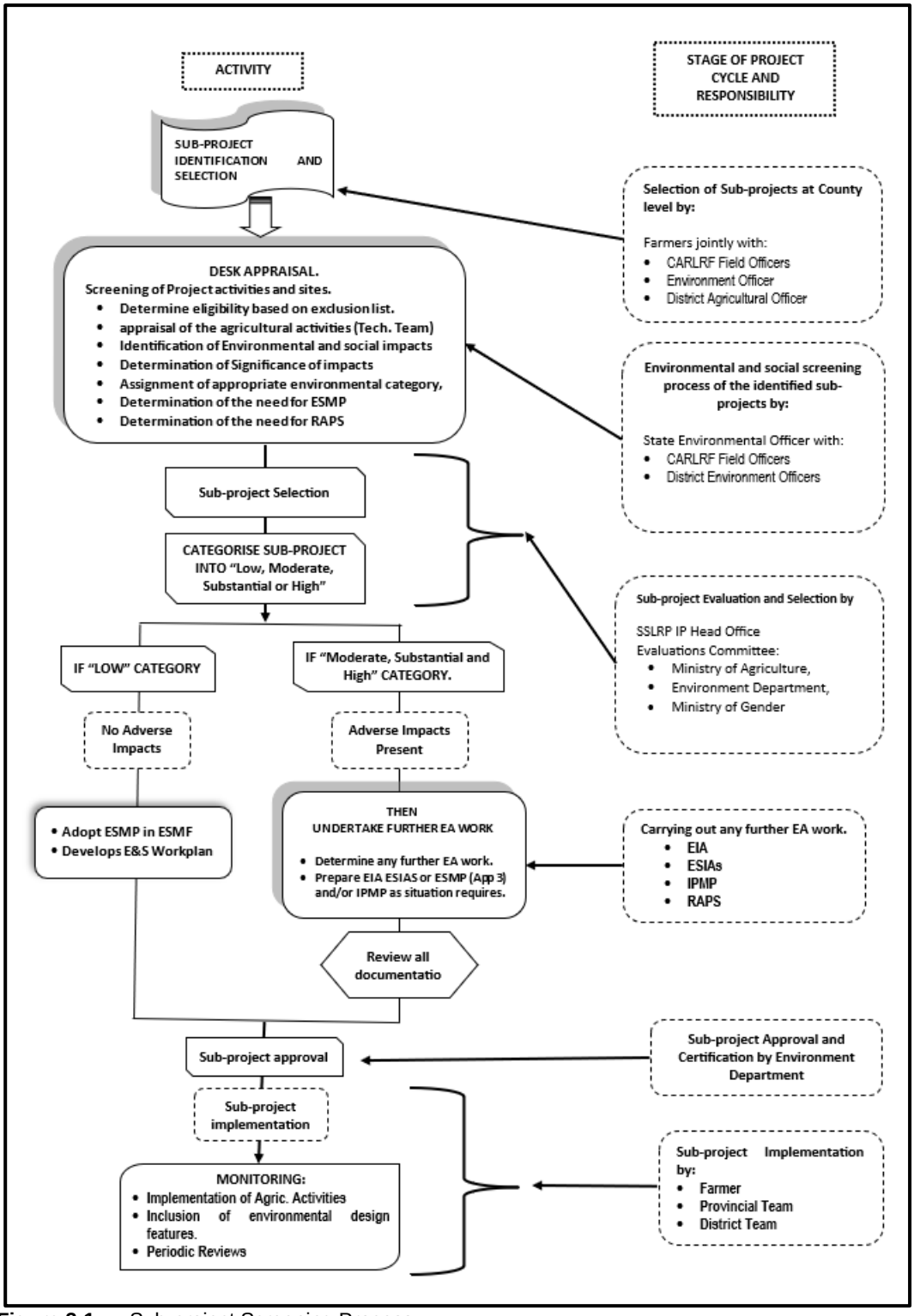


Figure 3-1 Sub-project Screening Process

3.6 EXCLUSION LIST

Table 3-3 below provides criteria based on which sub-projects and activities which will not be eligible for financing under SSLRP:

Table 3-3 Sub-project and Activity Exclusion List.

No.	Negative sub project list
	The proposed CARLRF programme will automatically exclude sub-projects that:
1.0	Require physical displacement of people. Temporary economic activities disruptions can be allowed for and treated in line with the SECAP requirements.
2.0	Permanently block the access to or use of land, water points and other livelihood resources used by others
3.0	Encroach onto fragile ecosystems, marginal lands or important natural habitats of national or international importance (e.g. ecologically-sensitive ecosystems; protected areas; natural habitat areas, forests and forest reserves, wetlands, national parks or game reserve; any other environmentally sensitive areas)
4.0	Impact on physical cultural resources of national or international importance and conservation value
5.0	Sub-projects that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities

3.7 ENVIRONMENTAL IMPACT ANALYSIS

The CARLRF project has the potential to cause environmental or social harm (i.e. it is a Category B project using Adaptation Fund Categorization), and there is need to conduct an environmental and social assessment that identifies any environmental or social risks, including any potential risks associated with the Fund's environmental and social principles.

The following is an identification and analysis of the potential environmental impacts that will be generated by the implementation of the CARLRF. The analysis highlights the significance of each identified impact.

3.7.1 Environmental Impact Analysis - Planning Phase

3.7.*1.1 Potential Negative Impacts during Planning Phase.*

a) Vegetation clearing for cutline.

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.

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

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.

3.7*.1.2 Potential Positive Impacts during Planning Phase.*

a) None Identified

3.7.2 Environmental Impact Analysis – Construction/Establishment Phase

3.7*.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

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.

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
Consequence	Moderate detrimental
Probability	Definite
Significance	Low

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

Impact of Bio-diversity disturbances	
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 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.

3.7*.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

3.7.3 Environmental Impact Analysis – Operation Phase

3.7.*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

Impact of effluent discharge	
Project Phase	Operations Phase
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	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 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 of 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 sore 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

Impact of Agro-chemical pollution	
Project Phase	Operation phase
	Pre-Mitigation Impact
Type of Impact	Negative, direct
Duration	Long term
Extent	Regional
Intensity	Medium-high
Consequence	Moderate detrimental
Probability	Definite
Significance	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
	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.

4.7.3.2 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

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

3.7.4 Summary of the Magnitude of Potential Environmental Impacts

Tables 6-18 below presents and 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	***Potential Negative Impacts During Planning Phase.***									
(a)	*Vegetation clearing for Site Surveying and Pegging*	• Clearing vegetation for visibility • Opening Cutline for survey purposes	• 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	***Potential Positive Impacts During Planning Phase.***									
(a)	None Identified									
4.3.2	**CONSTRUCTION PHASE**									
4.3.2.1	***Potential Negative Impacts During Construction Phase*.**									
(a)	Limited clearing of vegetation for	• Preparation of land for Agriculture	• 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	• excavations for pipelines and foundations, • construction of irrigation systems, • Construction of of agro-processing and storage facilities, • Construction of access roads.	• 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.	• 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.	• 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.	• 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.	▪ Agricultural processes generating waste, e.g., from processing plants.	▪ 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
		▪ 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.	▪ Deterioration of the aesthetics of the areas.							
(e)	Loss of natural and cultural heritage	• Digging of trenches for pipelines • Digging of foundations for agricultural infrastructures, sheds and pens.	• 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	• Digging of trenches will be by heavy duty machinery. • Excavations will temporarily disrupt the natural habitats. •	• 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	• Dust generated from construction activities. ▪ Pesticides used in pests and diseases control	• 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	▪ Waste generated from agricultural and livestock activities.	▪ Effluent pollutes soil and water resources.		**3 (groundwater)**	**5**	2 (ground water)	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)	▪ 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.	▪ 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***	• 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.	• 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	• Bare ground around the pipelines for the irrigation schemes. • Bare ground along the access roads.	• 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
		• Any vegetation clearing during operations	will still be susceptible to erosion							
(b)	Solid waste pollution.	• Less quantities of solid wastes generated include domestic wastes, plastics, and animal dung. •	• Pollution of the water ways. • Littering the neighbourhood •	**Negative**	**3**	**4**	3	3	**13** **Moderate**	**9** **low**
(c)	Effluent Discharges	• Most agricultural, livestock, agro-processing, packaging, and marketing operations produce liquid effluent.	• Pollution of water resources • Destruction of habitats	**Negative**	**5**	**4**	4	3	**16** **High**	**9** **low**
(d)	Agro-chemicals Pollution	▪ 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.	▪ 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	• 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.	• 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
		• Accidental discharge of hazardous substances.								
(f)	E-Waste Generation	• Waste generated from end of life of laptops, solar panels, etc.	• 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*	***Potential Positive Impacts During Operation Phase.***									
(a)	Revegetation	• Planting of grass and continuous rehabilitation of the pastures.	• Habitat restoration. • Erosion stopped. •	**Positive**	4	**4**	**4**	**4**	**16** **High**	**18** **Moderate**

3.8 SOCIAL AND HEALTH IMPACT ANALYSIS

The following is a social and health impacts analysis of the project. The section 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:

3.8.1 Social and Health Impact Analysis - Planning Phase

3.8.1.1 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.

3.8*.1.2 Potential Positive Impacts during Planning Phase.*
a) None Identified

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

3.8.2*.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 local's 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	*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 **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	*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 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	*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 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.

3.8.*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

3.8.3 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*	***Potential Negative Impacts During Planning Phase.***									
(b)	Limited and inadequate Stakeholder Involvement	• Predominance of the top-down approach and just handing a project to stakeholders • Inadequate dissemination/sharing of information. • Unclear roles and responsibilities • Negative perception	• 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	• Lack of transparency from the implementing Partners. • Lack of proper timelines for the different phases of the project. • Dragging the planning phase too long.	• 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	***Potential Positive Impacts During Planning Phase.***									
	None Identified.									
4.4.2	**CONSTRUCTION/OPERATIONS PHASE.**									
4.4.2.*1*	***Potential Negative Impacts During Constructions/Operations Phase.***									

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	• Migration of outsiders to the potential project sites for employment. • Breakdown of social fabric due to illicit relationships. • Increased burden on the local resources.	• 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	• 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.	• 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	• 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	• 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	• Poverty which leads to women being exploited by men during construction phase.	• 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)	• 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	• 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	***Potential Positive Impacts During Constructions/Operations Phase.***									
(a)	Economic Opportunities Employment (job creation)	• Improved cattle rearing approaches. • Improved Agricultural practices. • Availability of many small-scale initiatives. • Setting-up of businesses in the agriculture value chains.	• 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**

3.9 POSSIBLE CUMULATIVE IMPACTS OF THE CARLRF PROGRAMME

Cumulative impacts are impacts (positive or negative, direct and indirect, long-term and short-term) arising from a range of activities throughout an area or region, where each individual effect may not be significant if taken in isolation. Such impacts can arise from the growing volume of traffic, the combined effect of a number of rehabilitation measures, etc. Cumulative impacts include a time dimension, since they should calculate the impact on environmental resources resulting from changes brought about by past, present and reasonably foreseeable future actions.

The following is a discussion of some of the possible cumulative impacts of the sub-projects. The cumulative impact assessment (CIA) focuses on the valued environmental and social components (VECs) of the broader area, assessing how the VECs will be impacted under scenarios with current, planned and future developments in the agriculture sector as well as other stressors.

Table 28 possible cumulative impacts of the sub-projects

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	VEC IDENTIFIED AGAINST ESPS	CUMULATIVE EFFECT / CHANGE OF CONDITION	
			NEGATIVE IMPACTS	POSITIVE IMPACTS
1.	Compliance with the law spatial plans and other protection schemes	None	None	None
2.	Access and equity	**SOCIAL AND SOCIO-CULTURAL SHOCKS**	**Likely increase in cases of Gender Based Violence** The positive impacts of CARLRF of improving the livelihoods of locals by facilitating improved participation of women in income-generating activities are likely to also have the negative impact of introducing disturbances to the social fabric that otherwise exists in these communities, especially at the household level. By promoting the participation of vulnerable groups in income-generating activities, especially women, CARLRF will effectively correct the social imbalances that currently exist in the rural areas, where men are usually the bread winners of their families. This type of imbalance is still widely accepted as a societal norm.	**Likely positive impact of CARLRF on social cohesion** CARLRF activities will relieve the communities of the hardships that they currently experience due to poor access to resources, inadequate access to food and nutrition as a result of poorly performing subsistence farming as well as low levels of income. Some families have been torn apart because of women and youth resorting to relocate to urban areas in search of employment and better living conditions. Improved access to resources, general improvements in livelihoods and improved food security can be expected to reverse this trend and restore social cohesion of families.
3.	Marginalized and vulnerable groups.	**COMMUNITY STRUCTURE**	There could be changes in community dynamics as a result of displacement of critical community members. And the presence of contractors may impact on the social fabric as they are viewed as economically better people causing families to break. Elite capture – unequal access to training and inputs because of historical inequality and power relations Potential for conflict between communities due to perceived unequal access to project benefits	
4.	Human rights	None	None	None
5.	Gender equity and women empowerment	**SOCIAL AND SOCIO-CULTURAL SHOCKS**	Increased conflict between communities competing for projects including potential for local people being physically assaulted or injured.	
6.	Core labour rights	**SOCIOECONOMICS**	The project areas may suffer from Overburdenin of services as there will be an increase of people as they seek employment. **Inability to take advantage of economic spinoffs:**	**Likely increase in employment opportunities** Job opportunities which will benefit locals are likely to be created by the activities that will be happening in the project areas.

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	VEC IDENTIFIED AGAINST ESPS	CUMULATIVE EFFECT / CHANGE OF CONDITION	
			NEGATIVE IMPACTS	POSITIVE IMPACTS
			Due to lack of access to finance to take advantage of economic spinoffs that will be created by the project activities, local communities may be unable to take advantage of the situation. As a result, people from outside the project areas, are likely to come and open up businesses. Prospective businesspeople from the local communities are likely to be frustrated by their inability to respond to the investment opportunities that will be created by the project.	
7.	Ethnic diversity	None	None	None
8.	Involuntary resettlement	None	None	None
9.	Protection of natural habitat	**ECOSYSTEMS**		The various activities (De-brushing, reduction of herd, controlled grazing, re-seeding and re-grassing, Soil Erosion control measures) will result in the regeneration of the habitats for many wetland species and birds including migratory birds and fisheries. Wildlife will be restored too.
		WETLANDS		The various activities (De-brushing of alien invasive spices, reduction of herd, controlled grazing, re-seeding and re-grassing, Soil Erosion control measures) will result in the regeneration of the wetlands, increased flood control capacity of the wetlands, rejuvenated wetland habitats, etc.
10.	Conservation of biological diversity	None	None	None
11.	Climate change	None	None	None
12.	Pollution prevention and resource efficiency	**LIKELY INCREASES IN WASTE GENERATION**	The various activities in the project area are likely to result in a cumulative increase in waste production. This may result from improvements in economic situation of the communities most likely resulting in increases in consumer spending, leading to a corresponding increase in solid waste generation. The increases in waste generation will trigger the need for an organised waste management system in the project areas.	
13.	Human Health	None	None	None

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	VEC IDENTIFIED AGAINST ESPS	CUMULATIVE EFFECT / CHANGE OF CONDITION	
			NEGATIVE IMPACTS	POSITIVE IMPACTS
14.	Physical and cultural heritage	**CULTURAL RESOURCE**	The Developments may progressively degrade Cultural site and even cause vandalism. They may also cause a fragmentation of historic districts as they become patched in the middle of pre-existing establishments.	
15.	Lands and soil conservation	**LAND USE CHANGES**	clearing vegetation to make way for various infrastructure in the project areas will change the land use negatively as it suffers erosion and a change to the wildlife composition in the area. The increased human and vehicular traffic during project implementation and operations will introduce noise, and other disturbances which will cause Wildlife to change their behaviour as a result of changed land uses.	
		AIR SHED	Dust accumulation from various activities in the sub-project areas may cause the dust levels to be a Health hazard or cause poor visibility. The activities include rehabilitation of access roads, excavation of foundations and pipelines, clearing of potential project sites and fields, construction of catch dams, swells, etc.	
		WATERSHED (SURFACE WATER)	The Water quality of the streams and dams in the project areas may degrade due to various sources of impacts which include temporary siltation from bare, cleared surfaces, construction activities within the catchment, and even littering by increased numbers of people in the project areas.	The water quality will improve as a result of properly managed agricultural activities, re-grassing of bare ground, rehabilitation of sensitive areas like wetlands, sustainably management of grazing in the wetlands, etc.

4. THE ENVIRONMENTAL, AND SOCIAL MANAGEMENT PLAN (ESMP).

The environmental and social analysis conducted in section 3.0 above identified environmental or social risks, thus in line with the Adaptation Fund Environmental and Social Policy there is a need to develop an environmental and social management plan that identifies those measures necessary to avoid, minimize, or mitigate the potential environmental and social risks. 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 29 Environmental and Social Management Plan (ESMP).

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
1.	Compliance with the law spatial plans and other protection schemes	Failure to Comply with applicable national and international laws.	• CARLRF has and will continuously identify all applicable and relevant Zambian Laws that have to be complied with by CARLRF PMU, Implementing Partners, contractors, Service providers etc., • Operating Manual and Instructions will include provisions to ensure these Laws are complied with,	• Applicable laws will be identified prior to project implementation. • Project implementers will include compliance into day-to-day implementation of the project from inception to completion.	CARLF PMU with the direct support of the project Legal Officer	Compliance inspections by the ESS: **20,000.00**
2.	Access and equity	Discrimination against vulnerable groups like women, youth and disadvantaged people.	The project design supports equal access to training, equipment, infrastructure and services, taking especially into account marginalized and vulnerable groups, including women, youth and poorer communities: • The project will establish a targeting strategy, a gender and social inclusion action plan, and mechanisms for a clear and transparent communication about eligibility criteria and project procedures. • Use the Grievance Redress Mechanism to make sure individuals and/or communities who will be feeling excluded or marginalized from project benefits can air their grievances. • The PMU (Gender and Youth Specialist), to make sure that no tensions or conflicts arise around the targeting approach. • Provide equal opportunities to both women and men to (a) participate fully and equitably; (b) receive comparable social and economic benefits, • Making sure women and children do not suffer disproportionate	The targeting strategy will be communicated at project inception and implementation will be throughout the project cycle.	Responsibility for the development of these tools will lie with the Gender and Youth Specialist	i) Awareness raising Campaigns: **50,000.00** ii) Procurement process following SPC guidelines (embedded across budget, including administrative costs) iii) Annual monitoring by ESS and Gender Officer to specifically conduct ESS and gender monitoring and reporting: **30,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
			adverse effects during the development process. The project will take a number of transparent steps that will help ensure that the benefits of the project are being distributed fairly with no discrimination nor favouritism. This will include advertising broadly and conduct extensive outreach and consultative activities aimed at targeting the most vulnerable.			
3.	Marginalized and vulnerable groups.	Marginalisation of vulnerable groups like women, youth and disadvantaged people including: • All-inclusive stakeholder engagement lacking. • Beneficiary not satisfied and discrimination/ marginalisation issues. • Exclusion of marginalized and vulnerable groups including children, women and girls, from decision making and benefiting from the project. • Imposing projects or impacts from projects such as displacements and disenfranchisement on marginalized and vulnerable groups including	• The project will establish a targeting strategy, a gender and social inclusion action plan, and mechanisms for a clear and transparent communication about eligibility criteria and project procedures, notably with regards to vulnerable subsistence farmers. • The project will conduct social inclusion trainings, broad information campaigns and outreach events targeting women and youth. • The project will also include specific measures to support gender equality and women's empowerment, targeting: (i) economic empowerment, (ii) voice and decision-making; and (iii) work-balance and well-being, as per the project's Gender Strategy. • Use the Grievance Redress Mechanism to make sure individuals and/or communities who will be feeling excluded or marginalized from project benefits can air their grievances. • The PMU (Gender and Youth Specialist), to make sure that no tensions or conflicts arise around the targeting approach.	• The targeting strategy will be communicated at project inception and implementation will be throughout the project cycle. • Stakeholder engagement to be conducted throughout the project life. • Most training to be conducted within the first three months of the programme, there after refresher courses can be conducted every six months.	Responsibility for the development of these tools will lie with the Gender and Youth Specialist.	i) ESS and Gender Monitoring: **40,000.00** ii) Annual Beneficiary tracking reporting: **20,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
		children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS.	• Initiate a continuous, all-inclusive stakeholder engagement process. • Conduct in-depth cross sectional public consultation at on the project and goals, eligibility criteria and selection process for specific activities directed to specific groups and available grievance redress mechanisms. This should be done in partnership with IA, county officials and Community leaders.			
4.	Human rights	The project will not support any sub-project that will infringe on the rights of other people.	None	None		
5.	Gender equity and women empowerment	Women disadvantaged in the projects programmes and not able to participate freely including Physical body harm and Lack of productivity.	• The project will establish a targeting strategy, a gender and social inclusion action plan, and mechanisms for a clear and transparent communication about eligibility criteria and project procedures, notably with regards to vulnerable subsistence farmers. • The project will conduct social inclusion trainings, broad information campaigns and outreach events targeting women and youth. • The project will also include specific measures to support gender equality and women's empowerment, targeting: (i) economic empowerment, (ii) voice and decision-making; and (iii) work-balance and well-being, as per the project's Gender Strategy. • Use the Grievance Redress Mechanism to make sure individuals and/or communities who will be feeling excluded or	• The targeting strategy will be communicated at project inception and implementation will be throughout the project cycle. • Stakeholder engagement to be conducted throughout the project life. • Most training to be conducted within the first three months of the programme, there after refresher courses can be conducted every six months.	CARLF PMU- - Gender and Youth Specialist.	i) Baseline Gender assessment: **60,000.00** ii) ESS and Gender Monitoring: **40,000.00** iii) Annual Gender disaggregated data reporting (M&E): **20,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
			marginalized from project benefits can air their grievances. • The PMU (Gender and Youth Specialist), to make sure that no tensions or conflicts arise around the targeting approach. • Provide equal opportunities to both women and men to (a) participate fully and equitably; (b) receive comparable social and economic benefits, • Making sure women and children do not suffer disproportionate adverse effects during the development process.			
6.	Core labour rights	• Working conditions and standards of labour might be overlooked. • Workers working under deplorable conditions. • Use of child Labour in agriculture.	Relevant national labour laws guided by the ILO labour standards will be followed throughout project implementation. Each of these activities will be closely monitored by project staff to ensure no violation of existing labour laws and conventions, including those pertaining to payments, harsh working conditions, exploitation, discrimination, and any other relevant provisions. Any contracts entered into will ensure rights of workers are in line with ILO standards as per SPC's policy. • Adopt international standards on occupational health. • Training on safety standards and occupational hazards. • Project targets sensitized on disadvantages of using child labour. • Regular assessment of child labour risks and response mechanisms • County profiles to include consultation with communities on child labour.	• The awareness raising on applicable labour laws will be communicated at project inception and implementation will be throughout the project cycle. • Most training to be conducted within the first three months of the programme, there after refresher courses can be conducted every six months.	CARLF PMU With assistance from Ministry of Agriculture	Included in overall administrative budget.

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
			• Raise awareness on not using child labour. • As should be sensitised on the importance of addressing child labour in the project and what regulations/ mechanisms need to be observed/ implemented.			
7.	Ethnic diversity	There are no recognised Indigenous Peoples in Zambia so this has not been dealt with.	None	None	None	N/A
8.	Involuntary resettlement	• 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.	The project will not support any sub-project that will cause any physical or economic displacement of people. It will automatically exclude sub-projects that: • Require physical displacement of people. Temporary economic activities disruptions can be allowed for and treated in line with the SECAP requirements. • Permanently block the access to or use of land, water points and other livelihood resources used by others	These will be excluded at screening stage.	CARLF PMU With assistance from Ministry of Agriculture	N/A
9.	Protection of natural habitat	• Limited Vegetation clearing may occur during the establishment of the CARLF project as new infrastructure will be erected. • Construction and repairs of Feeder roads, crossing places, micro dams and irrigation scheme systems, agricultural infrastructure, and	It is unlikely the project will have any negative impact on critical natural habitats, as protected areas will be de facto excluded from project activities. The project will identify: i) The presence in or near the project area of natural habitats, ii) ii) The potential of the project to impact directly, indirectly, or cumulatively upon natural habitats. • Sensitive habitats should be avoided. (Wetlands and stream banks)	If critical natural habitats exist and there is a potential of the project to impact the habitat, the project at inception will: • Describe the location of the critical habitat in relation to the project and why it cannot be avoided, as well as its characteristics and critical value. • For each affected critical natural habitat, provide an analysis on the nature and the extent of the impact including direct,	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	i) Compliance inspections and monitoring by the ESS: **50,000.00** ii) Mapping out critical natural habitats: **20,000.00** iii) Rehabilitation of degraded lands and erection of soil conservation measures/structures: **60,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
		other possible facilities will change the characteristics of the area and leave a marred landscape. • 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.	• 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. • Appropriate containment measures for all operational areas and proper disposal of used lubricants. • Soil erosion control measures (e.g., re-vegetation, reseeding 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.	indirect, cumulative, or secondary impacts; the severity or significance of the impact; and a demonstration that the impact is consistent with management plans and affected area custodians. • There after all necessary protective measures will be carried out during implementation.		
10.	Conservation of biological diversity	• Noise and vibrations cause small wild animals to migrate and disturb their normal roaming patterns. • contamination of the rivers may	The project will identify: i. The presence in or near the project area of critical biodiversity, ii. The potential of the project to impact directly, indirectly, or cumulatively upon critical biodiversity,	Conservation works will be conducted throughout the project life.	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	i) Annual monitoring by ESS to specifically conduct ESS inspections, monitoring and reporting: **50,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
		cause fish kills and destruction of other aquatic life,	iii. Native and adaptive tree species to be used for afforestation/reforestation, excluding non-native and potentially invasive species. If critical biodiversity exists and there is a potential of the project to impact the habitat, the project will: i. Describe the elements of known biological diversity importance in the project area, using any relevant sources of information, such as protection status, status on the IUCN Red List of Threatened Species and other inventories147, recognition as a UNESCO Man and the Biosphere Programme reserve148, Ramras site149, etc. ii. Describe why the biological diversity cannot be avoided and what measures will be taken to minimize impacts. Other measures will include: • Enforcement of parks and wildlife law, • 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			ii) Reforestation programmes: **20,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
			speed of contractors and suppliers' vehicles will be restricted.			
11.	Climate change	Unabated clearing of land for agricultural purposes. Keeping Unsustainable numbers of livestock per unit area.	The project will monitor livestock units' numbers amongst the beneficiaries and will record any eventual increase on a quarterly basis. The project will also monitor the implementation of pastoral practices and document their (favourable) impact on the local landscape, in terms of preservation and sustainable management.	The project will report both biannually for the progress reports, as well as annually. It will report on: (i) overall cattle numbers and annual increase; (ii) implementation of pastoral practices; and (iii) implementation of other practices that result in carbon storage (biotechnical measures, agro ecology, etc.).	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	i) Annual monitoring by ESS to specifically conduct ESS inspections, monitoring and reporting: **20,000.00**
12.	Pollution prevention and resource efficiency	Most agricultural, livestock, agro-processing, packaging, and marketing operations produce liquid effluent. • Poisoning of aquatic and inland ecosystems by agro chemicals. • Oil and grease leak and spills prevalent in most work areas like the farm sheds.	Minor risks of effluents discharge may be posed by the upgrading of facilities (e.g. dairy, meat) under component 1, and will be managed through the compliance with the Water Law, by obtaining the relevant Water Conditions and No-Objections.	The project will submit biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR and final evaluation and completion survey	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	i) Annual monitoring by ESS to specifically conduct ESS inspections, monitoring and reporting: **20,000.00**
13.	Human Health	• Spread of communicable diseases such as HIV/AIDS. • Increase in the prevalence of water-borne diseases (intestinal and urinary bilharzia and malaria)	• 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	Continuous process throughout the project life.	CARLF PMU With the assistance from: • Ministry of Agriculture • Ministry of Health	i) Budget covered in the main awareness budget. ii) Provision of water and sanitation: **20,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
		• Temporary and permanent physical injuries. • Bronchial diseases from dust. • Diseases and illness from agricultural activities such as pesticide handling. • Loss of life.	groundwater resources that can be used as a reference to the performance of the project surface water supply			
14.	Physical and cultural heritage	Natural features, antics and relics destroyed in the project area e.g., during excavations.	The project will identify: i. The presence in or near the project area of areas of physical and cultural heritage ii. The potential of the project to impact directly, indirectly, or cumulatively upon areas of physical and cultural heritage If such physical and cultural heritage exist and there is a potential of the project to impact upon it, the project will: i. Provide an inventory of the physical and cultural heritage present in the wider project area that enjoys recognition at community, national, or international levels. Describe the cultural heritage, the location and the results of a risk assessment analysing the potential for impacting the cultural heritage. ii. Describe the measures to be taken to ensure that cultural heritage is not impacted, and if it is being accessed by communities, how this access will continue. • Conduct feasibility studies, fencing, introduce proper antiquity education programmes. • Come up with a Physical cultural resources' management plan. • Establish procedure for chance finds.	It is unlikely the project will have any negative impact on physical and cultural heritage. The project will conduct the screening and reporting as soon as the precise project areas have been determined. In the unlikely event that the project would be expected have a negative impact on Physical and cultural heritage, the project will develop a cultural heritage management plan. In instances that chance finds are encountered the project will invoke a chance finds procedure. The project will report in the biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR & final evaluation and completion survey	CARLF PMU – Social Specialist With the assistance from the Museum Department.:	i) Annual monitoring by ESS to specifically conduct ESS inspections, monitoring and reporting: **20,000.00** ii) Development of requisite safeguards Instruments and plans including provision for chance finds: **30,000.00**

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF Principles)	RISKS IDENTIFIED AGAINST ESPS	MITIGATION MEASURE	IMPLEMENTATION SCHEDULE FOR THE MITIGATION MEASURE	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	BUDGET ($)
			• If any natural features, antics, and relics are encountered the trenching should stop immediately and the chance finds procedure be followed.			
15.	Lands and soil conservation	• 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.	• Appropriate containment measures for all operational areas and proper disposal of used lubricants. • Soil erosion control measures (e.g., re-vegetation, reseeding 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.	Soil erosion control measures should be established as the project is underway and restoration programmes will be conducted once an activity has been completed.	CARLF PMU With the assistance from Ministry of Agriculture	i) Annual monitoring by ESS to specifically conduct ESS inspections, monitoring and reporting: **35,000.00** ii) Mapping out degraded areas: **20,000.00** iii) Rehabilitation of degraded lands and erection of soil conservation measures/structures: **30,000.00**
	TOTAL BUDGET FOR THE ESMP					**US $675,000.00**

ENVIRONMENTAL AND SOCIAL MONITORING PLAN

5.1 INTRODUCTION

The monitoring and evaluation shall address all environmental and social risks identified in the above assessments and those that will be encountered during, design, and implementation 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 5-29 below.

Table 30 Monitoring Activities and Indicators

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF PRINCIPLES)	MONITORED PARAMETER	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	RECORDING AND FREQUENCY
1.	Compliance with the law spatial plans and other protection schemes	Compliance with the national law: requisite permits and licences to operate.	CARLF PMU with the direct support of the project Legal Officer	Monthly and on going
2.	Access and equity	access by women and youth to training, equipment, infrastructure and services, • Establishment of o targeting strategy, o gender and social inclusion action plan, o mechanisms for a clear and transparent communication o eligibility criteria o Project procedures. Use of the Grievance Redress Mechanism	Responsibility for the development of these tools will lie with the Gender and Youth Specialist	Monthly and ongoing as project is implemented.
3.	Marginalized and vulnerable groups.	• Inclusivity of stakeholder engagement processes • Inclusion of women and youth in decision making structures.	Responsibility for the development of these tools will lie with the Gender and Youth Specialist.	Monthly and ongoing as project is implemented.
4.	Human rights			
5.	Gender equity and women empowerment	• Inclusion of women and youth in decision making structures. • Level of participation of women and youth • Occurrence of GBV/SEAH	CARLF PMU- - Gender and Youth Specialist.	Weekly and ongoing as project is implemented
6.	Core labour rights	• Working conditions and standards of labour. • Freedom of association and freedom to form unions • Use of child Labour in agriculture	CARLF PMU With assistance from Ministry of Agriculture	Monthly and ongoing as project is implemented
7.	Ethnic diversity		None	
8.	Involuntary resettlement	• Removal/alteration of usual source of livelihood. • Forced migrations. • Dissatisfied PAPs.	CARLF PMU With assistance from Ministry of Agriculture	Monthly and ongoing as project is implemented
9.	Protection of natural habitat	• Vegetation clearing. • Construction activities impacts. • Land exposure for agricultural purposes • Soil erosion. • Deterioration of soil characteristics. • flora and fauna	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	Weekly and ongoing as project is implemented.
10.	Conservation of biological diversity	• Noise and vibration levels from construction activities. • Contamination of rivers and soils. • flora and fauna • Interference with nesting sites • Migratory routes • Animal habitats • Poaching	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	Daily and ongoing as project is implemented.

NO.	ENVIRONMENTAL AND SOCIAL RISK SCREENING (ESP AF PRINCIPLES)	MONITORED PARAMETER	RESPONSIBILITY FOR EXECUTION OF THE MITIGATION MEASURE	RECORDING AND FREQUENCY
11.	Climate change	• Land clearing for developmental/agricultural purposes. • Stocking levels by the farmers.	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	Monthly and ongoing as project is implemented.
12.	Pollution prevention and resource efficiency	• Discharges from agro-processing facilities. • Oil and grease leak and spills prevalent in most work areas like the farm sheds. • Use of agro-chemicals (Fertilisers and Herbicides)	CARLF PMU With assistance from: • ZEMA • Ministry of Agriculture	Monthly and ongoing as project is implemented.
13.	Human Health	• Incidences of communicable diseases. • Incidences of water-borne diseases. • Incidences of bronchial diseases. • Reports of injuries. • 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.	CARLF PMU With the assistance from: • Ministry of Agriculture • Ministry of Health	Monthly and ongoing as project is implemented.
14.	Physical and cultural heritage	• Archaeological Findings during excavations. • The presence in or near the project area of areas of physical and cultural heritage	CARLF PMU – Social Specialist With the assistance from the Museum Department.:	• Daily and ongoing as project is implemented. • Room for chance finds.
15.	Lands and soil conservation	• Soil erosion • Conservation activities • Rangelands management • Watercourses and impoundments. • Surface water quality • Ground Water Quality • Recommended distances from watercourses.	CARLF PMU With the assistance from Ministry of Agriculture	Daily and ongoing as project is implemented

STAKEHOLDR ENGAGEMENT PLAN AND PUBLIC DISCLOSURE

51 CONSULTATIONS

Consultation is an essential part of the project cycle. Understanding the views from various stakeholders is critical for confirming relevance of proposed interventions, for effectiveness and efficiency of proposed approaches and for impact and sustainability of the intended positive changes.

The implementing agency of the CARLRF project has the responsibility to effectively engage stakeholders in achieving the project objectives. This Stakeholder Engagement Plan (SEP) is for

use during public consultation in the screening processes and throughout the implementation phase.

5.2 OBJECTIVES OF THE PLAN

The SEP provides a framework for achieving effective stakeholder involvement and promoting greater awareness and understanding of issues so that the project is carried out effectively within budget. To ensure the effective implementation of this plan, Zambia-CARLRF shall be committed to the following principles:

- Promoting openness and communication.
- Ensuring effective stakeholder involvement.
- Evaluating the effectiveness of the engagement plan in accordance with the expected outcomes.

5.3 KEY STAKEHOLDERS

Stakeholders of this project shall be defined as all those people and institutions that have an interest in the successful planning and execution of the project. This includes those likely to be positively and negatively affected by the project. The key stakeholders to be continuously engaged could include:

1. Zambia Government Departments:

- Ministry of Agriculture (MOA) /
- Ministry of Finance (Move)
- Ministry of Health (Mohr)
- Ministry of Economic Planning and Development (MEPD)
- Ministry of Commerce, Trade and Industry (MCIT)
- Ministry of Local Government
- Ministry of Environment and Zambia Meteorological Service
- Zambia Environmental Management Authority (ZEMA)

2. Other Stakeholders

- Zambia National Youth Council (ZNYC)
- Commercial Banks and DFIs
- SACCOs and Multi-purpose Cooperatives
- Rural Entrepreneurs
- Service Providers (trainers etc.)
- Private sector agencies.
- Met department.
- Land use planning unit of MoA

The list above is not exhaustive. As the Programme gets underway, the PMU/CARLRF will develop a detailed PCP identifying all possible stakeholders, their specific information needs and the appropriate modes of consultation as well as feedback mechanisms.

5.4 STAKEHOLDER ENGAGEMENT

A variety of engagement techniques were used to build relationships with stakeholders, gather information from stakeholders, consult with stakeholders, and disseminate project information to stakeholders. This engagement process will provide a framework for achieving effective stakeholder involvement and promoting greater awareness and understanding of issues so that the project is carried out effectively.

The guidelines for public consultation include, among others, a requirement that major elements of the consultation program should be timed to coincide with significant planning and decision-making activities in the project cycle. Ideally, public consultations should be undertaken during (i)

the preparation of the EA terms of reference; (ii) the carrying out of an EA; and (iii) Government review of an EA report.

For the proposed Zambia CARLRF, the first step was to hold public consultations with the local communities, and all other interested/affected parties during the environmental and social screening process. These consultations were aimed at briefing the communities and other stakeholders about the project activities, how the activities will be carried out and what sectors of the environment are likely to be impacted. The public consultations were done in a participatory manner to encourage the communities to contribute to the screening process.

The engagement techniques that will be used take into consideration the cultural appropriateness and the purpose for engaging with the stakeholders. Thus prior to any engagement event the following actions will occur:

- Selection of individual stakeholders with whom engagement will occur,
- Selection of methods for disclosure of information (including such topics as format, language, and timing),
- Selection of location and timing for engagement event(s) (avoiding busy work times, which may be seasonal, and days/times when special events may be occurring),
- Agreeing mechanisms for ensuring stakeholder attendance at engagement event(s) (if required),
- Identification and implementation of feedback mechanisms to be employed.

The general consultation techniques that will be used for the continuous engagement of the stakeholders throughout the project implementation phases are as listed below:

Table 0-28 Stakeholder engagement techniques

No.	ENGAGEMENT TECHNIQUE	APPROPRIATE APPLICATION OF THE TECHNIQUE
1.	Correspondences (Phone, Emails)	• Distribute information to Government officials, NGOs, Local Government, and organisations/agencies in the project area. • Invite stakeholders to meetings and follow-up.
2.	One-on-one meetings	• Seeking views and opinions. • Enable stakeholder to speak freely about sensitive issues. • Build personal relationships. • Record meetings.
3.	Formal meetings	• Present the Project information to a group of stakeholders. • Allow group to comment – opinions and views. • Build impersonal relation with high level stakeholders. • Disseminate technical information. • Record discussions
4.	Public meetings	• Present Project information to a large group of stakeholders, especially communities • Allow the group to provide their views and opinions. • Build relationship with the communities, especially those impacted. • Distribute non-technical information. • Facilitate meetings with presentations, PowerPoint, posters etc. • Record discussions, comments, questions.
5.	Focus group meetings	• Present Project information to a group of stakeholders (8-15 people groups) • Allow stakeholders to provide their views on targeted baseline information. • Build relationships with communities. • Record responses
6.	Project website	• Present project information and progress updates • Present GRM and another relevant project documentation
7.	Project leaflet	• Brief project information to provide regular update. • Site-specific project information.
8.	Surveys	• Gathering opinions and views from individual stakeholders • Gather baseline data. • Record data • Develop a baseline database for monitoring impacts

No.	ENGAGEMENT TECHNIQUE	APPROPRIATE APPLICATION OF THE TECHNIQUE
9.	Workshops	• Present project information to a group of stakeholders • Allow a group of stakeholders to provide their views and opinions. • Use participatory exercises to facilitate group discussions, brainstorm issues, analyse information, and develop recommendations and strategies. • Record responses

The engagement process will be a continuous issue throughout the life of the project and will be used as a means of checks and balances for the proper implementation of the project. The process will employ a technically and culturally appropriate approach, which involves identifying the concerned/affected stakeholders, soliciting their views, and continuously checking if their views are being taken care of as the project implementation progresses.

5.5 INFORMATION DISCLOSURE

5.5.1 Disclosure of ESMP Documents

The IFAD policy on the disclosure of documents, adopted the principle of "presumption of full disclosure" (IFAD 2021). The sharing of draft and final ESMPS and other relevant documents with program and project stakeholders and interested parties is subject to the above-mentioned principle. As such, the documents will be disclosed, when available, in a timely manner prior to project appraisal at the quality assurance stage on IFAD's Website and in an accessible place in the program or project-affected area, in a form and language understandable to project-affected parties and other stakeholders, for the purposes of keeping them informed and obtaining their meaningful feedback.

IFAD policies require that the Government of ZAMBIA, and IFAD disclose the ESCMF report as a separate and stand-alone document. The disclosure should be done by ZAMBIA, and IFAD where it can be accessed by the public, including affected groups and NGOs, and at their respective websites.

The CARLRF will make copies of the ESMP available in selected public places possibly at National relevant government offices for information and comments. The Proposed project activities will be announced through different forms of media. The announcement will include a brief description of the program, references to where and when the ESMP can be viewed, duration of the display period, and contact information for comments.

5.5.2 Information Disclosure to Consulted Stakeholders

The type of information to be disclosed to the various stakeholders depends on their interests and how they will be affected by the Programme – or how CARLRF activities may be affected by them. Thereafter various communication tools can be utilized for the engagement process, such as:

- Project notices published in local newspapers.
- Radio advertisements.
- Direct mailings to communities.
- Presentations with or without focus group sessions).
- Targeted e-mails.
- One-on-one meetings, presentations, seminars, workshops, e-mails, and phone conversations with stakeholders.
- Site tours; and
- The use of social media.

Table 5-5 below gives a general overview of the types of information needs for various stakeholder groups.

Table 5-5 Summary Overview of a Public Consultation Plan for CARLRF

No.	Stakeholders	Information to be disclosed	Consultation means
1.0	CARLRF community, neighbouring communities, general public	Current and new activities and how these relate to them in terms of opportunities and threats	Local leaders i.e., Chief's or Local community offices, Churches, national media, social media, Agriculture website etc.
		Forum to express community / health fears and get feedback e.g., accidental release/escape, contamination. emergencies (fire)	Public consultations, focal group discussions, social media. Training specific members of the communities, awareness, education
2.0	Staff / workers at target Districts	How project work will affect their work environments including Occupational Health & Safety rules	Staff newsletters, bulletin boards, and email, and website, meetings with management, staff sensitization & in-house training programs.
3.0	Farmers Groups/Clusters Agricultural NGOs Farmer Union Agrochemical companies	Consultation on agricultural needs / food security issues. Strengthen management capacity of farm enterprises, Support farmer clusters and group development. Ensuring farmers groups/associations participate in the formulation of agricultural policies and legislation. Promoting dissemination of information (climate, prices, pests and diseases, and markets) access to farmer groups	Agricultural Extension services, Baseline surveys/subsequent surveys to monitor impacts, emails, bulletins
4.0	Intergovernmental Institutions; IFAD, FAO, WFP, etc.	Setting sustainable development agenda for participating communities	Intergovernmental meetings and consultations
		Capacity building for participating communities.	Build partnerships through meetings, seminars, workshops
5.0	University Graduates	Internship opportunities	Website, public media, bulletin boards
6.0	Youths	Opportunities for employment during project implementation, other opportunities in agro-processing which involves value-addition initiatives in agro-processing, packaging, and promotion of value chains	Agricultural Offices, public consultations

6. 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 ESIAs AND ESMPs

This component will comprise mitigation issues to do with Site-specific environmental and social work plans 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 work plans

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 work plans** can be produced and the sub-project then proceeds to implementation.

Table 6-29 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 work plans (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 6-30 Mitigation and enhancement measures Budget

No.	MITIGATION/ENHANCEMENT	ESTIMATED COST (US $)
1.0	**Ffeasibility studies** • Site specific feasibility studies should be carried out first for the major infrastructure @ US$ 15,000.00 each	75,000.00
2.0	**Capacity Building** • 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** • 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** • 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** • Institute measures to reduce and control soil erosion like contouring and terracing, stabilizing slopes and banks, re-vegetation, reseeding 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 center, 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 6-31 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.

8.0 GRIEVANCE REDRESS MECHANISM (GRM)

8.1 GENERAL

This grievance redress mechanism (GRM) is a process for receiving, evaluating and addressing progrime related concerns of, and complaints by, progrime affected communities or persons.

The CARLRF Grievance Redress Mechanism allows affected complainants to have their concerns resolved in a fair and timely manner through an independent process.

8.2 PURPOSE OF THE GRM

The GRM will serve the following purpose:

- To be responsive to the needs of all participating partners down to beneficiaries and to address and resolve their grievances.
- To serve as a conduit for soliciting inquiries, inviting suggestions, and increasing participation.
- To collect information that can be used to improve operational performance.
- To enhance the programme's legitimacy among stakeholders.
- To promote transparency and accountability.
- To deter fraud and corruption and mitigate project risks.

8.3 STRUCTURE OF THE GRM

The GRM consists of a small number of components:

- The access point for impacted/concerned people.
- Grievance log
- Acknowledgement stage
- Assessment stage
- Passing of resolution
- Response
- Room for appeal
- Case closure

The following key steps must be followed for all complaints received by CARLRF staff:

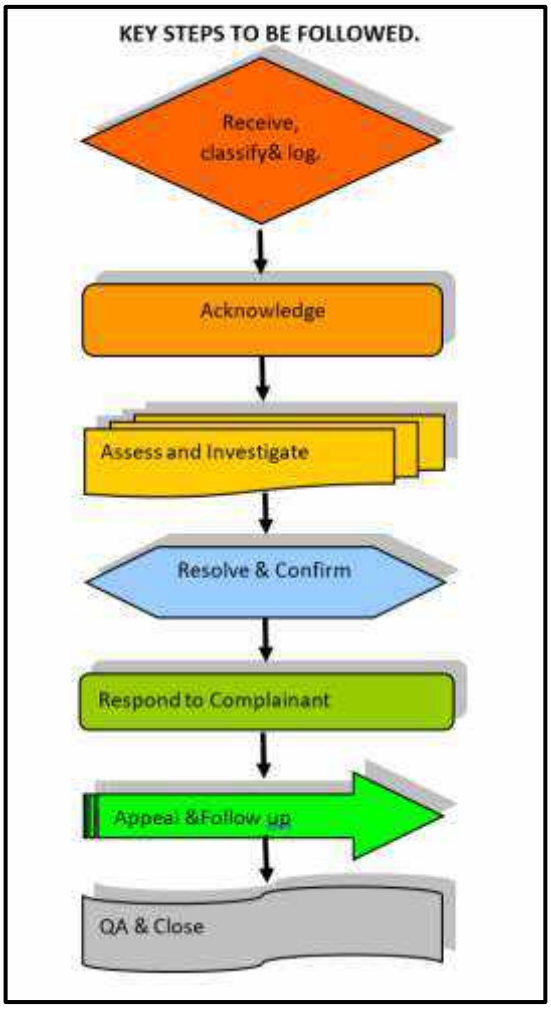
i) Receive, classify & log

All potential issues must be captured and classified for escalation, review and action as required.

a) Receiving the Grievance:

The access points will be as close to the users as possible. Thus for the programme, an easily accessible and well publicized focal point or user-facing 'help desk' will be the first step. This will be established in each participating country and at every sub-project Offices so that it will be seen as credible and accessible. The main issues for the access point include the following:

- Uptake channels should include, phone hotline, email, mail, SMS, webpage, or face-to-face.
- The uptake channels will be publicized and advertised via local media and the implementing agency.
- Verbal complaints should be recorded by staff for them to be considered.
- Many complaints may be resolved 'on the spot' and informally by the CARLRF PMU staff but should also be logged in order to (i) encourage responsiveness; and (ii) ensure that repeated or low-level grievances are being noted in the system.
- The GRM should have the ability to handle anonymous complaints.



Typically, the complainant will be provided with a receipt and 'roadmap' telling him/her how the complaint process works and when to expect further information.

b) Logging and classifying:

Any complaint, issue or negative stakeholder interaction (whether this is formally logged by the complainant or not), must be logged and classified for action (Grievance Log). All of these complaints must be formally logged using the standard forms and all complaints must be prioritized as follows:

- **Priority 1 – urgent**,
  These pose potentially high health and high business impact. **These require a response to the Complainant within three (3) working days.**
  - This should be used (sparingly) for major health issues where the complaint may have disastrous impacts on either human, the environment or CARLRF itself.
  - Also, this could be used in a situation where the complainant may be in a position to influence or make public statements that would impact upon the CARLRF reputation.
- **Priority 2, - non-urgent**,
  These pose lower health environmental and social impact. **These require a response to the complainant within 2 working weeks**.
  - This should be used for most complaints with individual stakeholders, as this allows a reasonable time to collect information and produce a balanced response.

All Priority 1 complaints must be escalated immediately to the CARLRF Programme Manager.

ii) Acknowledge

Ensure that every complaint receives a formal written acknowledgement, containing an expectation of when they will receive a response, and the person dealing with it. All complaints, regardless of priority, should receive a pro forma acknowledgement sent out 1st class mail on the day of receipt.

iii) Assess &Investigate

Follow up all aspects of the complaint, both internal and external, to ensure that the key facts are identified and clarified.

- The priority of the complaint will drive the timescale for completion (3 days for urgent or 2 weeks for non-urgent).
- All areas of interaction and communication should be established (who, what, where, when why etc.) and documented where possible.

iv) Resolve & Confirm

Ensure that the final resolution is clear and fair. Also confirm the proposed action and resolution with another senior person (CARLRF Management).

- Ensure that the proposed resolution meets corporate guidelines and does not prejudice CARLRF in any unnecessary legal or financial manner.
- Document the proposed action and discuss and agree with the CARLRF Project Manager.
- Discuss and review the solution from both the corporate and complainant viewpoint to ensure fairness and clarity.
- The review should include recognition and documentation of any underlying issues that have contributed to the complaint and recommendations for actions to prevent further occurrence.
- This should then be reviewed as part of the bi-monthly quality assurance reviews.

v) Respond to Complainant

Provide the Complainant with the resolution within the timescales promised.

- The details of the findings and proposed resolution should be clearly explained (in written or verbal form as appropriate) to the complainant- within the agreed timescales.
- If this cannot be done on time the Complainant should be contacted by telephone to request further time.

vi) Appeal & Follow

Ensure that complaints are followed up to confirm that the complainants are satisfied with the response given. If not satisfied the Complainant is advised on the route for Appealing

- All Priority 1 complaints and 95% of priority 2 complaints must be followed up within a reasonable timescale.
- This will be carried out by CARLRF Administration team / CARLRF Programme Manager's office.
- The follow-up should identify the following:
    - Is the complainant satisfied with the response?
    - Did they feel that their complaint was properly and fairly handled?

- Any negative responses to these questions should be referred to CARLRF Programme Managers for action and direct follow up with the complainant.
- The complainant is given room for appealing to the Ministry of Agriculture or Courts of Law, if he is not satisfied.

vii) QA & Close

Ensure that the CARLRF as a whole is aware of the complaints and any underlying issues. Plan actions to remove these and prevent future recurrence.

- All complaints should be reviewed monthly as part of the quality assurance review meetings.
- Any complaints where action can be taken to avoid recurrence must be acted upon and raised with the appropriate managers/teams across the CARLRF.

8.4 Establishment of Grievance redress Committees

CARLRF Programme will put in place the strategies to monitor and resolve complaints that may arise during and after the Project implementation by the affected people. For better performance and sustainability of CARLRF project the committees on GRM have to be established at the different levels of operations. The Grievance Redress Mechanism (GRM) ensures that complaints are received, reviewed and addressed by the elected Grievance redress committees.

8.5 Project Grievance Log.

The Grievance Redress Mechanism Committee will ensure that each complaint has an individual reference number and is appropriately recorded and tracked. The project grievance log form will contain record of the person responsible for an individual complaint received.

GRIEVANCE LOG

Month: _____
Year: _____

Date Grievance Filed: _____

Grievance entered by (Staff person): _____

Reported to Facility Administrator/Farm Manager? Yes ☐ No ☐

Facility Administrator/Farm Manager's Signature: _____

Name of Grievant: _____

Description of Grievance:

_____

_____

_____

_____

_____

Actions/Steps Taken

Date: _____ Actions/Steps completed by (Staff person): _____

_____

Date: _____ Actions/Steps completed by (Staff person): _____

_____

Date: _____ Actions/Steps completed by (Staff person): _____

_____

_____

Resolution

_____

_____

_____

Was the grievant provided a verbal explanation of the above resolution?

Yes ☐ No ☐ Date: _____

Was the Grievance escalated?

If yes to where: _____

*Please attach any documentation regarding the escalation of the grievance

Was Acknowledgement Letter Provided? Yes ☐ No ☐ Date: _____

Was Response Letter Provided? Yes ☐ No ☐ Date: _____

8.6 Grievance prevention/Alternative Dispute Resolution

There are ways to proactively solve issues before they even become grievances. Project implementers should be aware and accept that grievances are likely to occur. Dealing with them is part of the work and they should be considered in a work plan. Project implementers can prevent complaints by the following:

- Providing sufficient and timely information to communities
- Conducting meaningful community consultations involving all stakeholders
- Building capacity for project staff, particularly in community facilitations and other field-related issues
- Negotiation, Meditation and reconciliation

9. 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 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 negative 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.

10.0 Environmental & Social Screening Form

(Guidelines: Site inspection of project site. The evaluation results to be a consensus of at least three officials)

Project Name:				**District:**			
Project Location TA: **GVH:**				**Name of Catchment**			
Name of Village:				**Nature/Size:**			
Name, Signature & Designation of Evaluator(s): **1……** **.** **2……**				**Date of Field Evaluation:**			
				Sector			
		Appraisal		**Significance**			***Potential Mitigation Measures***
		Yes	**No**	**Low**	**medium**	**high**	
1.0	**Environmental and Social Screening**						
	Will the project generate the following negative impacts						
1.1	Loss of trees/vegetation						
1.2	Soil erosion/siltation in the area						
1.3	Pollution to land- e.g. from diesel, oils						
1.4	Dust emissions						
1.5	Solid and liquid wastes e.g. open defecation						
1.6	Spread of HIV/Aids and other STI						
1.7	Borrow pits and pools of stagnant water						

1.8	Rubble/heaps of excavated soils						
1.9	Alien / Invasive species						
1.10	Spread of water borne diseases e.g. Malaria						
1.11	Loss of soil fertility						
1.12	Contamination from agrochemicals and pesticides						
1.13	Nuisance from smell or noise						
1.14	Reduced water quality and quantity						
1.15	Incidence of flooding						
1.16	Disruption of marriages						
1.17	Health hazards to workers and communities						
1.18	Removal of native trees						
2.0	**Resettlement Screening**						
	Will the project generate the following negative social and economic impacts?						
2.1	Loss of land by households						
2.2	Loss of properties –houses, structures						
2.3	Loss of trees by households						
2.4	Loss of crops by people						
2.5	Loss of access to river/forests/grazing area						
2.6	Loss of cultural site, graveyard land						
2.7	Conflicts over use of local water resources						
2.8	Disruption of important pathways, roads						
2.9	Loss communal facilities –churches						

Consultation (comments from beneficiaries)

Overall evaluation of Environmental and Resettlement Screening Exercises.

The results of the screening process would be either the proposed sub - projects would be exempted or subjected to further environmental and resettlement assessment. The basis of these options is listed in the table below:

Review of Environmental Screening	Tick	Review of Resettlement Screening	Tick
1. The project is cleared. No serious impacts. *(When all scores are "No" in form)*		1. The project is cleared. No serious social impact. *(Where scores are all "No", "few" in form)*	
2. There is need for further assessment. *(when some scores are "Yes, High" in form)*		2. There is need for resettlement/compensation. *(When some scores are "Yes, High" in form*	
3. Need to prepare ESMP		3. Need to prepare RAP	

Endorsement by Environmental District Officer	Endorsement by Director of Planning and Development
Name	Name:
Signature: Date	Signature: Date:

NOTES:

1. The DPD shall ensure that a completed form is filed within project file immediately after endorsement. EDO should keep a duplicate.
2. Project Management Committee will maintain a copy of completed form.

11. REFERENCES

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Annex 4: 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*
2. 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 staffs and groceries.
3. *Pressing Challenges in order of Priority*
4. The communities have almost similar challenges due the fact they rural in nature. Firstly, lack of access to clean water. Water is drown 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.
5. *Addressing the challenges (Solutions)*
6. 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.

7. *Factors Hindering from addressing the challenges*
8. 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.
9. *Access to Farming Inputs*
10. Difficulties in accessing inputs due to poor roads leading to the market areas (On Average distance is 27 km)
11. *Access of Inputs through Cooperatives, Others or Shops*
12. 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.
13. *Price Increments in recent years*
14. 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.
15. *Effects of Increased prices of farming Inputs*
16. 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., famer 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.

17. *When changes in prices*
18. 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.
19. *Aspects of Natural resource men are interested in more than women and vice versa.*
20. 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.

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

17. Traditional practices and customs the regulate men and women access and use natural resources.
18. 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.
19. Observed changes in temperature and rainfall pattern.
20. 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.
21. How changes in temperature and rainfall pattern are affecting livelihoods activities.
22. Heavy rains destroy properties and crops. Further delayed rainfall disturbs the seasonal farming cycle. Diseases prevalence is high of Malaria and Diarrhoea.
23. How changes affect Women, differently-abled and youth.
24. 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.
25. How changes affect Health (especially malaria or diarrhoea)
26. 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.
27. How changes affect livelihood options (people migrating to urban areas)
28. On the contrary, people are migrating to rural areas to be farmers. People only move to settlements within the same location to continue farming.
29. Benefits from building and promoting diversified, resilient and sustainable community livelihood options.
30. 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.
31. Benefits from local financial service providers to build community adaptive capacities in climate sensitive sectors.
32. 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.

33. Benefits from enhanced district-level planning and awareness raising for evidence-based resilience and adaptive capacity building.
34. 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.
35. Role played in building and promoting diversified, resilient and sustainable community livelihood options.
36. Community cooperation and participation.
37. Role played in financing build community adaptive capacities in climate sensitive sectors.
38. Community mobilization can be conducted to help in financing, especially material contribution from local resources
39. 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 5 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 - Nchelenge District

Attendance Register Date 16/11/2022

S/N	FULL NAMES	NRC	MOBILE NUMBER	SIGNATURE
1	MUKUPA FRANK C	153637/35/1	0763179995	[illegible]
2	JOSEPH KAPIKA	179644/35/1	0967517433	[illegible]
3	BEEA FE[illegible]	505150/33/1	0776559123	[illegible]
4	CHISHIMBA JACINTA	100766/35/1	0968782404	[illegible]
5	CHIGOSHI MUCHONA	294488/33/1	0964561961	[illegible]
6	PULE MOSES	167994/35/1	0962349057	[illegible]
7	Elisah Chola	205381/33/1	0979013177	[illegible]
8	MUKUPA CHISONA GODFREY	19404/35/1	0976-26-3027	[illegible]
9	Mulache Derius	607944/33/1	0975450976	[illegible]
10	KABULA SEISON	206294/33/1	0979279492	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]
12	NSAMA CHRISTINE	237900/33/1	0979505813	[illegible]
13	HENRY [illegible]	112463/33/1	0967742464	[illegible]
14	KABASO COSMAS	276462/33/1	0978663734	[illegible]
15	Maxwell M[illegible]	290182/33/1	0974736207	[illegible]
16	Katwishi Kelvin	261524/83/1	0974614458	[illegible]
17	NORMA CHRISTINE	[illegible]	[illegible]	[illegible]
18	SWAZIA [illegible]	195914/55/1	0960253188	[illegible]
19	KANGWA MORIS KASOMA	246457/33/1	0972228770	[illegible]
20	[illegible]	206700/33/1	0977797370	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]
23	Kalunda [illegible]	102663/33/1	[illegible]	[illegible]
24	[illegible]	[illegible]	0976682907	[illegible]
25	MUMBA JUSTINA	[illegible]	0974706726	[illegible]
26	RUMBA THERESA	239180/35/1	0965824484	[illegible]
27	CHISHALA JUDITH	153191/35/1	0979615446	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]
29	MUHONE MIRIAM	116275/34/1	0964620009	[illegible]
30	[illegible]	211934/64/1	0977982016	[illegible]
31	MWENYA [illegible]	[illegible]	0972087365	[illegible]
32	MWILA LUCY	152360/33/1	0975523381	[illegible]
33	BARBRA [illegible]	166514/35/1	0974876648	[illegible]
34	[illegible]			[illegible]
35	MBUNDU [illegible]	186418/35/1	0771137003	[illegible]
36	LUPUPA [illegible]	216/207/26/1		[illegible]
37	CHABUTA [illegible]	161291/35/1	0976643055	[illegible]
38	Chanda Jacob	196831/16/1	0966411077	[illegible]

Adaptation Fund (AF) Proposal Design Mission

Stakeholder Consultative Meeting at IFAD Country Office

Date: 11/11/2022

Attendance List

	Name	Organisation	Designation	Email address
1.	Peggy Mlewa	MUSO PPD	DIRECTOR PPD	[illegible]
2.	Douglas Dawa	GIZ	Snr Advisor	douglas.dawa@giz.de
3.	Ivanild Da Cruz	IFAD	Programme Management Specialist	i.dacruz@ifad.org
4.	[illegible]	IFAD	[illegible]	[illegible]
5.	Virginia Leesi	IFAD	Consultant	v.leesi@ifad.org
6.	Andrew Chongwe	MFL	PLPO	andymchongwe@yahoo.co.uk
7.	Gift Munthali	MFL/DAPS	CVO	munthaligo@gmail.com
8.	Nelson Lukhele	MoFNP	Economist	[illegible]
9.	Habeenzu Simomba	RUFEP	PSO	Habeenzu.Simomba@rufep.org.zm
10.	[illegible]	WFP	PPO	[illegible]
11.	AFIA NKRUMAH	IFAD	Consultant	a.nkrumah@ifad.org
12.	[illegible]	IFAD	Consultant	[illegible]
13.	Bernard Mumba	MoA	Chief Agricultural Economist	bernard.mumba@agriculture.gov.zm
14.	Michael Mbewe	RUFEP	Programme Coordinator	[illegible]
15.	[illegible]	IFAD Consultant	IFAD Consultant	[illegible]
16.	Brenda Simainga	NDA	[illegible]	[illegible]
17.	Brian Kapotwe	IFAD	Country Program Officer	b.kapotwe@ifad.org

ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2022	Community Stakeholder Consultative Meeting	Southern	Monze (Nyeke)

No	Name of Participant	NRC No.	Gender	Year born	Village/location	Phone	Signature
1	LUMBA MAPAMBO	206540/77/1	M	1945	[illegible]	[illegible]	[illegible]
2	MIZINGA MWAKA	120165/77/1	M	1960	KANUNDA	0974599971	[illegible]
3	JONATHAN DINDE	194684/77/1	M	1971	[illegible]	0953657341	[illegible]
4	Enock [illegible]	[illegible]	M	1965	[illegible]	0979256095	[illegible]
5	Mulenga Chisei	[illegible]	M	1983	[illegible]	[illegible]	[illegible]
6	TEDY MUNKANYA		M	1971	[illegible]	[illegible]	[illegible]
7	MAFRED HACYOMBA		M	1993	[illegible]	[illegible]	[illegible]

ADAPTATION FUND
ATTENDANCE SHEET

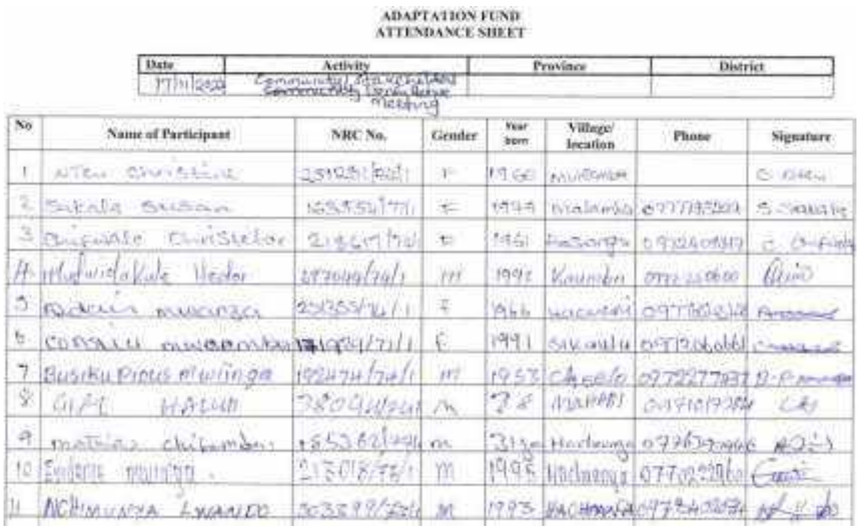
Date	Activity	Province	District
17/11/2022	Community Stakeholder Consultative Meeting	Southern	Monze (Nyeke)

No	Name of Participant	NRC No.	Gender	Year born	Village/location	Phone	Signature
1	Mukobaanga Mutinta	[illegible]	F	1971	Chonika	0974[illegible]	[illegible]
2	Mukkuli Janet	147706/77/1	F	1969	Chonika	0971877[illegible]	T. Mukuli
3	Mutinta Mwaka	173380/77/1	F	1956	Malambo	0976[illegible]	[illegible]
4	Monica Muleenda	185896/77/1	F	1990	Malambo	0973221438	[illegible]
5	Mildred Moono	330685/[illegible]	F	1990	[illegible]	[illegible]	[illegible]
6	Mutinta Muleene	202131/77/1	F	1994	Handome	[illegible]	[illegible]
7	Margret Busiku	251623/76/1	F	1966	Himikata	0950146796	M. Busiku
8	Coolwe Hamulu	240049/77/1	F	2002	Handome		C. Hamulu
9	Mary Mazuba	246681/77/1	F	1965	Hazala	0772814520	M. Mazuba
10	Ozilly Luumbo	216660/77/1	F/M	1996	Chiyema	0971660[illegible]	[illegible]
11	Junior Moonga	316661/77/1	M	1997	Chiyema	0970374473	[illegible]

ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2022	Community Stakeholder Consultative Meeting	Southern	Monze (Nyeke)

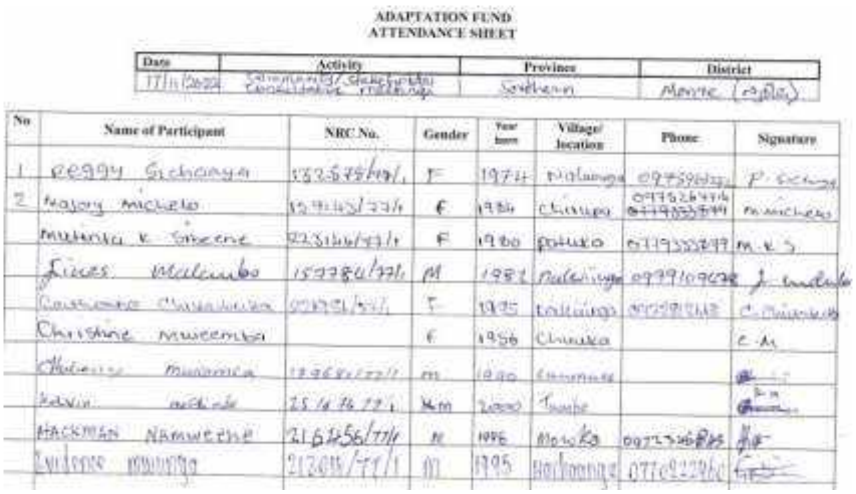
No	Name of Participant	NRC No.	Gender	Year born	Village/location	Phone	Signature
1	Sibil Chabwe	216464/77/1	Male	1968	[illegible]	0777768897	[illegible]
2	Gertrude [illegible]	178523/77/1	Female	1972	[illegible]	[illegible]	[illegible]
3	[illegible]	253365/77/1	Female	2002	[illegible]	[illegible]	[illegible]
4	Precious Malambo	185520/77/1	Female	1990	Malambo	[illegible]	[illegible]
5	Mildred Malala	[illegible]	Female	1985	[illegible]	[illegible]	[illegible]
6	[illegible]	232681/77/1	Female	1986	[illegible]	[illegible]	[illegible]
7	[illegible]		Female	1976	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	Female	1999	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	Female	2003	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	Female	2002	[illegible]	[illegible]	[illegible]
11	Precious Moonga	[illegible]		1987	[illegible]		[illegible]
12	Mutumba Muchopa		Female	2003	[illegible]	[illegible]	[illegible]
13	Chaloso Chisanika	[illegible]	Female	1995	Chika		[illegible]



ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2024	Community/ Stakeholder Consultative Meeting		

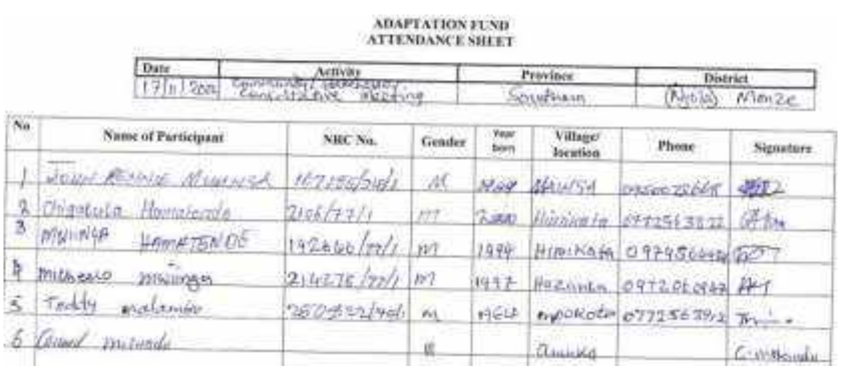
No	Name of Participant	NRC No.	Gender	Year born	Village/ location	Phone	Signature
1	NTEW CHRISTINE	251231/[illegible]	F	1960	MUKOMA		C. [illegible]
2	SIKALA SUSAN	163554/77/1	F	1974	Nalambo	0777195200	S. [illegible]
3	CHIFWASE CHRISTINE	218617/[illegible]	F	1951	[illegible]	0972401819	C. [illegible]
4	[illegible] Hector	297049/74/1	M	1992	Kaumba	0772 220600	[illegible]
5	[illegible] MWANZA	253551/76/1	F	1966	[illegible]	0977[illegible]	[illegible]
6	CONSALU MWEEMBA	[illegible]/71/1	F	1991	SIKAULU	0779[illegible]	[illegible]
7	Busiku Pious Mwiinga	192474/74/1	M	1953	Chaala	0772277837	B.P[illegible]
8	GIFT HALUN	380944/[illegible]	M	78	MAPPBI	0971017984	[illegible]
9	mataa chibumba	155362/[illegible]	m	[illegible]	Hachaanga	0976[illegible]	[illegible]
10	Evidence mwiinga	213018/78/1	M	1995	Hachaanga	07702229[illegible]	[illegible]
11	NCHIMUNYA LWANDO	303299/[illegible]	M	1993	[illegible]	0977[illegible]	[illegible]



ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2024	Community/ Stakeholder Consultative Meeting	Southern	Monze (Nzoko)

No	Name of Participant	NRC No.	Gender	Year born	Village/ location	Phone	Signature
1	Peggy Sichonya	153257/[illegible]	F	1974	Nalumba	09759[illegible]	P. Sich[illegible]
2	Majory Michelo	159145/77/1	F	1984	Chiimpa	0975264714	M. Michelo
	Mutinta K. Simeene	223146/77/1	F	1980	[illegible]	0779335299	M.K.S
	Lucas Malambo	159780/77/1	M	1982	Nalwiinga	09791096[illegible]	J. [illegible]
	Constance Chaambala	079791/54/1	F	1995	[illegible]	0979[illegible]	C. Chaambala
	Christine Mweemba		F	1956	Chuuka		C.M
	[illegible] Muleya	19368[illegible]/77/1	M	1990	[illegible]		[illegible]
	Kelvin [illegible]	251676/77/1	M	2000	[illegible]		[illegible]
	HACKMAN NAMWENE	216256/77/1	M	1996	Moonka	0972[illegible]	[illegible]
	Evidence mwiinga	213018/77/1	M	1995	Hachaanga	0770222[illegible]	[illegible]



ADAPTATION FUND
ATTENDANCE SHEET

Date	Activity	Province	District
17/11/2024	Community/ Stakeholder Consultative Meeting	Southern	(Nzoko) Monze

No	Name of Participant	NRC No.	Gender	Year born	Village/ location	Phone	Signature
1	[illegible] Mwiinga	167156/[illegible]	M	[illegible]	[illegible]	0956[illegible]	[illegible]
2	Chipatula Hamalambo	2106/77/1	M	2000	[illegible]	0772513832	[illegible]
3	MWIINGA HAMATENDE	192466/77/1	M	1994	HIMIKAFA	097456[illegible]	[illegible]
4	Michelo mwiinga	214276/77/1	M	1997	[illegible]	09720[illegible]	[illegible]
5	Teddy malambo	350[illegible]/[illegible]	M	1964	[illegible]	0772567[illegible]	[illegible]
6	[illegible] [illegible]		M		Chuuka		[illegible]

A focus group discussion with local communities in Chibombo district, Central province.

A herd of cattle on an already overgrazed, denuded and water scarce landscape with poor soil status in Southern Province.

A group picture with members of the Mabuyu 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.

ATTENDANCE REGISTER GLOBAL ADAPTATION FUND STAKEHOLDERS MEETING ON 17/11/22 IN SESHEKE DISTRICT

Requested by: C. SIBUKU

Approved by: STEPHEN MWAMBA

ATTENDANCE REGISTER FOR GLOBAL ADAPTATION FUND STAKEHOLDERS MEETING ON 18/11/22 IN KAZUNGULA DISTRICT

Approved by: STEPHEN MWAMBA

ATTENDANCE REGISTER GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAMMES STAKEHOLDERS MEETING ON 17/11/22 IN SESHEKE DISTRICT

No	NAME	SEX	ORGANISATION	NRC	SIGNATURE
1	KENNEDY MUNDIA	M	C.R.D.F	257587/73/1	
2	MASIKU SIMASIYA	M	MAFISA	127248/85/1	
3	MUBUKA KACHANANGA	F	EDUCATION	259652/82/1	
4	MWAKA SITUMBEKO	F	MAFISA	155714/85/1	
5	Kakumkuwa Masheke	M	MAF, SA	221851/85/1	
6	NAKUNZI LUKUKU	M	INDUNA	101144/83/1	
7	SIBALWA EVANS	M	EDUCATION	122830/97/1	
8	BORN M LISWANI	M	Farmer	163201/85/1	
9	Matakala Inyambo	M	Farmer	158649/85/1	
10	Lisulo Mfulaita	M	Mafisa	154575/85/1	
11	Mutakala M	F	Mafisa	194657/85/1	
12	Priscilla N Kafulo	F	Mafisa	156104/85/1	
13	CHIBINDA MUYEBA	M	COUNCILLOR	173421/83/1	
14	MWANIKA TREVOR	M	Agricultural Assistant	114489/79/1	
15	Brodrick Lunamo Sakaya	M	FARMER	152063/85/1	
16	Mukela Horst Makabula	M	EDUCATION	2659/82/1	
17	PHILIP Simataa Sambani	M	Farmer	132002/77/1	
18	Sidumbo Muyunda L	M	Farmer	118941/85/1	
19	Matomola Mabuku	F	farmer	145173/85/1	
20	MUKWILUKWA SIMASIKU	M	FARMER	136853/85/1	
21	S. Mabuye Kayongo	M	Farmer	134464/85/1	
22	Intaba Katiba	M	farmer	133209/85/1	
23	Mwelwa Evans	M	Education	250836/38/1	
24	Margaret Nyambe	F	FARMER	117432/85/1	
25	Monde Nkowane	F	Farmer	916625/85/1	

ADAPTATION FUND

NACRO

ATTENDANCE LIST DATE 16/11/2022

ADAPTATION FUND

NACRO

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