



**GREEN
CLIMATE
FUND**

Meeting of the Board
10 – 12 March 2020
Geneva, Switzerland
Provisional agenda item 17

GCF/B.25/02/Add.04

18 February 2020

Consideration of funding proposals - Addendum IV

Funding proposal package for FP127

Summary

This addendum contains the following seven parts:

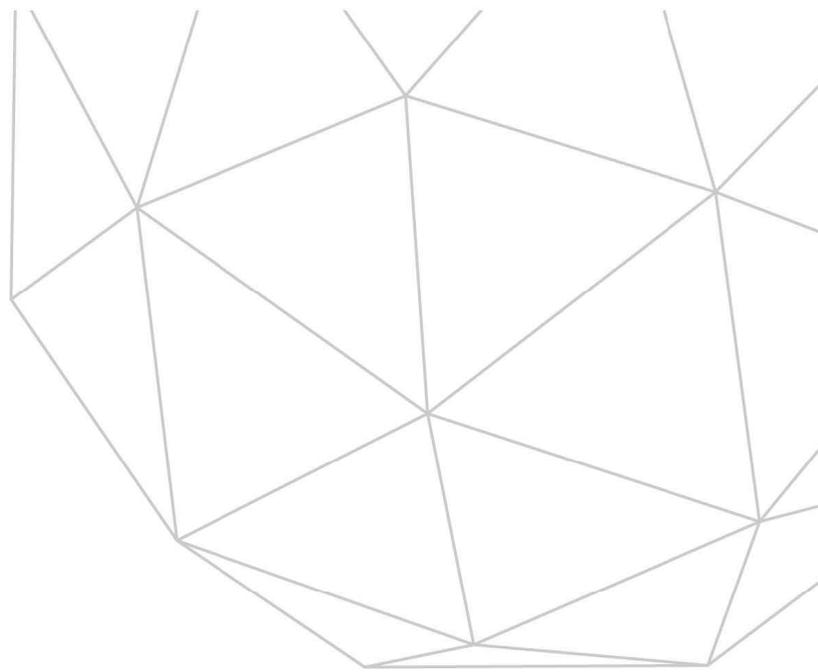
- a) A funding proposal titled “Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe”;
- b) No-objection letter issued by the national designated authority(ies) or focal point(s);
- c) Environmental and social report(s) disclosure;
- d) Secretariat’s assessment;
- e) Independent Technical Advisory Panel’s assessment;
- f) Response from the accredited entity to the independent Technical Advisory Panel’s assessment; and
- g) Gender documentation.

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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project/Programme Title: **Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe**

Country/Region: Zimbabwe

Accredited Entity: United Nations Development Programme

Date of Submission: 17 February 2020

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Section H	RESULTS MONITORING AND REPORTING
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Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

“[FP]-[Agency Short Name]-[Date]-[Serial Number]”

A.1. Brief Project / Programme Information		
A.1.1. Project / programme title	Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe	
A.1.2. Project or programme	Project	
A.1.3. Country (ies) / region	Zimbabwe	
A.1.4. National designated authority (ies)	Ministry of Environment, Climate, Hospitality and Tourism	
A.1.5. Accredited entity	United Nations Development Programme (UNDP)	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entity / beneficiary	Executing Entity: Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) Beneficiary: 543,620 direct and 1,758,500 indirect beneficiaries	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro (≤ 10) <input checked="" type="checkbox"/> Small ($10 < x \leq 50$) <input type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250)	
A.1.8. Mitigation / adaptation focus	<input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> Adaptation <input type="checkbox"/> Cross-cutting	
A.1.9. Date of submission	17 February 2020	
A.1.10. Project contact details	Contact person, position	Muyeye Chambwera
	Organization	UNDP
	Email address	muyeye.chambwera@undp.org
	Telephone number	+251912503320
	Mailing address	United Nations Service Building, Olompia Roundabout, DRC Street, Addis Ababa, Ethiopia

A.1.11. Results areas <i>(mark all that apply)</i>	
Reduced emissions from:	
<input type="checkbox"/>	Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
<input type="checkbox"/>	Low emission transport (E.g. high-speed rail, rapid bus system, etc.)
<input type="checkbox"/>	Buildings, cities and industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
<input type="checkbox"/>	Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
Increased resilience of:	
<input checked="" type="checkbox"/>	Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
<input checked="" type="checkbox"/>	Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.)

- Infrastructure and built environment
(E.g. sea walls, resilient road networks, etc.)
- Ecosystem and ecosystem services
(E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

1. The key climate change risks in Zimbabwe stem from increasing temperatures, more variable rainfall, and the intensification of extreme weather events. Increasing temperatures, coupled with declining and more erratic rainfall and greater evapotranspiration, result in increasing river run-off, leading to more aridity, the expansion of marginal lands and decreasing soil water retention capacity. Declining and variable rainfall is projected to cause changes to the growing season, with significant implications for yields and national revenues. Increasing frequency and length of mid-season dry spells has resulted in crop failure in rain-fed farming systems owing to severe water stress during the growing season (agricultural drought). The greatest intensity of impacts is experienced in the southern provinces, where the majority of smallholder farmers, especially women, depend on rainfall and bear the brunt of these climate risks threatening their food and income security.

2. The **objective** of the proposed project is to support the Government of Zimbabwe in **strengthening the resilience of agricultural livelihoods of vulnerable communities, particularly women, in southern Zimbabwe to increasing climate risks and impacts**. GCF resources will leverage GoZ co-financing to overcome technical, financial, institutional and capacity barriers to enable smallholder farmers, especially women, to: 1) access sufficient, reliable sources of water to enhance the climate resilience of agricultural production; 2) adopt climate-resilient agricultural practices and cropping systems; and 3) access and utilize climate information to more effectively manage climate risk in rain-fed and irrigated agricultural production. The project will benefit an estimated 2,302,120 people (approximately 543,620 direct and 1,758,500 indirect beneficiaries) across Manicaland, Masvingo and Matabeleland South provinces.

3. The proposed project will enhance the water security for smallholder farmers in light of evolving climate risks by enabling revitalization and climate-proofing of irrigation schemes and improving water use efficiency and enhancing soil moisture management on rain-fed lands. It will strengthen the capacities of vulnerable smallholder farmers through Farmer Field Schools and peer-to-peer support to scale up climate-resilient agriculture, with access to resilient inputs, markets, and actionable climate information. The project empowers vulnerable smallholders through multi-stakeholder Innovation Platforms for climate-resilient agriculture – including value-chain actors and financial intermediaries – to make a transformative shift away from subsistence livelihoods to climate-resilient, market-oriented agricultural livelihoods. It leverages government budget on input supply to smallholder farmers in the three provinces so that it is directed towards climate-resilient varieties. The project yields significant environmental, social and economic co-benefits, including climate risk-informed, sustainable land management, strengthened gender norms and women’s empowerment, private sector engagement, and increased income and food security including income and productivity benefits over the project’s lifetime.

4. The project contributes towards GoZ’s achievement of priorities outlined in its Nationally Determined Contributions (NDC) and climate change plans and strategies including: strengthening management of water resources and irrigation in the face of climate change; strengthening capacities to generate new forms of empirical knowledge, provision of technologies (including conservation agriculture) and agricultural support services that meet climate challenges, and strengthening the capacity of the national meteorological and hydrological services to provide timely climate data. The proposed project is prioritized for inclusion in the country’s GCF Country Work Programme, currently under development. The project is endorsed by GoZ and was designed through extensive stakeholder consultations involving civil society, bilateral donors, and communities. The NDA has issued a no-objection letter.

A.3. Project/Programme Milestone



Expected approval from accredited entity's Board (if applicable)	01/10/2018
Expected financial close (if applicable)	TBD (date of agreement on the FAA between UNDP and GCF)
Estimated implementation start and end date	Start: <u>01/07/2020</u> End: <u>30/06/2027</u>
Project/programme lifespan	7 years, 0 months

B.1. Description of Financial Elements of the Project / Programme

5. The Government of Zimbabwe seeks maximum concessionality in the form of grant financing for the proposed urgent adaptation actions, which will leverage GoZ co-financing of USD 20,038,820 during the seven years of project duration to support poor smallholder farmers in the most vulnerable Agro-Ecological Regions (IV and V) of southern Zimbabwe to adapt to increasing temperatures and rainfall variability.

GCF funding will be applied to overcome barriers related to:

- (i) water security for smallholder farmers by enabling revitalization and climate-proofing of existing of irrigation schemes, improving water use efficiency and enhancing soil moisture management on rain-fed lands (Output 1).
- (ii) the adoption and application of climate-resilient agricultural practices and cropping systems through training of smallholder farmers in Farmer Field Schools and support to peer-to-peer extension of the packages of climate-resilient innovations to current practice (Output 2).
- (iii) access markets for climate-resilient crops through their participation in localized Innovation Platforms involving all stakeholders – including buyers and credit providers - in crop-resilient value chains (Output 2).
- (iv) the production and dissemination of climate, agricultural and market information by improving the network of hydro-meteorological stations in the catchments of the project area and by building the capacities of institutional personnel to compile, interpret and produce actionable information for smallholders, and to distribute it through a variety of media, including SMS and other communication channels (Output 3).

6. **Co-Financing:** The co-financing for the project is USD 21,243,820, which includes USD 20,038,820¹ (19% of the total project costs) co-financing committed by the GoZ and USD 1,205,000 committed by UNDP over the project duration of seven years.

7. **Government Co-financing:** Of the total GoZ co-financing, USD 14,247,800 is in cash and USD 5,791,020 in in-kind. Co-financing from the GoZ will complement GCF resources for investments in:

- (i) revitalization and climate-proofing of 21 climate-vulnerable irrigation schemes (Activity 1.1, Output 1);
- (ii) scaled-up adoption and implementation of climate-resilient agricultural practices by lead smallholder farmers and beneficiary farmers in 137 climate vulnerable wards (Activity 2.2, Output 2);
- (iii) influencing the public budget for agricultural inputs in the 3 target provinces towards climate resilient agriculture (Activity 2.2, Output 2)
- (iv) multi-level institutional technical capacities for implementation and coordination of climate-risk planning and management, knowledge generation and learning to build long-term adaptive capacities of institutions and smallholder farmers (Activity 2.2, Output 2).
- (v) a network of climate and weather monitoring and information systems benefiting farmers directly, together with the rural population of the targeted wards of the 15 districts, (Activity 3.1 and Activity 3.2, Output 3); and
- (vi) O&M of hydromet infrastructure during the seven-year project period (Activity 3.1).
- (vii) Project Management to facilitate the implementation of project activities.

8. In-kind contributions include staff time from AGRITEX, DLPD/DVS, DoI and DR&SS will support climate proofing of irrigation schemes and setting-up of the maintenance funds for post project O&M, implementation of Farmer Field Schools and facilitation of climate-resilient value chain Innovation Platforms, including training of FFS Trainers; training of lead farmers; follow-up and supervision of lead farmer engagement with smallholders; meetings and engagement with private sector entrepreneurs and other entities; knowledge generation and dissemination; and institutional planning and coordination at all levels. Additional support (staff time and resources) from the Zimbabwe National Water Authority (ZiNWA and the Meteorological Services Department (MSD) under the MLAWRR will be provided for the operation and maintenance of equipment (including hydro-met stations and automatic rain gauges to be installed by the project) and for development of tailored weather and climate products.

¹ The total co-financing being provided by GoZ for the project is USD 20,038,820 of which USD 14,247,800 is in cash and USD 5,791,020 is in-kind. In addition, USD 963,800 will be provided by GoZ as contributions towards post-project O&M for the hydro-met infrastructure for a period of 10 years after the project ends.

9. **UNDP Co-financing:** The remaining co-finance of USD 1,205,000 in cash committed by UNDP will complement GCF resources for investments in:

- (i) enabling market access linkages and finance for climate-resilient value chains directly benefiting participating farmers and indirectly benefiting surrounding farm communities (Activity 2.1, Output 2); and
- (ii) supporting Project Management activities.

10. **Other indirect finance:**

- (i) GoZ Post-project contributions for O&M of Hydro-met infrastructure: For the 10-year post project period, GoZ will finance USD 963,800 (USD 145,000 in cash and USD 818,000 in-kind). Post project contributions will support O&M of the hydro-met infrastructure (e.g. spare parts, accessories and internet bundles), as well as staff time and resources for maintenance of automatic weather stations, rain-gauges and hydrological stations. (Refer to O&M plan for further details, Annex XIIIb)
- (ii) Community and private sector (value-chain and market actors) engagement and financing during project implementation: Smallholder lead farmers pool in-cash contributions through Farmer Field Schools to cover production investments, e.g. in equipment, materials, inputs or other factors for the farmers' group for activities 1.2 and 2.1. These pooled funds are matched with project finance (on a 30-70% to a 50%-50% basis), totaling approximately USD 1,200,000 in cash contributions from smallholder farmers over the full project period. Initial input support will be provided as part of FFS activities over two seasons, then farmers graduate to cover their own expenses after perceiving a lower risk of adoption of new innovations from having seen them work, having developed the skills to apply them and having explored access to related markets. The proposed project will also enable smallholder producers' groups to access and leverage credit financing by linking them directly to lenders on multi-stakeholder Innovation Platforms.
- (iii) Community contributions towards O&M of the 21 climate-proofed irrigation schemes (Activities 1.1 and 1.2):
 - a. During the project period USD 4,805,550 (USD 3,138,120 in cash and USD 1,667,430 in-kind) will be financed by communities in the form of cash and in-kind contributions. Smallholder contributions are expected to be mobilized through the provision of adequate irrigation water, which will catalyze community engagement and investment, estimated at a total of USD 2,430,240 in cash contributions for the O&M funds managed by Irrigation Management Committees, USD 707,880 in cash contributions for equipment, and USD 1,667,430 in in-kind contributions during the seven-year project period (2019-2025).
 - b. O&M contributions post-project period: For the 10-year post project period, USD 8,009,250 (USD 5,230,200 in cash and USD 2,779,050 in-kind) will be financed by the community. The post project smallholder contributions are calculated at approximately USD 405,040 per year (i.e. USD 4,050,400 for 10 years at USD 70 per smallholder farmer per year) for the O&M funds of their respective irrigation schemes; USD 117,980 /year (i.e. USD 1,179,800 for 10 years) for equipment maintenance costs and USD 277,905/year (i.e. 2,779,050 for 10 years) for in-kind contributions towards general maintenance and repairs.

Table 1: Breakdown of Project Costs by Output

Output	Activity	GCF Funding Amount USD	Co-financing		Project Total* USD
			GoZ	UNDP	
USD					
Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management	Activity 1.1: Climate proofing irrigation infrastructure for enhanced water security in the face of climate change	10,359,211	6,100,000	-	16,459,211
	Activity 1.2: Field-based training and technology investments for farmers on rain-fed farmlands for climate-resilient water management	1,496,914	313,600	-	1,810,514
Output 1 Sub total		11,856,125	6,413,600	-	18,269,725

Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets	Activity 2.1: Establish transformative multi-stakeholder innovation platforms for diversified climate resilient agriculture and markets	1,995,446	240,000	623,600	2,859,046
	Activity 2.2: Investments in inputs, technologies and field-based training to scale up the implementation of climate-resilient agricultural production in the face of increasing climate hazards (rain-fed and irrigated farms)	4,251,281	11,662,700	-	15,913,981
	Activity 2.3: Enhance institutional coordination and knowledge management capacities for climate-resilient agricultural production in the face of increasing climate hazards	2,409,802	462,000	-	2,871,802
Output 2 Sub total		8,656,529	12,364,700	623,600	21,644,829
Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture	Activity 3.1: Installation and operationalization of weather/climate and hydrological observation networks	1,512,722	68,700	-	1,581,422
	Activity 3.2: Develop, disseminate and build institutional capacities (MSD and AGRITEX) for tailored climate and weather information products	1,202,779	45,200	-	1,247,979
	Activity 3.3: Capacity building for farmers and local institutional staff on effective use of climate and weather information and products for resilient water management and agricultural planning	2,166,742	659,420	-	2,826,162
Output 3 Sub total		4,882,243	773,320	-	5,655,563
Project Management Cost		1,179,670	487,200	581,400	2,248,270
Total Financing		26,574,567	20,038,820**	1,205,000	47,818,387

* US Dollar is used as local currency in Zimbabwe

** Includes in-kind co-financing by GoZ of USD 5,791,020

Please see Annex XIII(e) for the budget breakdown by expenditure type (project staff and consultants, travel, goods, services, etc.) and disbursement schedule.



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B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	(a) = (b) + (c)	47,818,387	<u>million USD</u> (\$)		
(b) GCF financing to recipient	(i) Senior Loans	-	<u>Options</u>	() years	()%
	(ii) Subordinated Loans	-	<u>Options</u>	() years	()%
	(iii) Equity	-	<u>Options</u>		()% IRR
	(iv) Guarantees	-	<u>Options</u>		
	(v) Reimbursable grants *	-	<u>Options</u>		
	(vi) Grants *	26,574,567	<u>million USD</u> (\$)		
<p>* Please provide economic and financial justification in section F.1 for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.</p>					



	Total requested (i+ii+iii+iv+v+vi)		26,574,567	<u>Options</u>			
(c) Co-financing to recipient	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
	<u>Grant</u>	1,205.000	<u>million USD (\$)</u>	UNDP (TRAC)	() years	() %	<u>Options</u>
	<u>Grant</u>	14,247,800	<u>million USD (\$)</u>	Government of Zimbabwe	() years	() %	<u>Options</u>
	<u>Grant</u>	<u>5,791,020</u>	<u>million USD (\$)</u>	Government of Zimbabwe (in-kind)		() % IRR	<u>Options</u>
	<u>Options</u>		<u>Options</u>				<u>Options</u>
Lead financing institution: Not applicable							
<i>* Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.</i>							
(d) Financial terms between GCF and AE (if applicable)	Not applicable						
B.3. Financial Markets Overview (if applicable)							
<i>Not applicable</i>							

C.1. Strategic Context

11. Southern Zimbabwe is home to 30% of the country's 14.5 million²³ people and 45% of the country's rural population, including some of the poorest communities in the country, with poverty prevalence across the Southern provinces ranging from 66-74%.⁴ About 7.1 million people in Zimbabwe depend on smallholder farming, most of whom are women. Over the past five years, Zimbabwe has experienced a sharp decline in the rate of economic growth from 11.9% in 2011 to 1.5% in 2015⁵. This decline is largely due to underperformance of the agriculture sector, which at its peak contributed 19% to GDP. Agricultural performance in Zimbabwe is heavily impacted by the quality and quantity of rainfall with extreme events such as droughts or floods being the most damaging, along with dry dekads – ten-day rain-free periods during the growing season that cause “agricultural drought”.

12. While climate change affects the entire country, impacts are experienced most intensely in the southern provinces, where the majority of smallholder farmers are extremely vulnerable to increasing climate hazards as a result of poverty and weak access to services and institutional resources. Most of the farmland in southern Zimbabwe – the provinces of Manicaland, Masvingo and Matabeleland South – falls within Agro-Ecological Regions (AERs) IV and V, which have the lowest agricultural potential in terms of rainfall, temperature and length of growing season. The smallholders in southern Zimbabwe are predominantly communal farmers with very limited access to irrigation – only about 10,000 ha out of the 180,000 ha of irrigated land in southern Zimbabwe are found on communal lands.⁶ The remaining farmers are dependent on rain-fed agriculture.

13. These rain-fed agricultural systems are expected to be subject to drier and hotter conditions, making rain-fed maize production – the primary staple - a significant challenge⁷. With increasing climate risks (see below), water is the key limiting factor for agricultural productivity and adaptation to climate change. In addition to decreasing rainfall and increased evaporation, annual rainfall in AER V is increasingly variable, characterized by erratic and unpredictable rains (short, sharp, isolated storms). Crop yields are extremely low, and the risk of crop failure is increasing to one in three years. The effects of climate-induced droughts, exemplified by the 2015/2016 El Niño, continue to demonstrate that Zimbabwe's agricultural sector remains highly vulnerable and exposed to increasing climate risks.

14. According to the 2016 ZimVAC statistics, the highest proportion of food-insecure households at peak hunger period can be found in Matabeleland South (44%), Masvingo (50%) and Midlands (48%) provinces. Zimbabwe spends an average of USD30 million on food relief every year, with expenditures rising to USD 50 million in 2016 when 4.3 million food-insecure people were assisted as a result of El Niño-induced drought. High levels of poverty and food insecurity make the population less able to cope with increasingly harsh and variable climatic conditions. The increasing growth and strength of climate hazards have significant implications for household food security and income in already vulnerable communities in southern Zimbabwe.

Key Government Strategies and National Climate Change Response

15. The Zimbabwe Government has established a five-year economic plan (2013-2018) called the “Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimAsset)”⁸. The plan's vision is to move “towards an empowered society and a growing economy”, execution of which is “to provide an enabling environment for sustainable economic empowerment and social transformation to the people of Zimbabwe”⁹. ZimAsset is an integrated plan with four clusters: a) Food Security and Nutrition; b) Social Services and Poverty Eradication; c) Infrastructure and Utilities; and d) Value Addition and Beneficiation. In 2015, the Government delivered a Ten Point Plan to support operationalization of ZimAsset, of which the following points are most directly relevant to the agricultural sector: “a) Revitalizing agriculture and the agro-processing value chains; b) Advancing Beneficiation

² MAMID. 2013. ZAIP. A comprehensive framework for the development of the agricultural sector. Harare, Zimbabwe.

³ <https://www.cia.gov/library/publications/the-world-factbook/geos/zi.html>

⁴ Ibid.

⁵ While GDP was estimated at 0.6% in 2016 it is now projected to rise to 3.7% in 2017 and to taper off slightly to 3.4% in 2018 mainly on the back of improved performance of the agricultural sector (Ministry of Finance, 2017; World Bank, 2017).

⁶ Manzungu, E. 2011. Reviving irrigation development and management. Thematic Paper 3 Background paper on Water resources development and management for the Zimbabwe National Water Policy, Harare, Zimbabwe.

⁷ Ibid.

⁸ http://www.zimbabwesituation.com/news/zimsit_zim-asset-executive-summary/

⁹ Ibid.

and/or Value Addition to the agricultural and mining resource endowment; c) Focusing on Infrastructure development, particularly in the key Energy, Water, Transport and ICTs subsectors; d) Unlocking the potential of Small to Medium Enterprises; e) Encouraging Private Sector Investments.”

16. To respond to and manage growing climate risks and hazards, the Government of Zimbabwe (GoZ) has formulated a number of key policies and plans, as well as strengthened the corresponding institutional frameworks. GoZ has developed a *National Climate Policy* and a costed *National Climate Change Response Strategy (NCCRS)* and has established a Climate Change Management Department in the Ministry of Environment, Water and Climate to coordinate and guide the national response to climate change. In its recently submitted *Nationally Determined Contributions (NDC)*, Zimbabwe commits to promoting adapted crop and livestock development and climate smart agricultural practices; strengthening management of water resources and irrigation in the face of climate change; and promoting practices that reduce risks of losses in crops, livestock and agricultural incomes among other priorities. Zimbabwe is currently developing a *National Adaptation Plan* with readiness funding from GCF, supported by UNDP.

C.2. Project / Programme Objective against Baseline

*Climate Vulnerability Baseline*¹⁰

Climate Change risks and hazards for Southern Zimbabwe

17. (i) *Temperature*: Since 1950, Zimbabwe has been experiencing more hotter and fewer cold days¹¹ (see FS section 1.6.2). Changes in historical data measured at stations and projected model changes of the future can be summarized as:

- Daily minimum and maximum temperatures have risen by 2.6°C and 2°C respectively over the last century¹²;
- Increases in mean temperatures are higher during the dry season, with minimum temperatures increasing more rapidly than maximum temperatures¹³. The period from 1980 to date has been the warmest on record and October 2015-February 2016 was the driest period on record for large areas of Southern Africa, including Zimbabwe¹⁴;
- Projections anticipate further warming rates of 0.5–2°C by 2030, 1–3.5°C by 2070, and 3–4°C by 2100 (compared to the 1961-1990 baseline), assuming an A2 greenhouse gas emissions pathway^{15,16}. This is consistent with the World Bank Climate Change Knowledge Portal’s future scenarios projection, which predicts an increase in average annual temperature of between 3°C and 4°C by 2070-2099¹⁷, all of which suggest a warming rate of 0.2°C per decade to over 0.5°C per decade;
- Historical trends and future projections suggest that increases in temperature are accompanied by increases in potential evapotranspiration (PET) and aridity, which are greatest at the end of the dry season (October-November);
- Temperature data is available for fewer weather stations in southern Zimbabwe (5 stations as opposed to 23 stations recording rainfall), highlighting the need to improve weather and climate data monitoring infrastructure in the region.

18. (ii) *Rainfall*: Total rainfall has declined by 5% since the start of the 20th century and has exhibited considerable spatial and temporal variability, which in later years has been accompanied by:

¹⁰ Please see Section 1.2 *Climate change in Zimbabwe: observed and projected climate variability and change* in the Feasibility Study for more detail.

¹¹ GRID Arendal. 2017. Climate change in Zimbabwe: trends in temperature and rainfall. Available on: <http://www.grida.no/resources/7034> (Accessed 5 May 2017)

¹² Makarau, A. 1999. Zimbabwe’s climate: Past, present and future. In: Manzungu, E., Senzanje, A., and van der Zaag, P. (eds.) *Water for agriculture in Zimbabwe: Policy and management options for the smallholder sector*. Harare, University of Zimbabwe Publications, pp.3-16.

¹³ MENRM. 2013. Zimbabwe Climate Change Response Strategy. Available on: www.ies.ac.zw/downloads/draft%20strategy.pdf (Accessed 18 June 2016)

¹⁴ FEWS NET . 2016. Southern Africa Special Report. Illustrating the extent and severity of the 2015-16 drought. Available on: <http://www.fews.net/southern-africa/special-report/march-2016> (Accessed 1 July 2016)

¹⁵ Engelbrecht, F and Bopape, M.J. 2009. Projections of Future Climate Change over Southern Africa. CSIR Natural Resources and the Environment Atmospheric Modelling.

¹⁶ KNMI. 2006. Climate Change Scenarios. KNMI, The Netherlands.

¹⁷ World Bank. 2013. Climate Change Knowledge Portal for Development Practitioners and Policy Makers. Available on: http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_future_climate&ThisRegion=Africa&ThisCcode=ZWE (Accessed 1 July 2016)

- Later onset of the rains, increases in the frequency and intensity of heavy rainfall events (decreases in low intensity rainfall events), and an increase in the proportion of low rainfall years.^{18,19};
- Over southern and eastern Zimbabwe there have been spatially consistent reductions in annual rainfall (particularly during JJA, SON (beginning of rainfall season) and MAM (end of rainfall season), which indicate shorter rainfall seasons on average (see FS page 23-25);
- Increases in maximum consecutive dry days and average rainfall on a rainy day indicate shorter rainfall seasons and less rainfall days, though with greater intensity (which is seen in increases in annual maximum daily rainfall (see FS pages 24-25);
- Indices of rainfall – PET are progressively more negative since 1971, indicating that the potential contribution of rainfall to surface water availability has progressively declined in all seasons;
- Rainfall is predicted to continue to decline in all seasons (except DJF) in the future, with more consistency between model simulations for the early and late rains²⁰ (see FS page 28);
- Mean Annual Precipitation will decline, mostly in the southern Zimbabwean catchments, by up to 16% by 2050, whether or not the world succeeds in curbing greenhouse gas emissions²¹. Rainfall is also expected to become more variable with greater changes in the extreme percentiles than the mean annual data²²;
- In southern Zimbabwe, future projections suggest increases in actual evapotranspiration during the whole year with decreases in soil moisture and associated agricultural drought (except during January-March) and reductions in runoff, particularly during the winter and early rainfall season (SON). Maximum discharges (proxy for flooding) will increase (see FS page 28-29) This is in agreement with the station data which indicates that the seasonality of the rainy season is tending to change, occurring later in the year, with heavier bursts of rainfall over a shorter time period and with longer mid-season dry spells.

The following trends are predicted per targeted river basin catchment (see Appendix 4 of the FS for a detailed analysis of the impacts of climate change on water resources in Southern Zimbabwe):

- By 2050, Mean Annual Precipitation (MAP) is predicted to decrease in all catchments, except for Manyame where it could increase slightly under an ecologically aware scenario;
- The most affected catchments *are in the south of Zimbabwe (Mzingwane, Runde catchments)*, where MAP could decline by 12-16 % by 2050 and by additional 12.25 % by 2080;
- MAP would continue to decline in Gwayi, Mzingwane, Runde, Sanyati and Save between 2050 and 2080 if a “business as usual” emissions scenario is maintained;
- Decreases in precipitation are significant at 15% in *Mzingwane* catchment by 2050 under the business as usual case.

19. (iii) *Extreme climate events*: Extreme events have historically affected Zimbabwe adversely, predominantly in the form of droughts, mid-season dry spells (leading to agricultural drought), floods and tropical storms (cyclones). The *Zimbabwe Resilience Building Fund (ZRBF)* (an initiative funded by EU, DFID, and SIDA) has developed a set of hazard maps²³, which show that southern areas of Zimbabwe, are highly prone to extreme climate events, including drought. This region also has high levels of other determinants of vulnerability, such as HIV/AIDS rates, crop pests and livestock diseases. Coupled with climate projections that

¹⁸ Uganai, L. 1996. Historic and future climatic change in Zimbabwe. Climate Research. Vol. 6: 137-145.

¹⁹ Eriksen S. 2008. Climate Change in Eastern and Southern Africa: Impacts, Vulnerability and Adaptation. University of Oslo, Oslo.

²⁰ MLAWCCR. 2013. National Climate Change Response Strategy. GoZ, Harare.

²¹ Davis, R. and R. Hirji. 2014. Climate Change and Water resource Planning, Development and Management in Zimbabwe. An Issues Paper. World Bank.

²² Manzungu, E. et al. 2016. (Draft) Potential impacts of Climate Change and Adaptation Options in Zimbabwe’s Agricultural Sector. World Bank, p. 40.

²³ UNDP and ZRBF. 2016. Mapping of Selected Hazards Affecting Rural Livelihoods in Zimbabwe: A District and Ward Analysis. ZRBF, Harare.

predict increases in the frequency and intensity of drought and extreme rainfall, makes southern areas highly vulnerable^{24,25}. Furthermore, from the above records of both observed station data (and associated trends), as well as the CMIP5 projections and simulations of their impacts on aridity, soil moisture and water discharges, it is clear that the climate situation in southern Zimbabwe has already started to exacerbate these risks and will continue to do so, even without increases in vulnerability due to poverty and health. Droughts and mid-season dry spells are the most common hazards affecting rural Zimbabwe, occurring particularly in southern areas. Drought has caused six of the ten worst disasters between 1991 and 2013²⁶. Mid-season dry spells are defined as ‘prolonged periods of dry weather of at least 10 consecutive days that happen after the onset of the wet season’²⁷. They pose severe threats to crops that are heavily dependent on rain and without access to irrigation, as during these episodes crops are subject to severe heat stress, which can significantly impact yields and result in crop failure²⁸. Clearly southern areas of Zimbabwe, extending to both the east and west are most at risk of droughts and mid-season dry spells.

20. Flooding occurs in Zimbabwe during the summer months (December to March) when the country receives most of its rain. The most severe floods tend to be experienced in the southern and northern low-lying areas of the country²⁹. *Both the observed increases in rainfall intensity and the projected increases in maximum water discharges shown above clearly demonstrate that flooding risks are increasing and will continue to do so in the future.* Furthermore, flooding is often associated with tropical cyclones from the Indian Ocean and the accompanying high winds often cause structural damage as they track inland from the Mozambique coast. In 2002 and 2007 widespread flooding in Zimbabwe (as well as other Southern African countries), resulted in the loss of lives and livestock and extensive damage to infrastructure. In 2019, flooding resulting from Cyclone Idai left 270,000 people in need of humanitarian assistance. It is estimated that nearly 50,000 farming households were affected and that 1.4 million hectares of arable land were destroyed. Road infrastructure was destroyed, which disrupted market access. Damage to livestock, crops, food stocks and agricultural inputs was widespread. The heavy rainfall of the cyclone also resulted in soil erosion and water facilities such as dams, irrigation canals and wells suffered extensive damage or destruction. The damage to the agricultural sector was valued to US\$155.3 million by the Rapid Impacts and Need Assessment (RINA). The total need for recovery across 10 key sectors was estimated at between US\$557–767 million. For Cyclone Idai, the RINA notes that almost 120 mm of rain fell over a period of three days (March 15–17). The delayed start of the rainy season, followed by lower than normal rainfall created extremely dry soil (expected to worsen under climate change), which prevented the torrential rainfall of Cyclone Idai from being absorbed. This exacerbated the run-off and worsened flash floods.

21. **Southern Zimbabwe**, including the administrative provinces of Manicaland, Masvingo and Matabeleland South, is projected to experience more significant climate change impacts than the rest of the country³⁰, while also being home to the majority of vulnerable rural populations. Rainfall is predicted to decrease by 15% and runoff by 20% in these areas. As highlighted in a recent World Bank study³¹, increased rainfall variability and persistent droughts are likely to decrease water availability for crops and livestock production, and thus increase water stress and the vulnerability of irrigation and rain-fed farming communities in southern Zimbabwe. Agro-Ecological Regions (AERs) IV and V, which dominate these provinces, are characterized by low rainfall and

²⁴ Tadross, M, P. et al. 2008. Growing-season rainfall and scenarios of future change in southeast Africa: implications for cultivating maize. Climate Research: Integrating analysis of regional climate change and response options. Vol. 40, pp.147-161.

²⁵ IPCC. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland.

²⁶ GoZ and UNCT. 2014. Zimbabwe Country Analysis: Working Document. Dated 4 November 2014, cited in: UNDP and ZRBF. 2016. Mapping of Selected Hazards Affecting Rural Livelihoods in Zimbabwe. A District and Ward Analysis. ZRBF, Harare.

²⁷ UNDP and ZRBF. 2016. Mapping of Selected Hazards Affecting Rural Livelihoods in Zimbabwe: A District and Ward Analysis. ZRBF, Harare.

²⁸ Kuri, F. et al. 2014. Predicting maize yield in Zimbabwe using dry dekads derived from remotely sensed Vegetation Condition Index. International Journal of Applied Earth Observation and Geoinformation. 33, pp.39-46.

²⁹ UNDP and ZRBF. 2016. Mapping of Selected Hazards Affecting Rural Livelihoods in Zimbabwe: A District and Ward Analysis. ZRBF, Harare.

³⁰ Richard Davis and Rafik Hirji. 2015. Climate Change and Water Resources Planning, Development and Management in Zimbabwe: An Issues Paper. World Bank. 2015.

³¹ World Bank (2015) Supporting Zimbabwe’s climate resilience agenda. Background notes in support of the National Climate Policy. Background note B: Water Resources Planning, Development and Management under Climate Change

significant exposure to climate risks, as depicted in past, current and future scenarios³². These regions suffer from persistent high food deficits and high food prices in lean seasons, the highest number of drought-related livestock deaths, and, in specific areas, a high risk of flooding. These regions are expected to suffer increased inter-annual variability in water availability.

Impacts of CC on agriculture and farming livelihoods in southern Zimbabwe

22. The key climate change risks are from increasing temperatures, more variable and extreme precipitation, increasing aridity, and the intensification of droughts and floods. All of these changes in climate place significant threats on traditional crop-livestock strategies practiced by smallholders in southern Zimbabwe and the country's agro-based economy. Increasing temperatures, coupled with reducing rainfall and increasing evapotranspiration, lead to increased aridity, the expansion of marginal lands and decreasing ability of soils to retain water. Punctuated by increasingly intense extremes, reducing and variable precipitation is projected to cause changes to the growing season and crop patterns, posing significant implications to yields and national revenues. Increased temperatures also pose risks such as increasing the likelihood of veld fires and changes to the distribution and seasonality of diseases, as well as rangeland productivity, which have particular implications on livestock production systems. These climate threats significantly reduce the production capability of crop and livestock systems, threaten agricultural based livelihoods and place further strain on already scarce water resources.

23. Increasing climate variability has year-on-year rendered three million of the rural farming population food and water-insecure. The World Bank³³ estimates a decline in maize (Zimbabwe's primary staple food) yields of between 2% and 15% due to climate change. Several studies^{34,35,36} on smallholder irrigation schemes and rain-fed agriculture reveal that maize yields have dropped from an average 5.0t/ha to as low as 0.8t/ha and 0.1t/ha, respectively, as a result of *climate-induced moisture deficit and temperature stress*. Rainfall is one of the most critical factors determining the production of maize, the staple food crop in southern Zimbabwe. Maize is extremely susceptible to changes in water availability because of its high yield sensitivity to water stress³⁷. Analysis by Nyabako and Manzungu (2012) shows that farmers who live in AERs III, IV and V will eventually be unable to grow rain-fed maize under climate change, even with current drought tolerant varieties³⁸. *Increasing temperatures and rainfall variability, leading to increasing aridity of lands and reduced water availability*, are causing maize to become increasingly maladapted to ecological conditions. This has direct consequences for the food and income security of over 3.9 million people (or 700,000 households)³⁹.

24. The impact of climate change on crop water requirements, water availability (river runoff), irrigation demand, irrigation potential and irrigation performance have been assessed using Aquacrop and 121 climate model scenarios, indicating that crop water requirements will increase, whilst water availability will decrease⁴⁰. Irrigation demand is expected to increase 5-10% for most crops, which can be satisfied through increases in runoff except at the end of the dry season (see FS, figure 13).

25. *Increasing occurrence of mid-season dry spells* exposes crops to severe water stress during the growing season, which often leads to crop failure in rain-fed farming systems. Analysis by Kuri et al. (2014) shows that mid-season dry spells are a major limiting

³² Manzungu, E. et al. 2016. (Draft) Potential impacts of Climate Change and Adaptation Options in Zimbabwe's Agricultural Sector. World Bank, p. 40.

³³ World Bank (2015) Supporting Zimbabwe's climate resilience agenda. Background notes in support of the National Climate Policy. Background note B: Water Resources Planning, Development and Management under Climate Change

³⁴ Chancellor, F (2004) "Sustainable Irrigation and the Gender Question in Southern Africa". University of Zimbabwe Publications, Harare

³⁵ Uganai, S.L. and A. Murwira (2010) Challenges and opportunities for climate change adaptation among smallholder farmers in southeast Zimbabwe. 2nd International Conference: Climate, Sustainability and Development in Semi-Arid Regions, August 16-20, 2010, Fortaleza-Ceara, Brazil

³⁶ Manzungu, E. and Zaag van der, P (1996) Continuity is smallholder irrigation. In; Manzungu, E. and Zaag van der, P.(eds.) The practice of smallholder irrigation: Case studies from Zimbabwe, Harare: University of Zimbabwe Publications, 1-28

³⁷ Manzungu, E., Moyo, S., Boehlert, B. and Cervigini, R. (2018). Potential impacts of climate change and adaptation options in Zimbabwe's agricultural sector. Harare: Sam Moyo African Institute for Agrarian Studies..

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Manzungu, E., Moyo, S., Boehlert, B. and Cervigini, R. (2018). Potential impacts of climate change and adaptation options in Zimbabwe's agricultural sector. Harare: Sam Moyo African Institute for Agrarian Studies.

factor on rain-fed agriculture yield potential⁴¹. The results indicate that there is a consistently significant negative linear relationship between the number of dry dekads and average maize yield for the four consecutive wet seasons considered in the study (from 2009 to 2013)⁴². In other words, the higher the number of dry dekads experienced during a crop's growing season, the higher the drought-related stress that the crop experiences, resulting in poor crop yield. This implies that the vast majority of farmers practicing rain-fed agriculture in southern Zimbabwe are the most prone to experience significant deteriorations in crop yields, as mid-season dry spells are projected to increase in frequency and intensity in southern, semi-arid areas under climate change⁴³.

26. Zimbabwe suffers from both physical and economic water scarcity with intensified climate change. Physical water scarcity refers to the limited availability of water resources, while economic scarcity refers to the lack of financial and institutional capacity to develop water resources⁴⁴. Under climate change, less water will be available either as green water – the fraction of water that infiltrates the soil and is available to plants – or as blue water – referring to the fraction of rainfall that reaches rivers directly as runoff or indirectly through deep drainage to groundwater that eventually flows to rivers as base flow, as well as water stored in dams and lakes, which is critical for irrigation⁴⁵. Groundwater will be most affected in the southern catchments of Mzingwane and Runde and least affected in the north.

27. Potential benefits from years of investment in smallholder rural irrigation development intended to boost food production have not been realized or have been lost due to climate induced dry spells, high temperatures, as well as flooding and torrential rains that cause high surface runoff, deposit silt in rivers and dams and destroy infrastructure, thereby reducing water storage capacity. Many smallholder irrigation schemes are located in poor rainfall catchments that are predicted to experience even less rainfall as a result of climate change. Therefore, it is likely that many schemes will become increasingly inefficient over time if they do not have adequate water storage and capture facilities that factor in climate-induced water shortage and highly variable rainfall⁴⁶. Additionally, the increase in frequency and intensity of extreme events, such as droughts and floods, pose increasingly significant risks to existing irrigation scheme infrastructure and management systems. Intense floods are likely to damage infrastructure that does not have the ability to withstand extreme events and water fluctuations. Such impacts compromise traditional irrigation design and complicate water resource management regarding pumping operation and irrigation scheduling. Increases in storms and flash flooding, which contribute to siltation, will also reduce the functionality and efficiency of irrigation infrastructure over time.

⁴¹ Kuri, F. et al. 2014. Predicting maize yield in Zimbabwe using dry dekads derived from remotely sensed Vegetation Condition Index. *International Journal of Applied Earth Observation and Geoinformation*. 33, pp.39-46.

⁴² The Shapiro–Wilk test for normality showed that the data (average yield for all wards with the same number of dry dekads) is not normally distributed and the Spearman's Rho correlation test indicated that there is high correlation between the average maize yield and number of dry dekads. *Source*: Kuri, F. et al. 2014. Predicting maize yield in Zimbabwe using dry dekads derived from remotely sensed Vegetation Condition Index. *International Journal of Applied Earth Observation and Geoinformation*. 33, pp.39-46.

⁴³ Tadross, M, P. et al. 2008. Growing-season rainfall and scenarios of future change in southeast Africa: implications for cultivating maize. *Climate Research: Integrating analysis of regional climate change and response options*. Vol. 40, pp.147-161.

⁴⁴ Van Koppen, B. 2003. Water Reforms in Sub-Saharan Africa: What is the difference? *Physics and Chemistry of the Earth*, 28: 1047-1053.

⁴⁵ Ringersma, J., Batjes, N. and Dent, D. (2003). *Green Water: Definitions and Data for Assessment. Report 2003/2*. ISRIC -World Soil Information, Wageningen.

⁴⁶ Economic Consulting Associated/Dorsch International Consultants/Brian Colquhoun, Hugh O'Donnel and Partners. 2013. Zimbabwe: Water sector investment Analysis: Full Technical Report, Harare, Zimbabwe.

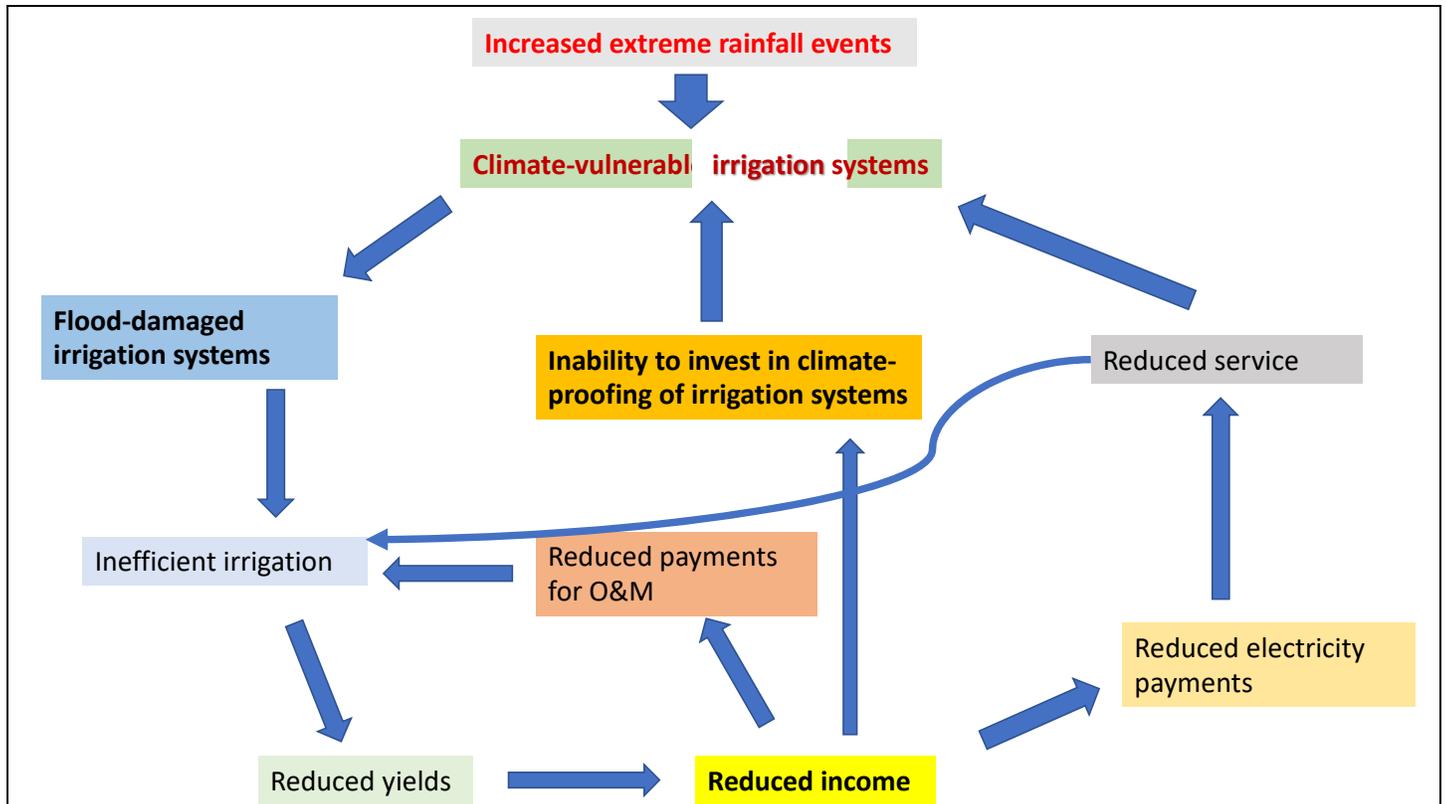


Figure 1: Irrigation Vulnerability Cycle

28. The magnitude of the percentage negative change in irrigation potential will be the same for all basins irrespective of the crops grown⁴⁷. This means that the country's irrigation potential may be reduced by up to one third, to 244,550 ha, if measures to improve water use efficiency, in light of the climate change risks, are not implemented⁴⁸. Climate change-induced water stress - in the absence of soil moisture conservation practices under rain-fed agriculture or climate-resilient irrigation infrastructure - forces rural farmers to cultivate streambanks and streambeds in the dry season in pursuit of sufficient water and soil moisture. Potential benefits from years of investment in smallholder rural irrigation development intended to boost food production have not been realized or have been lost due to climate-induced flooding and torrential rains that cause high surface runoff and siltation in rivers and dams, thereby reducing water storage capacity and damaging or destroying irrigation infrastructure.

29. Livestock have traditionally provided a major source of insurance against seasonal climate-induced crop failures for rural smallholder farmers because, as liquid assets, they can be sold to purchase food and meet other essential needs during drought years. However, with increasing intensity of droughts, this traditional coping strategy may no longer suffice in future. Lack of livestock feed during the dry season is a perennial challenge for smallholder farmers in Zimbabwe. Zimbabwe's Third National Communication to the UNFCCC⁴⁹ indicates that projected decreases in precipitation, coupled with increases in temperature, will cause a corresponding decrease in Net Primary Productivity of grazing lands, which will reduce livestock productivity in Zimbabwe. Severe droughts have caused massive cattle deaths. According to 2012 and 2015 ZIMVAC reports, in 2012 Matabeleland South province alone lost over 12,000 cattle. In 2015, El Niño caused a loss of over 15,000 cattle in three provinces in southern Zimbabwe. Periodic disease outbreaks are also exacerbated by climate change and pose a significant risk to livestock production.

⁴⁷ Manzungu, E. et al. 2016. (Draft) Potential impacts of Climate Change and Adaptation Options in Zimbabwe's Agricultural Sector. World Bank.

⁴⁸ Ibid.

⁴⁹ <http://www.un-gsp.org/sites/default/files/documents/zwenc3.pdf>

30. *Disproportionate impacts of climate change on women smallholders:* In Zimbabwe, women are the majority of the smallholder farming population due to a number of factors, including climate-induced migration of men. Women, as important food producers and responsible for family nutrition, are disproportionately affected by climate change impacts because they have less access to productive assets and resources relative to their male counterparts. Women are exposed to gender-specific vulnerabilities given their unequal access to land, information and critical inputs.

31. These gender differences in property rights and access to information, together with their cultural, social and economic roles make women more susceptible to climate change impacts. Recurring drought and low rainfall patterns negatively impact water supplies and fuel wood accessibility, which increases the distances women must travel to secure these resources. Women remain marginalized in terms of adaptation strategies to climate change, especially women and child-headed households who lack access to irrigation systems.⁵⁰ In rural areas 38% of the households were female-headed in 2012, according to ZIMSTATS. Climate variability exacerbates incidences of tropical diseases such as malaria, typhoid and cholera, which impact women more due to limited access to medical services and their reproductive role, including caring for the sick.⁵¹

Baseline efforts and Investments

32. The Government of Zimbabwe (GoZ), with donor support, has been investing in agriculture and water supply to enhance food security and smallholder farmer livelihoods. In 2013, the GoZ developed the *Zimbabwe Agricultural Investment Plan (ZAIP)* for the period 2013-2018 at USD4.69 billion⁵². ZAIIP is the agreed national framework for coordinating public, private and development partners' investment in the agriculture sector with the aim of enhancing achievement of the objectives of the *Zimbabwe Comprehensive Agriculture Policy Framework (2012-2032)*, *Food and Nutrition Security Policy (FNSP) (2012)* and *Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) (2013 – 2018)*⁵³. Investments have been directed at supporting mechanized agricultural production, application of agricultural technologies and practices, including infield and off-site rainwater harvesting, and conservation agriculture to minimize disturbance to soil structure and maximize water holding capacity. Investments are also being made to strengthen research on small grains and drought-tolerant maize seed varieties in cooperation between MLAWRR and research institutes, such as the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Maize and Wheat Improvement Center (CIMMYT). In recent years, the focus has shifted to promoting sustainable approaches, such as CRA, building on Conservation Agriculture (CA) practices and interventions.

33. Government investment in smallholder irrigation development began in the 1960s, and GoZ has continued to invest in stabilizing and enhancing water supply and security, of which irrigation forms a primary component, whether in relation to construction of new schemes or rehabilitation and modernization of existing ones. GoZ, through the Public-Sector Investment Programme (PSIP), has continued to channel resources towards the development and rehabilitation of irrigation infrastructure. Government budget allocations for smallholder irrigation for fiscal years 2013-2017 amounted to USD 51.6 million. Priority was given to irrigation schemes in marginal regions IV and V (Matabeleland North, Matabeleland South, Midlands, Masvingo and Manicaland). GoZ is currently investing USD 2.5 million annually in the proposed project areas of southern Zimbabwe (provinces of Manicaland, Masvingo and Matabeleland South) for development of smallholder irrigation infrastructure and ongoing rehabilitation.

34. A series of other agricultural support programs, backed by donors such as the Swiss Agency for Development Cooperation, Brazil's *More Food Programme*, DFID, the European Union (EU), the International Fund for Agricultural Development (IFAD), and the Japan International Cooperation Agency (JICA), are rehabilitating, modernizing and, in some cases, constructing new irrigation schemes in dry areas of Zimbabwe, including the provinces of Masvingo, Manicaland and Matabeleland South. The main approach to rehabilitation has been to either repair the physical infrastructure, including the conveyance and distribution systems, to original design specifications, or to undertake modernization of the irrigation schemes by installing more water-efficient irrigation systems, such as sprinkler and drip systems, as reported in Masvingo and Matabeleland South provinces. The EU *Smallholder Irrigation*

⁵⁰ Government of Zimbabwe (2015) Zimbabwe's National Climate Change Response Strategy

⁵¹ Zimbabwe Human Development Report. UNDP. 2017. With reference to: <https://experts.illinois.edu/en/publications/climate-suitability-for-stable-malaria-transmission-in-zimbabwe-u>

⁵² MAMID. 2013. ZAIIP (2013-2018). A Comprehensive Framework for the Development of Zimbabwe's Agriculture Sector. GoZ, Harare.

⁵³ MAMID, 2013.

Support Programme includes a training component, and the International Fund for Agriculture Development focuses on capacity building of extension service providers, local youth, and businesses in irrigation service provision. The private sector and NGOs are also complementing government efforts, particularly in addressing issues related to management of production, strengthening of extension services, mechanization of smallholder farms, irrigation maintenance and rehabilitation, and market development. Investments include the *Shashe Citrus Project* by Cooperazione e Sviluppo (CESVI), Schweppes Zimbabwe Limited and SNV Zimbabwe (Stichting Nederlandse Vrijwilligers - "Foundation of Netherlands Volunteers"), and farm mechanization support under the Brazil-supported *More Food Programme* and the *Climate-resilient Infrastructure Development Facility (CRIDF)*.

35. Despite the significant development investments highlighted above, there has been inadequate attention to climate change-related impacts, and the related gender dimensions of climate vulnerability, in the design and implementation of baseline measures. For example, irrigation investments to date have not normally considered climate risks and hazards, thus leaving the investments open to climate-induced impairment from flooding caused by extreme weather events, compounded by massive soil erosion from conventional agricultural systems. Climate change has also undermined these extensive development investments and is increasing the burden on GoZ, as development gains are repeatedly jeopardized by extreme weather events, such as droughts and intense rainfall. In turn, these impacts further exacerbate the vulnerability of the poor and extremely poor rural smallholder populations. There is limited focus on addressing specific climate change-induced risks, both observed and projected, through incremental or full adaptation solutions.

Adaptation Solution

36. With continued intensification of climate variability and change, Zimbabwe's current coping strategies for the agriculture and water sectors are becoming increasingly ineffective, requiring essential adaptation investments to achieve lasting climate resilience at scale among vulnerable rural farming households. A paradigm shift in addressing the adaptation needs of smallholder farmers in southern Zimbabwe lies first in recognizing the multiple interlinked factors that must be addressed simultaneously for adaptation to be successful at scale. These technical, institutional, economic, agronomic and capacity factors form a dynamic interactive system which can only function successfully by implementing a *multi-stakeholder, market-driven approach to climate adaptation of vulnerable smallholder agriculture*.

37. The Feasibility Study, carried out in preparation of this project, identified specific requirements to be achieved to reach sustainable vulnerability reduction and smallholder adaptation, the barriers to achieving these requirements, and the specific outputs required to overcome these barriers (in particular, see sections 4 and 5 of the FS). These refer primarily to access to water in sufficient volumes and with timeliness, increased technical capacities of smallholders to adopt and apply resilience-enhancing agricultural practices, improved stakeholder coordination and access to markets for climate-resilient crops, and an accessible supply of actionable climate information so that smallholders can manage climate risk.

38. Adaptation to climate change for these vulnerable smallholder farmers requires resources and capacities for adaptive management of their agro-ecosystems with the aim of stabilizing, increasing and sustaining agricultural yields and incomes. In areas that are becoming drier and hotter, these resources include access to, as a priority, sufficient, dependable water and a diversity of climate-resilient crop varieties and livestock breeds and management practices. Irrigation has unique potential to increase and stabilize crop yields by allowing multiple cropping year-round. Irrigated crop production enhances farm incomes from sale of surplus yields and off-season premiums and also provides employment to others through additional on-farm labor. Rain-fed farming is particularly vulnerable to climate change, and smallholders need to manage available soil moisture efficiently, harvest and store rainfall as much as possible, and maximize water productivity through climate-resilient agricultural practices and cropping systems, including crop diversification. In areas where traditional staples are under pressure from the pace of evolving climate change, diversification and accompanying market access and value-chain linkages for climate-resilient agriculture are crucial for transformative, long-term solutions. Finally, farmers will also benefit from access to more accurate, dependable and tailored information on weather, climate and hydrological resources, which will allow them to plan agricultural tasks and manage crops, soil and water to reduce water stress or take advantage of rain or irrigation potential to reduce water stress.

39. The current preferred staple is maize. Maize is becoming increasingly unsuited for dryland/rain-fed cultivation in light of increasing temperatures and greater variability of rainfall – higher temperatures affect seed set, and maize is generally not as drought resistant as other crops. For dryland/rain-fed farmers, the project is promoting small grains (e.g. millet, sorghum) and

sesame, which are much more drought resistant and temperature independent. Dryland farmers are familiar with millet and sorghum but prefer maize. With decreasing yields of maize, farmers are expected to be more inclined to grow small grains.

40. The focus of irrigation is the production of high-value crops for sale to markets – vegetables, leafy greens, green corn, etc. (these crops are listed and discussed in the value-chain and agricultural technical studies). Although each crop has different requirements, most vegetable crops are less water intensive than maize and drip irrigation will be used to minimize the demand for water. Given their value and short-term cropping cycles (allowing more than one crop per year), these high-value crops will permit farmers to use income from crop sales to buy any staples they cannot produce themselves, as well as accumulate capital for further investments in adaptation inputs and technologies. For dryland farmers, water-efficient practices e.g. no-till, in-field water harvesting, and drought resistant crops will offset the impacts of rainfall variability and temperature increases. Drought-resistance is a continual plant breeding objective, not to mention a potential goal of emerging state of the art methods like gene-editing.

41. In this sense, the prevailing paradigm of agricultural development and rural livelihoods needs to shift away from a focus on short-term, sectoral, production-oriented responses towards an integrated systemic approach, in which all actors in specific climate-resilient value chains – producers, input providers, technical assistance agents, financial intermediaries, buyers and others – coordinate to overcome barriers to production and market access for climate-resilient crops, thus providing the incentive to sustain and scale-up climate-resilient agricultural practices and cropping systems. Crop-specific strategies and partnerships between private and/or public entities will then enable and sustain climate-resilient smallholder production that is secured through an adaptation strategy that synergistically combining enhanced water security in the face of climate risks with climate-resilient agricultural production and diversification, informed and supported by actionable climate information.

Gaps and Key Barriers

For smallholders in southern Zimbabwe to adapt successfully to climate change, a number of barriers must be overcome in a coordinated and integrated fashion. These barriers are described as follows:

1. Limited institutional support capacities and technical knowledge for farmers to adapt their production practices to climate-driven drought and mid-season dry spells

42. Smallholders, especially rain-fed farmers, face increasing climate risks to productivity and yield stability of their dryland agro-ecosystems. However, they are generally unaware of climate-resilient agricultural production practices or cropping systems for dryland farming, and they are not adequately engaged in the design of successful climate-resilient agro-ecosystems based on traditional knowledge and contemporary agro-ecological science. Smallholders prioritize food security above all else, though this has been almost entirely based on subsistence production of maize, the country's primary staple, and to a lesser extent, small grains like sorghum and millet. On-farm production is still largely based on traditional crop management, despite the need for climate-resilient practices across all rural farming systems, whether irrigated or rain-fed. Climate-resilient options including alternatives to maize are not widely known (e.g. sesame, horticulture) and require improved market access to be successful in generating sufficient revenue to sustain food purchase year-round. Small grains, though well-known and traditionally grown in hotter, drier areas, suffer from low availability of drought-resistant seed and problems with post-harvest management resulting in poor quality. Livestock production suffers from diminished water points due to drought and lack of climate-risk informed grassland management practices.

43. Institutional service providers (e.g. AGRITEX, the agricultural extension agency or DLPD/DVS for livestock) have limited knowledge of how to integrate climate risks into agricultural planning and implementation especially at district, ward and smallholder community level. The service providers lack the technical capacity to provide relevant advice to smallholders on appropriate climate change management responses. Poor systematic knowledge management, and limited collaboration among key institutions such as the Meteorological Services Department, agriculture extension, and agriculture training and research institutions reduce their ability to build climate resilience into programs and projects and to provide services, including climate information, early warning and climate risk-informed disaster planning and climate-resilient agricultural advice (please see the Feasibility Study for analysis of institutional capacities based on ZRBF assessments). Although Government has already begun efforts to develop a Climate-resilient Agriculture framework and the corresponding CRA training manuals and to promote best practice, the extension service platforms are still weak. The pluralist nature of technical assistance services, with more entities (Government, NGOs, farmer associations, local and international research institutions, private sector and church organizations) emerging as

important players, requires a coordinated approach to ensure support to smallholders for full adoption of CRA practices and systems.

2. Inadequate financial and technical capacity for climate-proofed irrigation investments and O&M to ensure sufficient and reliable water resources for crop irrigation to cope with rainfall variability and droughts

44. Over the past years, Government and donors have been able to finance construction and rehabilitation of a small number of community irrigation systems in southern Zimbabwe; however, the Government of Zimbabwe has a very limited ability to finance climate-proofed irrigation as an adaptation solution *at scale* owing to poor fiscal resource generation hindered by weak economic growth. Smallholder farmers themselves are unable to invest in climate-proofed irrigation systems as an adaptation solution given their weak access to investment capital, and no single smallholder farmer is able to finance an irrigation system alone given her or his small plot size, insufficient yields from conventional climate vulnerable crops, and nascent access to markets for diversified, climate-resilient crops. The interplay between increasingly climate-vulnerable infrastructure, climate-driven water scarcity, falling yields and declining incomes has created a vicious cycle leading to reduced investments in and access to irrigation which is central to improving resilience of the smallholder livelihoods.

45. Furthermore, most of past and ongoing rehabilitation of community level irrigation systems, when it has occurred, has not adequately integrated climate resilience principles into infrastructure design and construction. On farmers' fields, the most common irrigation method is furrow or flood irrigation, which is highly inefficient due to significant evapotranspiration, seepage and soil salinization. At the same time, many water abstraction technologies still largely disregard climate risks. For example, irrigation infrastructure is frequently installed in flood zones with no protection against damage from the floods generated by extreme, climate-driven rainfall events. Limited climate information is available to inform irrigation infrastructure designs, irrigation revitalization, management and maintenance or irrigation schedules.

46. In addition, smallholder farmers lack the technical and organizational capacities to plan for, manage and operate irrigation schemes in the face of increasing climate-induced water stress. Smallholder farmers are currently unable to cover the costs of operations and maintenance of irrigation systems, given insufficient revenue from harvest sales driven by climate change impacts on crop productivity and post-harvest handling. Local Irrigation Management Committees (IMCs) possess weak planning and financial management capacities required to cope with evolving climate risks. Government institutions have limited technical understanding and abilities to assist smallholders, IMCs, and local level authorities in climate risk management, and as such, they are ill equipped to support them effectively in climate-informed operations and maintenance of irrigation infrastructure. Poor design and operations and maintenance (O&M), combined with climate-induced water shortages, lead to depressed production and lower incomes which further undermine smallholder capital accumulation for irrigation solutions. IMCs also suffer from growing challenges to their capacity to cover the costs of irrigation assessed by the National Water Authority, Sub-Catchment and Catchment Councils and electricity providers. These stem from a vicious cycle of reduced yields from climate-vulnerable crops, ineffective marketing to support diversification, insufficient revenue generation, increasing costs of irrigation in face of water stress, declining utility of irrigation systems from climate-induced flooding, sedimentation, ineffective management, inefficient irrigation methods, and other factors. As such, grid-connected farmers are often unable to meet their financial obligations regarding electricity payments and cannot finance adequate operations and maintenance.

3. Limited access to knowledge, markets and value-chains to shift away from subsistence to climate-resilient agricultural livelihoods

47. Smallholder farmers are motivated to adopt climate-resilient agricultural practices by the prospect of improved food security from increased yields and the potential for larger incomes from the sale of any surplus, which can then be used to purchase additional needed foodstuffs, as required. Smallholders are, however, unable to take advantage of market incentives for adopting climate adaptation inputs and practices, including crop diversification, improved dryland agricultural practices, and climate-resilient crop and livestock breeds. They perceive few market incentives for diversification towards climate-resilient agricultural systems given their insufficient integration into agricultural value chains, characterized by weak market linkages, little understanding of alternative value chains and market demand, insufficient knowledge of crop requirements, and weak access to private sector actors to enable partnerships for scaling up. Weak market linkages limit commercialization and market development for climate-resilient staple and non-staple crops as well as livestock. Productive partnerships are rare between institutions and the private sector that

benefit smallholders by empowering them to access markets and fully participate in value chain development. Value chain actors, in general, tend to be more reactive (to price signals, policy, etc.) than proactive with less development of longer-term strategies for comprehensive market development.

48. At subnational level, relevant agricultural institutions, including research and training institutions and the extension services, lack the financial and technical capacities to generate knowledge and information on resilience-enhancing agriculture, water and soil management, and supportive value chains and disseminate it effectively in actionable form to local farmers. At the same time, mechanisms for knowledge generation and exchange on climate resilient agricultural innovations, lessons and best practices *between* farmers are non-existent or weak and need external facilitation. Lack of field level monitoring and evaluation tools and methodologies and appropriate knowledge management mechanisms prevents generation of knowledge, understanding and application of climate-risk management strategies.

4. Limited generation and dissemination of appropriate climate and weather information to smallholder farmers for climate-risk informed water and agricultural management:

49. While smallholders are attempting to transit from subsistence and near-subsistence to more diverse and climate-resilient crop and livestock production and the food security it provides through greater income and lower crop risk, the lack of access to weather and climate information to support resilience-enhancing water resource management and resilient crop/livestock production inhibits these efforts. Currently, government weather and water monitoring infrastructure is weak and insufficient for comprehensive data collection, analysis and provision of timely information to smallholders for climate adaptation of their agro-ecosystems and water resource use. More importantly, the government lacks the knowledge or capacity to effectively forecast future weather and climate impacts on water and smallholder agro-ecosystems as a result of a lack of forecast systems and the trained staff able to combine and analyze different sources of information and data. Building the national capacity to undertake these types of analyses are a key requirement for broadly applying and using both collected weather and hydrological data and forecasts. At the same time, AGRITEX, DLPD/DVS and MSD do not have sufficient capacities to generate or disseminate the user-oriented climate information required by smallholder farmers, particularly women, for climate-adaptive agro-ecosystem planning and management. The smallholders themselves lack the capacity to apply and use the agro-climatic advisories for agricultural and water resources management.

Project Objective, outcomes, impacts

The key problem the project proposes to address is the *threat to agricultural livelihoods of vulnerable smallholders in southern Zimbabwe, especially women, from impacts of climate change-induced water scarcity.*

50. The **objective** of the proposed project is to support the Government of Zimbabwe in **strengthening the resilience of agricultural livelihoods of vulnerable communities, particularly women, in southern Zimbabwe to increasing climate risks and impacts.** The **GCF Fund level impacts of the project** are (i) increased resilience of vulnerable people and communities and (ii) health and well-being, and food and water security. The GCF-related **outcome** of the project is strengthened adaptive capacity and reduced exposure to climate risks of vulnerable smallholder farmers, especially women, of southern Zimbabwe.

The project theory of change is depicted below:



Fund level impact: A2.0 Increased resilience of health and well-being, and food and water security

Project Outcome: Strengthened resilience of agricultural livelihoods of vulnerable communities, particularly women, in southern Zimbabwe in the face of increasing climate risks and impacts.

Increased resilience of smallholder livelihoods

Enhanced water and food security of the most vulnerable in the region

Output 1:
Increased access to water for climate-resilient agriculture through climate-resilient irrigation systems and efficient water resource management

1.1: Climate proofing irrigation infrastructure for enhanced water security in the face of climate change

1.2: Field-based training for farmers on rain fed farmlands to improve water security through climate-resilient water management practices and technologies

Output 2:
Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs and practices, as well as stronger market linkages

2.1: Establish transformative multi-stakeholder innovation platforms for diversified climate resilient agriculture and markets

2.2: Strengthen the capacities of smallholders to implement climate-smart agricultural production in the face of increasing climate hazards (rain fed and irrigated farms)

2.3 Enhance institutional coordination and knowledge management capacities for climate-smart agricultural production in the face of increasing climate hazards

Output 3:
Improved access to weather, climate and hydrological information for climate-resilient agriculture

3.1: Installation and operationalization of weather/climate and hydrological observation networks

3.2: Strengthen the capacities of MSD and AGRITEX to develop and disseminate tailored and localized climate, weather and hydrological products

3.3: Capacity building for farmers and local institutional staff on effective use of weather, climate and hydrological information

Barriers

Barrier #2: With intensifying climate-driven variability in volumes and availability of water resources, smallholder farmers are unable to access sufficient and reliable water resources for crop irrigation due to deficient irrigation infrastructure and equipment

Barrier 2a: Smallholder farmers lack the technical and organizational capacities required to plan, manage and operate irrigation schemes efficiently and effectively

Barrier #4: Smallholder farmers are unable to access and use appropriate climate and weather information to inform climate risk management, water resource management and agricultural planning

Barrier #1: Smallholder farmers face increasing climate risks to productivity and yield stability of their dryland agro-ecosystems and lack the technical knowledge and capacities to adapt their production practices to increasing climate-driven drought and mid rainy season dry spells

Barrier # 1a: Smallholder farmers do not have access to coordinated institutional support and technical knowledge for climate change adaptation of their agro-ecosystems

Barrier #3: Smallholders are unable to take advantage of market incentives for adopting climate adaptation inputs and practices, including crop diversification, improved dryland agricultural practices, and climate-resilient crop and livestock breeds

Resilience - enhancing measures

- Soil management to maintain or augment soil moisture; low till, no-till; agroforestry to shade soils
- Crop diversification; heat tolerant crops
- Market incentives for crop diversification
- Heat tolerant breeds and pasture species; cut-and-carry forage systems

- Increased/better climate information to manage climate risk
- Crop diversification;
- Markets for diversity of crops

Rain-fed farms:

- Soil management to maintain or augment soil moisture; low till, no-till; agroforestry to shade soils
- Crop diversification; drought tolerant crops; short season crops;

Irrigable farms:

- IMCs plan and schedule water-efficient irrigation

- Climate-proofing of irrigation infrastructure/equipment;
- Increased/better climate information;
- Soil conservation measures on-farm

Impacts of CC on agriculture and farm livelihoods

- Increase in evapotranspiration
- Increasing aridity;
- Crop tolerance to heat exceeded;
- Decreasing livestock productivity/ increasing livestock morbidity

- Agricultural drought in growing season
- Increasing aridity overall; soil degradation
- Crop calendars shortened

- Flooding – damage to irrigation installations
- Massive soil loss; erosion; land degradation

Climate impacts

Temperature increase

Rainfall variability

Increase in extreme rainfall events

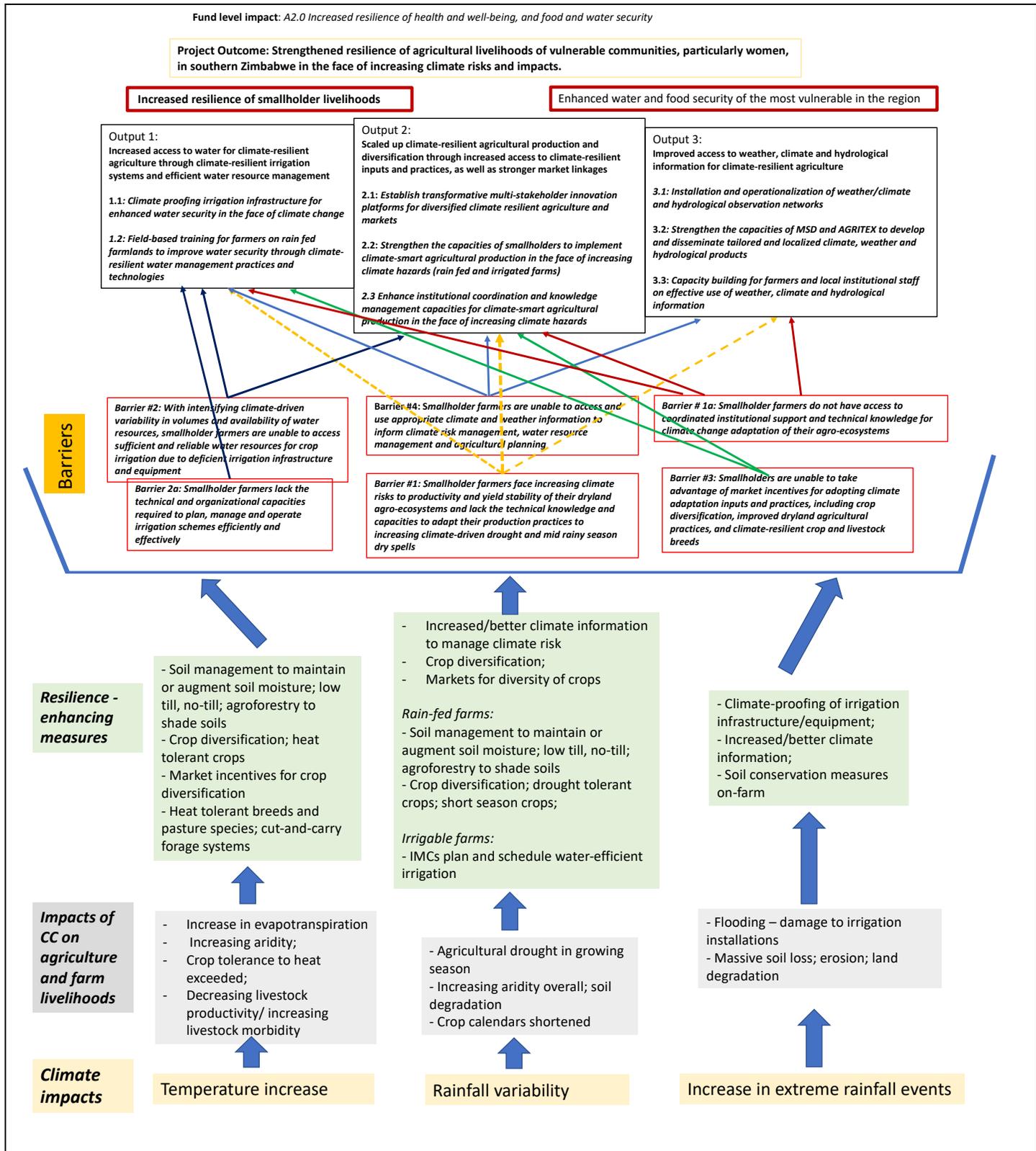


Figure 2: Theory of Change

51. Given the number, complexity and inter-relatedness of the barriers to the adaptation solution, the project adopts a holistic approach to empower vulnerable smallholder farmers to manage evolving climate risks threatening their water security and agricultural production. Through coordinated investments in enhanced water access and climate-resilient water resource management; diversified, climate-resilient agricultural production; and climate information for risk-informed agricultural planning, the project increases the resilience of smallholder livelihoods. These are transformed beyond subsistence and sustained and scaled through the paradigm-shifting approach of linking smallholders with value-chain actors, markets, and financial intermediaries.

<p>Barrier #1: <i>Smallholder farmers face increasing climate risks to productivity and yield stability of their dryland rain-fed agro-ecosystems and lack the technical knowledge and capacities to adapt their production practices to increasing climate-driven drought and mid rainy season dry spells</i></p> <p>Barrier # 1a: <i>Smallholder farmers do not have access to coordinated institutional support and technical knowledge for climate change adaptation of their agro-ecosystems</i></p>	<p>The project will:</p> <ul style="list-style-type: none"> • build the capacities of smallholder farmers, particularly women, to enhance agricultural resiliency and productivity by managing rainwater and soil moisture efficiently and reducing or potentially eliminating water stress during dry spells of limited duration; • train rain-fed farmers to manage soil, water and biomass to maximize water availability through in-field or off-site water harvesting and to enhance productivity of water through the use of water-efficient technologies; • extend smallholder knowledge through organized farmer-to-farmer exchanges.
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52. To overcome the barrier (Barrier #1, above) to sufficient, reliable water resources for sustained production of crops faced with increasing rainfall variability, the project will build the capacities of smallholder farmers, particularly women, to enhance agricultural resiliency and productivity by managing rainwater and soil moisture efficiently and reducing or potentially eliminating water stress during dry spells of limited duration. The project will train rain-fed farmers to manage soil, water and biomass to maximize water availability through in-field or off-site water harvesting and to enhance productivity of water through the use of water-efficient technologies. Smallholders will also extend their knowledge through organized farmer-to-farmer exchanges.

53. At the same time, the project will counteract climate-driven declines in agricultural productivity and yield stability in agro-ecosystems across southern Zimbabwe through technical assistance to the smallholders (organized in FFS) to apply resilience-enhancing agricultural practices and inputs to maximize productivity and stability of cropping systems, evaluate them, and adapt innovations to changing conditions. The project will promote recovery of traditional knowledge of cropping systems and seed varieties, crop diversification, the use of climate-resilient varieties, agroforestry systems, integrated crop-livestock systems, participatory evaluation of CRA practices and other methods and techniques. Training will also build organizational, financial and business development skills, with a special focus on empowering women's groups in the development of small businesses.

<p>Barrier #2: <i>With intensifying climate-driven variability in volumes and availability of water resources, smallholder farmers are unable to access sufficient and reliable water resources for crop irrigation due to deficient irrigation infrastructure and equipment</i></p> <p>Barrier 2a: <i>Smallholder farmers lack the technical and organizational capacities required to plan, manage and operate irrigation schemes efficiently and effectively</i></p>	<p>The project will:</p> <ul style="list-style-type: none"> • revitalize and climate-proof 21 community-based irrigation schemes; • train smallholder Irrigation Management Committees in their effective and efficient operation and maintenance; • network IMCs across catchments and sub-catchments of southern Zimbabwe to capture economies/ benefits of scale in learning and coordination
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54. The project will overcome the barrier (Barrier #2, above) to adequate investment in climate-proof irrigation by revitalizing and climate-proofing 21 community-based irrigation schemes and training smallholder Irrigation Management Committees in their effective and efficient operation and maintenance. GCF resources, combined with GoZ co-financing, will ensure that a) smallholder farmers especially women, are able to access sufficient, reliable sources of water through the climate proofing of their irrigation schemes; b) IMCs have the technical and organizational capacities for climate-risk informed operation and management of revitalized irrigation schemes over the long-term, as well as establish, capitalize and administer Operations and Maintenance Funds; and c) IMCs are networked across the catchments and sub-catchments of southern Zimbabwe to capture economies/ benefits of scale in learning and coordination, particularly in regard to climate risk-informed water resource planning and management at catchment and sub-catchment levels through participation in Catchment Management Committees, as well as through their participation on Innovation Platforms for specific value chains. At the same time, the project will train smallholder farmer leaders in established or reactivated Farmer Field Schools (FFS) to build capacities of farmers in efficient and climate-resilient soil and water management practices.

Barrier #3: *Smallholders are unable to take advantage of market incentives for adopting climate adaptation inputs and practices, including crop diversification, improved dryland agricultural practices, and climate-resilient crop and livestock breeds*

The project will:

- establish multi-stakeholder Innovation Platforms to build and coordinate ongoing public and private sector support to climate-resilient smallholder production, value chain coordination and market access.

55. In overcoming limited access to knowledge, markets and value-chains (Barrier #3) that would enable a transformative shift from subsistence to climate-resilient agricultural livelihoods, the project establishes multi-stakeholder Innovation Platforms to build and coordinate ongoing public and private sector support to climate-resilient smallholder production, value chain coordination and market access. ***These platforms bring together all stakeholders involved in the value chains of diversified, climate-resilient crops and provide a forum for more effective communication, strategy development, planning, access to finance, and partnership development (including financing) to overcome obstacles to resilient production and market access.***⁵⁴ Innovation Platforms will also facilitate knowledge generation and sharing of best practices and lessons learned for climate-risk informed water resource management and agricultural planning and production including through Farmer Field Schools. Experiences under the project will be systematized, codified and disseminated to smallholder farmers throughout southern Zimbabwe, as well as to a multi-sectoral upscaling platform at national level for potential policy analysis, dialogue and reform.

Barrier #4: *Smallholder farmers are unable to access and use appropriate climate and weather information to inform climate risk management, water resource management and agricultural planning*

The project will:

- strengthen the network of hydro-meteorological stations in key catchments of southern Zimbabwe;
- train field staff to operate and maintain them;
- strengthen forecasting capacities of MSD staff;
- establish and operate a system for development of new advisories and warnings for both agriculture and water management and their dissemination through the media, including SMS and radio;
- support smallholders, local governments, the private sector, Catchment and Sub-Catchment Management Committees and others to understand and utilize climate/weather/hydrological information products for managing climate-related risks.

⁵⁴ As appropriate, Innovation Platforms will adapt the approach outlined in the Operational Guide for *Making Markets Work for the Poor Approach (MAP)* (2015) prepared by the Swiss Agency for Development Cooperation (SDC) and the UK Department for International Development (DFID).

56. Finally, the project will overcome the barrier (Barrier #4, above) effective to climate risk management through access to and use of climate and weather information for improved water resource management and agricultural planning. The project will strengthen the network of hydro-meteorological stations in key catchments of southern Zimbabwe and train field staff to operate and maintain them, while also strengthening forecasting capacities of MSD staff. The project will establish and operate a system for development of new advisories and warnings for both agriculture and water management and their dissemination through the media, including SMS and radio. The project will support smallholders, local governments, the private sector, Catchment and Sub-Catchment Management Committees and others to understand and utilize climate/weather/hydrological information products for managing climate-related risks. These elements will support effective implementation by smallholders of CRA and water resource management by mitigating the risk of climate-driven rainfall variability through more detailed, comprehensible and timely information.

57. **Building on best practices and coordination with key initiatives:** the proposed project builds on and scales up best practices from several past and on-going efforts, while introducing innovative approaches to planning and investment in irrigation, climate-resilient agriculture, and public-private partnerships to enable market access for climate-resilient crops. Please refer to the Feasibility Study, Annex II, for details on these efforts, including the following, in particular:

58. **Zimbabwe Resilience Building Fund (ZRBF)**, financed by EU, DFID, SIDA and UNDP, aimed at increasing the capacity of communities to protect development gains in the face of recurrent climate and non-climate related shocks and stresses. The fund provides a strong national platform for coordinated and synergistic resilience-building efforts in the country, bringing together key stakeholders and development partners in resilience-building efforts.⁵⁵ The proposed GCF project partly aligns with the Zimbabwe Strategic Resilience Framework; and, furthermore, the ZRBF investments, especially in value-chain and market development, present strong complementarity and a huge potential for synergies between resilience building activities funded by current donor contributions (EU Euros 25.5 million, DFID Pounds Sterling 25 million, Sida USD 8.0 million), as well as future contributions to the Fund. The project proposed here will operate under a coordinated implementation structure with ZRBF, as detailed in Section C.7, below.

59. **The Climate-resilient Infrastructure Development Facility (CRIDF)**, funded by DFID, focuses on working with organisations to show them how they can better build and manage their own water infrastructure to improve people's lives. CRIDF demonstrates proven techniques and work processes to local engineers, masons, pipefitters and others. By sharing technical expertise with local engineers on small-scale projects, the engineers learn skills that include climate-resilient techniques, as well as approaches that empower marginalized groups. The proposed project was developed in technical partnership with CRIDF and draws on CRIDF's experiences with development of water infrastructure, local capacity development and climate-proofing in pilot projects in southern Zimbabwe. Implementation of **Activity 1.1 Climate-proofing of irrigation schemes and climate risk-informed water management for sustained access to water** will be based on the tried-and tested, CRIDF approach to new and existing irrigation schemes that overcomes challenges faced by previous irrigation investments.

60. **The UNDP project Coping with Drought and Climate Change** (2008-2012) demonstrated a range of gender-sensitive approaches to adaptation to climate change among rural agricultural communities in vulnerable areas of Chiredzi District as a national model for climate change adaptation. The project successfully made use of FFS and research collaborations with a focus on crop diversification, soil moisture management, irrigation systems, livestock enhancement and community based NRM. These experiences led to the UNDP/GEF Scaling Up Adaptation approach (2014-2018) which combined climate proofing of agricultural

⁵⁵ The ZRBF is designed around three strategic pillars: i) application of evidence in policy making for resilience building; ii) grants for consortia of civil society, academia, private sector and other partners on a competitive and coordinated basis with a focus on resilience building projects in the most vulnerable areas and; iii) timely and cost-effective response to emergencies to safeguard development gains. Under ZRBF, currently, seven consortia are promoting resilience-building CSA strategies, in combination with disaster risk management, weather information, market linkages and engagement of district level stakeholders to improve service delivery. The ZRBF also invests in building capacities in relevant government institutions and developing a strong evidence base for informing policy as well as resilience building interventions. Interventions and target areas are based on mappings of current and historic climate and non-climate related hazards and risks affecting rural livelihoods.

livelihoods for smallholder farmers, development of climate-resilient agricultural value chains and increased knowledge and understanding of climate variability and change-induced risks through climate information services for agriculture targeted to smallholder farmers.

C.3. Project / Programme Description

61. The objective of the proposed project is to strengthen resilience of agricultural livelihoods of vulnerable communities, particularly women, in southern Zimbabwe in the face of increasing climate risks and impacts through the following Outputs:

- (i) Increased access to water for agriculture through climate-resilient irrigation systems and water resource management
- (ii) Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets; and
- (iii) Improved access to weather, climate and hydrological information for climate-resilient agriculture

62. Consonant with the above Outputs, climate impacts will be addressed with the following measures:

63. **For the projected rise in temperatures** the project will promote: soil management to maintain or augment soil moisture; agroforestry systems to shade soils; crop diversification towards heat tolerant crops; heat-tolerant breeds and pasture species; cut-and-carry forage systems; revitalization of irrigation schemes to enhance water availability to counteract increased evapotranspiration (sprinklers, drip systems); market incentives for crop diversification, and access to agro-climate information for climate risk management.

64. **For the projected increase in rainfall variability** the project will work with farmers on both rain-fed (dryland) and irrigable farms to promote management of soils to maintain or augment soil moisture, agroforestry systems to shade soils, crop diversification towards drought-tolerant crops; more efficient irrigation systems through provision of equipment (sprinklers, drip systems) and training of Irrigation Management Committees, and access to agro-climate information for climate risk management

65. **For the projected increase in intensity and frequency of extreme events** the project will climate-proof irrigation systems against damaging floods; promote on-farm soil conservation measures; and provide access to agro-climate information for climate risk management.

Project geographical location and beneficiaries

66. The proposed project will be implemented in 137 wards in 15 Districts of southern Zimbabwe in the semi-arid Agro-Ecological Regions (AERs) IV and V of the provinces of Manicaland, Masvingo and Matabeleland South (see Figure 1-2, below). Project geographic focus was defined through mapping of climate hazards and vulnerability by the Zimbabwe Resilience Building Fund (ZRBF), 52 consultations⁵⁶ involving 196 farmers (comprising 99 men and 97 women), in 35 communities and 29 irrigation schemes, discussions with 147 resource persons from key Government institutions and agencies on identified Government priorities, and NGOs. Consultations with MLAWRR and the Think Tank confirmed that the focus should be on the three southern provinces, Matabeleland South, Masvingo and Manicaland, more specifically on districts based in the Save, Runde and Mzingwane river basins, due to the climate risks faced by vulnerable communities there. In line with this identification, the Climate Resilient Irrigation Sub-assessment - informing the Feasibility Study - undertook an analysis of irrigation schemes in this area and employed a selection approach that mapped irrigation potential against climate vulnerability and poverty (please see Annex IX for the maps indicating project locations).

67. AERs IV and V are characterized by low rainfall and significant exposure to climate risks, as depicted in past, current and predicted scenarios. These regions suffer from persistent high food deficits, the highest number of drought-related livestock deaths, high food prices in lean seasons and, in specific areas, a high risk of climate-induced flooding. The selected project area is predicted to suffer increased inter-annual variability in water availability. Thirty percent of the country's 14.5 million people and 45% of its rural population reside in the southern Zimbabwe region. *The proposed project will target smallholders in rain-fed and irrigated farming, who are financially-poor and majority women.*

68. The targeting exercise identified 15 priority districts in the southern provinces, comprising 386 wards. Of these total number of 137 climate vulnerable wards (determined to be priority wards, see Feasibility Study for more detail) have been specifically targeted for climate resilience investments. The Ministry of Environment, Water and Climate recommended focusing on contiguous

⁵⁶ All consultations are documented in the Feasibility Study in Annex II, and detailed maps can also be found in Annex IX to this proposal.

districts in each province with at least 50% of the wards to ensure maximum effectiveness. The 15 selected districts include 2,362,680 people, of whom, 2,302,120 reside in rural areas. Targeting will be confirmed at project start considering any new focused resilience building efforts by ZRBF or others and adjusted accordingly.

69. These 15 Districts and 137 Wards are: in Manicaland province, Buhera (13 wards), Chimanimani (7 wards), Chipinge (15 wards); in Masvingo Province, Masvingo (9 wards), Bikita (4 wards), Zaka (4 wards) Chivi (9), Chiredzi (8 wards) Mwenezi (5 wards); and in Matebeleland South Province, Beitbridge (5 wards), Gwanda (13 wards), Matobo (16 wards), Insiza (16 wards), Umzingwane (7 wards), Mangwe (6 wards).

70. Project Outputs and Activities described below are identified in the Feasibility Study in Section 6 *Findings and Recommendations*. This section first outlines overall implementation principles to achieve paradigm-shifting, transformational change, and then provides detailed intervention and costing recommendations. Finally, the chapter outlines innovation, cost effectiveness and sustainability considerations, which are reflected in Project Outputs and Activities.

71. Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management

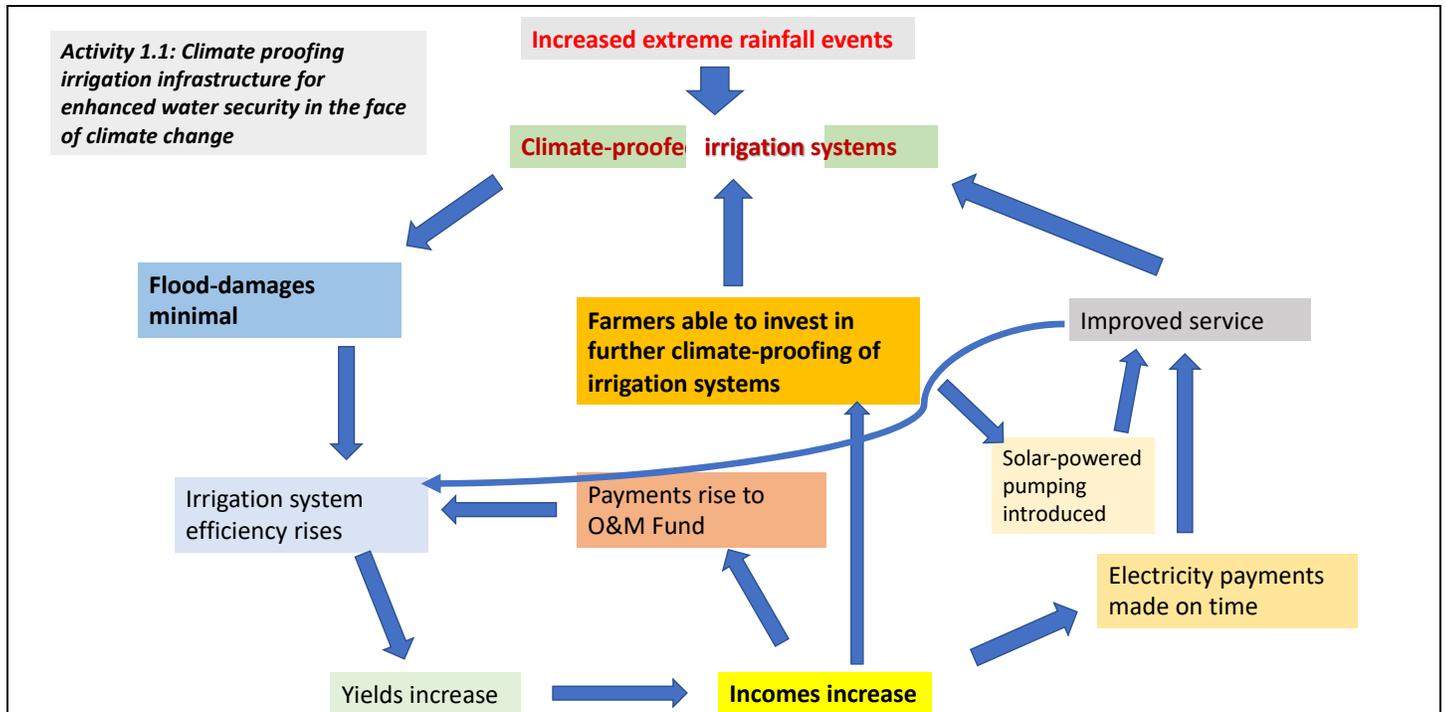
72. This Output addresses Barriers #1, #2, and #2a above. This output focuses on enabling vulnerable smallholder farmers, particularly women, to access sufficient, reliable water resources to address increasing climate risks to agricultural productivity. GCF resources, combined with GoZ co-financing, will be invested in providing rain-fed farmers with the skills, knowledge and technologies they need to manage soils, water and biomass to enhance soil moisture sufficiently for production of a diversity of climate-resilient crops. Smallholders on rain-fed lands, particularly women, will participate in Farmer Field Schools (FFS) throughout the southern Provinces as “lead farmers” where they will learn to harvest rainfall and maximize soil infiltration and storage, as well as utilize water-efficient small-scale irrigation technologies, where possible, along with cover crops, agroforestry systems or other climate-resilient practices and cropping systems. As resilience at scale is galvanized and sustained through farmer-to-farmer interactions, this output will empower lead farmers participating in FFS to train additional smallholders in their communities in resilience-enhancing practices.

73. The project will also invest in revitalization and climate-proofing of 21 community-level irrigation schemes, including water delivery and storage infrastructure and more efficient crop irrigation equipment. Climate-proofing will be based on the CRIDF project approach (Refer to Feasibility Study – Annex II – and the irrigation sub-assessment report) to new and existing irrigation schemes that overcomes challenges faced by previous irrigation investments to sustainably increase reliability and supply of water for smallholders in the face of increasing climate risks. Best practice in designing and implementing climate-proofing of irrigation schemes includes the following carried out with a climate risk lens: hydrological assessments, flood forecasting, identification and application of appropriate irrigation technologies, climate change risk assessments, financial and economic cost benefit analyses, gender equity and social inclusion assessments, and political economy assessments. Methods of climate proofing infrastructure against floods include: river or watercourse bank reinforcement, bioengineering, gabions, riprap/geotextiles, structure anchoring, use of sealants, siting above flood levels of electrical, mechanical and other equipment, diversions and rerouting of existing water channels, etc.⁵⁷

74. Smallholders in each irrigation scheme will improve their technical and organizational capacities to plan, manage and operate their schemes in light of evolving climate risks through more effective Irrigation Management Committees (IMCs). Historical and prospective climate risk information, provided through climate information services in Output 3 (below), will support adaptive planning and management of these investments by farmers and institutional stakeholders under this Output.

Activity 1.1: Climate proofing irrigation infrastructure for enhanced water security in the face of climate change

⁵⁷ For more detailed information, please see Section 5.1 *Climate proofing irrigation schemes* in the Feasibility Study



This activity aims at ensuring water availability, increasing water storage capacity, reducing water loss and enhancing water use efficiency through revitalization of existing irrigation schemes through climate-proofing and operation of irrigation infrastructure and water efficient irrigation technologies including supporting solar power installations for water pumping. It will also train Irrigation Management Committees (IMCs) on climate-adapted O&M and monitoring, and establishment of O&M funds as well as facilitating learning and knowledge exchange workshops across IMCs to improve coordination and scaling up of climate resilient irrigation systems. “Climate-proofing” under this project involves infrastructure improvements, landscaping/bio-engineering, solar pumping, and water-use efficient irrigation technologies (drip, sprinkler systems). GCF resources will cover the costs of revitalization of these schemes, climate proofing the infrastructure, and installation of more water efficient technology, while the GoZ contribution will cover non-climate related costs, for instance, in the electrification of the schemes.

75. As such, this activity will provide sustained access to water for an estimated 5,900 smallholder farmers and their households (at least 30% being female headed households) by climate-proofing 21 irrigation schemes (15 existing and 6 new) in 15 Districts of the three southern provinces through upgrading of water provision equipment and infrastructure, together with more effective and efficient operations and management to enhance climate resilience. The project will use a climate-resilient, revitalization design approach to existing irrigation schemes that overcomes challenges faced by previous irrigation investments to sustainably increase volumes and reliability of water supply for smallholders in the face of increasing climate risks. While it is not possible to mitigate the frequency or duration of flooding, climate-proofing techniques that protect irrigation and related infrastructure will be employed as a means to manage climate-induced flooding risk. Best practice in designing and implementing climate-proofing of irrigation schemes includes hydrological assessments (initial pre-assessments have been carried out during project preparation – please see the Irrigation Sub-Assessment in the Feasibility Study), flood forecasting, identification and application of appropriate irrigation technologies, climate change risk assessments, financial and economic cost benefit analyses, gender equity and social inclusion assessments, and political economy assessments. Methods of climate proofing infrastructure against floods include river or watercourse bank reinforcement, bioengineering, gabions, riprap/geotextiles, structure anchoring, use of sealants, siting above flood levels of electrical, mechanical and other equipment, diversions and rerouting of existing water channels, sand abstraction,

etc. 58 Initial climate proofing requirements for each of the 21 irrigation schemes have been identified and are reported in Annex IIa of the Feasibility Study. These requirements are specific to each irrigation scheme. In addition, solar powered pumping installations will be undertaken for 30 ha in each irrigation scheme for a total of 630 hectares across the 21 selected schemes. The solar installations, to the tune of USD 2.55 million will be jointly financed by the GCF USD (1.81 million), and GoZ as part REA co-financing (USD 0.74 million) under activity 1.1.

76. In addition to the climate-proofing of irrigation infrastructure, the Output will build the organizational and management capacities of each scheme's Irrigation Management Committees (IMCs) through training in efficient O&M of the irrigation systems as well as establish and strengthen O&M Funds and strategic capitalization plans. GCF resources cover the costs of technical assistance to support resilience-enhancing O&M of the irrigation schemes for the first two years after revitalization to ensure continued functionality while building the capacities of IMCs for O&M of the infrastructure and establishment and management of the O&M funds (See detailed O&M plan – Annex XII). IMCs will be trained to interpret and further disseminate climate, weather and agricultural advisories (linked to Output 3) to minimize and manage climate risk. The project also invests in establishing a network of IMCs across the three provinces to facilitate learning, dissemination of climate adaptation knowledge and best practice through peer-to-peer exchanges and training workshops, including on water resource planning at Catchment and Sub-Catchment levels and other activities.

77. The sustainability of the O&M of communal irrigation schemes is based on the proposition that incomes from increased and more stable agricultural production will allow communities to meet any required O&M costs. The project will build on best practice from CRIDF through technical assistance and training to support communities to fulfill their responsibilities. Best practice for O&M shows the efficacy of engaging IMCs in developing communally owned irrigation scheme 'Constitutions'. This is an agreed 'set of rules' that every member of the scheme is expected to sign and adhere to. This enables IMCs to manage (including covering their costs of) individual participation in the collective maintenance of communally used irrigation infrastructure. A key part of a scheme's Constitution is an 'Operations and Maintenance Fund', whose capitalization plan requires each member to contribute to on a monthly basis. Smallholder contributions, made possible by increased income from the sale of increased yields, will generate enough capital to pay for the upkeep of the irrigation infrastructure, including paying engineers to troubleshoot, repairing faulty equipment, etc. The practice of farmer contributions is well established in Zimbabwe, and is verified through the registers used by AGRITEX officers working directly with farmers. For this project, the local extension officers will use these and project specific registers to ensure that only those who make contributions that match project funding will receive support. This approach also applies to Activities 1.2. and 2.1.

This activity includes the following sub-activities:

1.1.1 Climate-proofing and revitalizing existing irrigation infrastructure and equipment in 21 irrigation schemes (see Irrigation Sub-Assessment for detailed description)

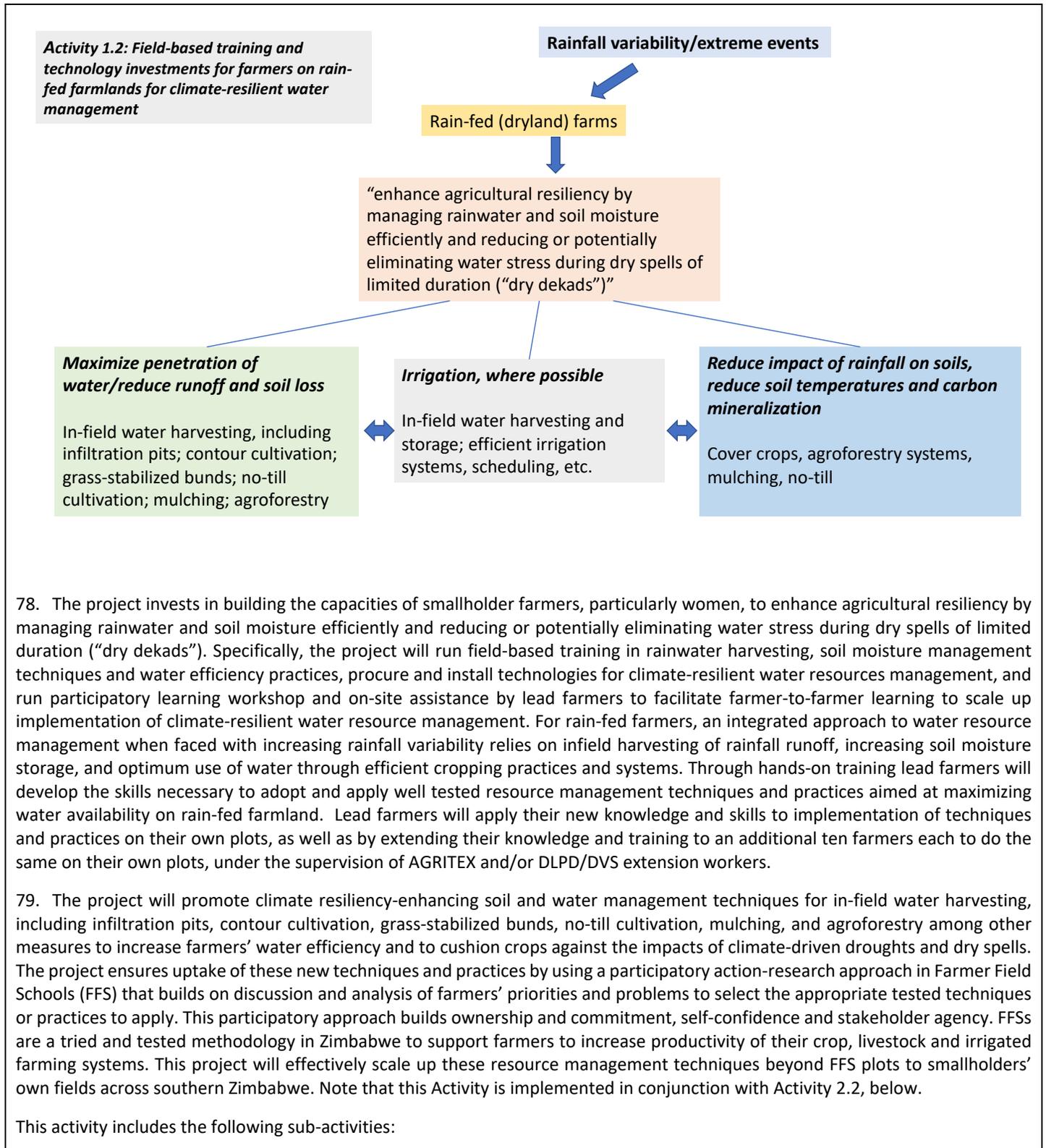
1.1.2 Training of 21 Irrigation Management Committees (IMCs) in climate-adapted O&M and monitoring, and establishment of O&M funds

1.1.3 Field visits and technical advisory support by DOI to IMCs to support climate-resilient O&M and operationalization of the O&M funds (years 2 through 4) based on detailed O&M plans

1.1.4 Learning and knowledge exchange workshops across IMCs to improve coordination and scaling up of climate resilient irrigation systems (Nine provincial district level peer meetings)

Activity 1.2: Field-based training and technology investments for farmers on rain-fed farmlands for climate-resilient water management

⁵⁸ For more detailed information, please see Section 5.1 *Climate proofing irrigation schemes* in the Feasibility Study



1.2.1 Field-based training of 6,900 lead rain-fed farmers in 230 Farmer Field Schools in rainwater harvesting, soil moisture management techniques and water efficiency practices

1.2.2 Procurement and installation by farmers of technologies to implement climate-resilient water-resource management in rainfed farmlands

1.2.3 Participatory workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient water resource management (Two open community learning days per FFS, under AGRITEX supervision)

Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets

80. This Output addresses Barriers #1, #1a, and #3, above. This output focuses on enabling vulnerable smallholder farmers, particularly women, on both rain-fed and irrigated farms, to strengthen their capacities to adopt and implement climate-resilient agricultural practices for specific staples and/or high-value crops in the face of increasing climate hazards and to sustain these practices through more effective market linkages and inclusive multi-stakeholder partnerships. GCF resources, along with GoZ co-financing to remove structural barriers, will be invested in strengthening the capacities of AGRITEX, the government agricultural extension agency, to train lead farmers in Farmer Field Schools to analyze the climate vulnerability of their agro-ecosystems and identify measures to enhance their climate resiliency starting with packages of tested CRA practices identified and screened during project preparation (see Annex IIb). These packages of CRA practices were identified during project design based on analysis and discussion with AGRITEX staff, research institutions, NGOs and progressive farmers regarding agronomic research, climate vulnerability, marketing studies, previous project experience and best practices. This resulted in a mapping of crop and livestock potential for climate resiliency throughout the region coupled with identification of wards with comparative climate vulnerability. This information can be found in the CRA sub-assessment (Annex IIb of the Feasibility Study). In FFS, smallholder lead farmers will improve their technical capacities to implement selected CRA practices aimed at augmenting yields and quality of specific staple and high-value crops on FFS plots as well as their own. Each lead farmer, once capacitated, will train additional farmers in her/his community under the supervision of the ward-level AGRITEX extension workers.

81. To ensure support for long-term continued application/adaptation of climate-resilient production practices and a shift towards market-oriented, climate-resilient agricultural livelihoods, **GCF resources and GoZ co-financing will be used to establish and operationalize multi-stakeholder Innovation Platforms (IPs)**. These will be based in selected agricultural colleges and DR&SS research stations with the aim of building and empowering multi-stakeholder partnerships to increase market access and development of the value chains of the selected climate-resilient crops. Each IP will draw stakeholders from different value chains in 3-5 districts. The project will support AGRITEX to co-facilitate the Innovation Platforms with DR&SS (funding support to establish/operationalize the IPs through technical assistance/meetings/trainings), as well as civil society organizations or academic/research organizations with specialized expertise (e.g. ICRISAT). Selected staff members from AGRITEX and DR&SS will receive specific training to lead the IPs, who will meet periodically and benefit from access to on-site demonstration facilities. A national level platform will be established to monitor progress, troubleshoot challenges and receive evidence-based policy inputs from the Innovation Platforms based on knowledge generated and codified under Activity 2.3 (for more detailed information on Innovation Platforms, please see the sub-assessment on Climate Smart Agriculture in Annex IIb).

82. *These IPs will complement or align with the ZRBF approach to market development and financial inclusion.* Each platform will include the primary actors in a crop's value chain, from input supply and production to final sale, and will develop a strategy to improve the market linkages in each value chain to enable access by smallholder farmers. Smallholders, particularly women, as well as financial intermediaries will receive training (using GoZ resources) to enable access to finance for sustained impact beyond the project. These platforms will enable a transformative shift towards climate-resilient agricultural livelihoods for the smallholders with increased technical support from AGRITEX, development of partnerships with private enterprises, greater coordination among value chain stakeholders and improved access to markets and finance.

83. The project will generate extensive knowledge of water management, climate-resilient agriculture, and the development of climate-resilient value chains. Under this Output, experience with climate-resilient water resource management and agriculture, Innovation Platforms and market access will be analyzed and documented. Local knowledge of agricultural production, weather patterns and water management will be analyzed and ultimately synthesized with conventional modern scientific methods and approaches in a process of co-creation of technical knowledge of smallholder adaptation to climate change.

Activity 2.1: Establish transformative multi-stakeholder innovation platforms for diversified climate-resilient agriculture and markets

84. It is expected that increased water security through Activities 1.1 and 1.2, and climate-resilient production techniques introduced in Activity 2.2, below, will enable crop diversification as well as production of a marketable surplus of staple and non-staple crops. The adoption of climate-resilient agricultural practices and technologies at scale is significantly enhanced if farmers are motivated by and assured of inclusive climate-resilient value-chains, including reliable markets for their diversified crops. In this way, the project can sustain transformative changes in production and increase climate resilience of agro-ecosystems by enabling market linkages that leverage market incentives to motivate farmers to adopt and periodically innovate climate-resilient agricultural practices.

85. Strengthening of climate-resilient value chains requires the collaboration of all stakeholders in the chain. This project will convene five multi-stakeholder Innovation Platforms (IP) - comprising farmers, input suppliers, produce buyers, water governance authorities, government service providers, financial institutions, NGO technical assistance providers and others - across the 15 districts. Each IP will be coordinated and facilitated by assigned AGRITEX staff, with the assistance of key institutions and other entities (NGOs, private sector, international research organization) and will meet at a central location e.g. agricultural college. Each Innovation Platform will target the development of a specific value chain (horticulture, livestock, small grains, sesame, identified in Annex IIb of the Feasibility Study) relevant to smallholders in a particular geographic area and develop one or more strategies to build the climate-resilience and productivity of the specified value chain(s) through the FFS. Each Innovation Platform will support the identification of markets for climate smart crop/livestock production, analysis of input/output markets with a focus on climate resilience, identification of production and post-production barriers, and discussion of marketing strategies. A value-chain analysis and a market mapping exercise were undertaken as part of the full Feasibility Study during proposal development (see Annex IIb of the Feasibility Study). The innovation platforms will also build on successful experiences from ZRBF and *Scaling Up Adaptation project* on facilitation of multipartite partnerships between farmers, private sector and financial institutions. During project implementation, user-centric, community-based value-addition, marketing, and financing strategies will be developed as part of each Innovation Platform's work.

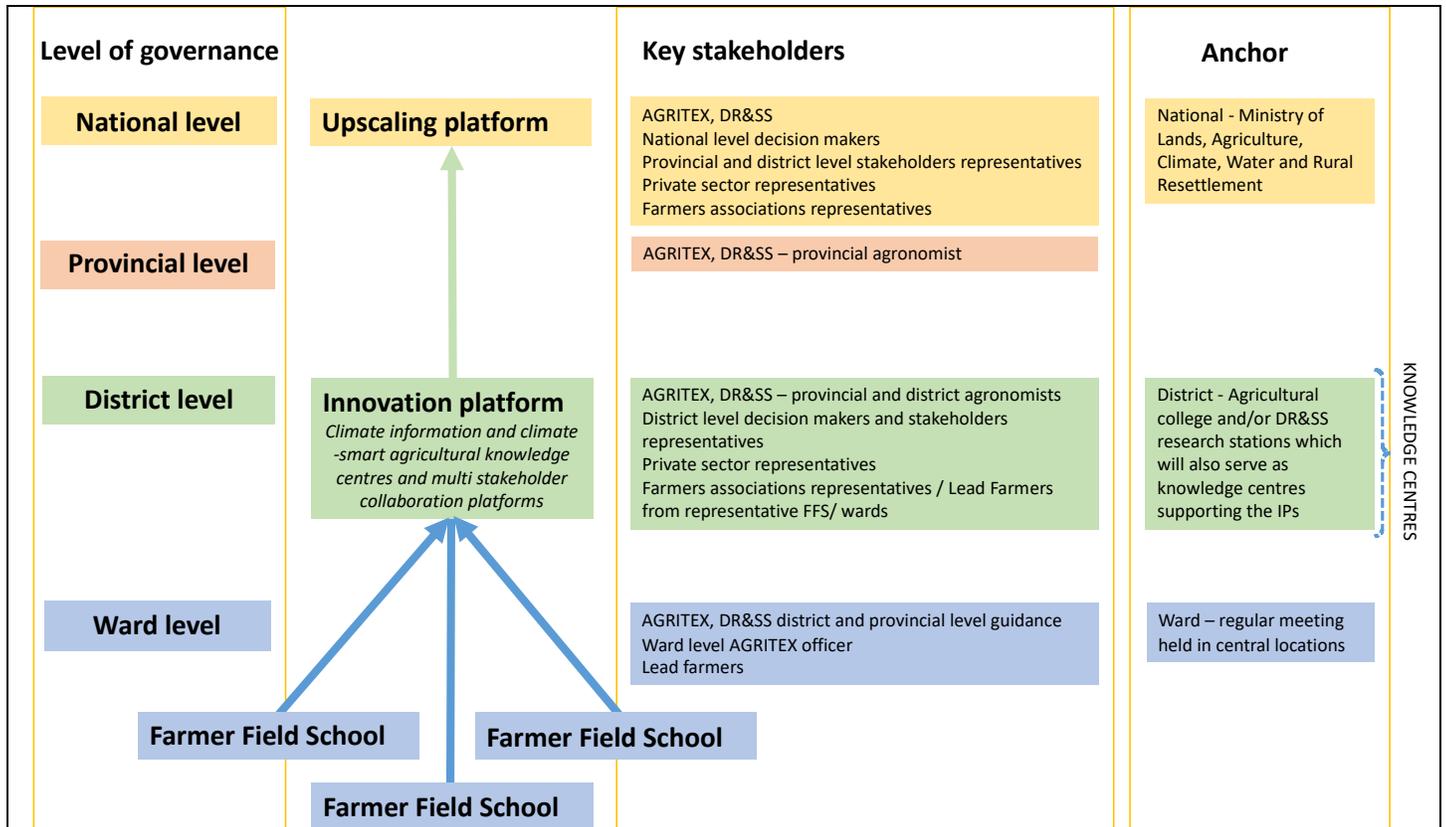


Figure 3: Innovation Platforms organizational framework

This Activity will enable the Innovation Platforms to broker and coordinate partnerships between producers, processors, buyers, input suppliers and others with the aim of lowering the risk of mismatches between product supply and demand. This will be supported through technical advisories and workshops for legal support services and meetings to promote networking among partners and stakeholders. This Activity will leverage, among other types of partnership agreements, private sector investments through out-grower schemes, linking farmers with private 'off-takers' through contract farming and multipartite agreements between farmers, private sector buyers and microfinance institutions for loans for inputs and productive asset investments. On the ground, this activity will provide technical assistance, trainings and meetings to establish, operationalize, and coordinate multi-stakeholder Innovation Platforms for upscaling diversified climate resilient production and access to markets, run platform-level workshops to develop crop-specific production and market strategies for use by all relevant value chain actors for climate-resilient production and market access, provide technical assistance (including legal support services to farmer organizations) to facilitate and formalize public-private partnerships across value-chain actors, provide technical assistance and business planning and management training to smallholder farmers and financial intermediaries to enable access to finance for sustained scaling up climate-resilient agriculture. This Activity will build on both CRIDF's small-scale infrastructure program and the previous Seeds and Markets Project funded by the Swiss Agency for Development and Cooperation (SDC). The project will build on lessons learned and expertise in regard to value chain support in the ongoing project Scaling Up Adaptation being implemented by UNDP/Oxfam and partners on climate-resilient value chain development and engagement of market actors for irrigated horticulture and livestock in Chiredzi, Buhera, and Chimanimani, as well as the SNV RARP project for horticultural produce, which have engaged agri-businesses such as Matanuska for bananas, Cairns for tomatoes and beans, and Schweppes and CESVI for citrus fruits. The project will utilize the work of ICRISAT and CIMMYT on Innovation Platforms for co-development of agriculture practices and market linkages, as well as the experience of ZRBF consortia for horticulture, livestock, sesame and similar dry land crops.

Therefore, while the proposed project itself does not invest in value-chain development, it coordinates with and complements these various efforts.

86. GCF and UNDP resources will be used for training to enable smallholder farmers, particularly women, to build their technical and business planning and management capacities to increase their collateral and creditworthiness while also providing technical advisory support to financial intermediaries on how to appraise and invest in climate-resilient production and value-chains. Specifically, the project will train women in particular in a ward-based gender equality action learning program and women financial empowerment training programme. The project will build on the efforts of the UNDP supported SCCF project on coordinating with savings groups, credit associations, and micro-finance organizations to promote linkages between the proposed project beneficiaries and various financial intermediaries. These financial intermediaries would also be engaged in the Innovation Platforms enabling linkages and partnerships to promote sustained investment beyond the project lifetime. Technical advisory will focus on awareness and how these intermediaries can put in place various packages of options for women to access finance. E.g. policies for group lending schemes; mechanisms for flexible collateral requirements etc. to facilitate women to invest in climate resilient production and value chains.

This activity includes the following sub-activities:

2.1.1 Technical assistance, 9 trainings and meetings to establish, operationalize, and coordinate five multi-stakeholder Innovation Platforms (through quarterly meetings over four years) across 15 districts and one national-level Platform (through bi-annual meetings over four years) for upscaling diversified climate resilient production and access to markets

2.1.2 Develop crop-specific production and market strategies for use by all relevant value chain actors for climate-resilient production and market access (two-day strategy development workshops per platform per year over 4 years and at least five plans)

2.1.3 Technical assistance (including legal support services to farmer organizations) to facilitate and formalize public-private partnerships across value-chain actors to upscale climate-resilient agricultural markets

2.1.4 Technical assistance and business planning and management training to smallholder farmers, particularly women (under a ward-based gender equality action learning program and women financial empowerment training programme) and financial intermediaries to enable access to finance for sustained scaling up climate-resilient agriculture (three streams of women's programmes promoting Women's leadership through economic leadership, gender equity and empowerment)

Activity 2.2: Investments in inputs, technologies and field-based training to scale up the implementation of climate-resilient agricultural production in the face of increasing climate hazards (rain-fed and irrigated farms)

This activity will support government extension services – using a participatory methodology - to refine, adapt and widely disseminate demand-driven, tested, climate-resilient agricultural practices to smallholders on rain-fed and irrigated farms in southern Zimbabwe. Smallholder farmers, particularly women, will join 251 Farmer Field Schools across 15 districts and 137 wards to adapt recommended packages of climate-resilient practices⁵⁹ and technologies to their production of greater and more sustainable yields of staples and high-value crops in the face of increasing climate hazards. Through this activity, the project will run Training of Trainers workshops for those who will conduct Farmer Field Schools, organize and activate Farmer Field Schools for promotion of climate-resilient agriculture, procure inputs and to implement CRA packages, and run workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient agricultural practices and cropping systems. The project will catalyze upscaling of climate-resilient agricultural practices across the target provinces by training lead farmers from the different wards who, once thoroughly trained in FFS, will return to their communities and engage other farmers in applying the acquired practices and technologies on their plots. AGRITEX field staff will supervise and support the lead farmers over the course of two growing seasons.

87. This activity will therefore invest in training of trainers for Farmer Field Schools (FFS), as well as in the training of lead farmers in the implementation of CRA packages on centralized FFS plots of 0.5 hectares each on average; these lead farmers will then go on

⁵⁹ Please see the Climate-resilient Agriculture sub-assessment in the Feasibility Study for more detail.

to engage their neighbors in practicing climate-resilient agriculture on their own fields (0.50 hectares on average). Each of the thirty farmers participating in each FFS during two seasons of CRA activities will disseminate lessons and best practice to at least ten of their peers under the supervision of AGRITEX and with the support of NGOs and, where applicable, private entrepreneurs. This activity aims at final adoption of rain-fed CRA packages by 6900 lead farmers and 69,000 beneficiary farmers – a total of 75,900 smallholder households in the project area of which at least, 30% will be from female-headed households. In addition, the CRA packages for irrigated land will reach 5,900 smallholder households. Initial input packages will be provided to beneficiary farmers corresponding to the approved CRA package and skills acquisition in the FFS. Making use of the GCF investments, the project will influence government budgets on agriculture in the 3 target provinces towards climate resilient agriculture. Specifically, the project will influence the government budget for the input supply scheme to small-scale farmers to be oriented towards climate-resilient varieties. Government extension and research staff in the three provinces benefitting from awareness and training provided by the project will support indirect beneficiaries to adopt and implement climate resilient practices, technologies and crop varieties.

88. CRA packages identified through consultations and analysis during proposal preparation will be adapted through participatory mapping as part of FFS and analysis of farming systems and agro-ecological principles under actual smallholder farming conditions.⁶⁰ During project design, consultations were held with AGRITEX, DR&SS, Oxfam, ICRISAT and other staff in Harare as well as in the field to identify CRA practices for specific crops, agroecological conditions, economic and market considerations and other factors. Identified practices were then grouped in CRA packages for specific crops and conditions and onward confirmation, implementation and adaptation in Farmer Field Schools. Identification of CRA practices was achieved as a result of analyses of pilot experience with Climate-resilient Agriculture in Zimbabwe, the Conservation Agriculture program in Zimbabwe, studies of CRA practices and systems in other countries in Southern Africa, research and lessons from pilot experiences carried out by ICRISAT, CIMMYT, Oxfam and other institutions, and analyses of traditional knowledge related to coping with or adaptation to climate variability. Other NGOs, CSOs and universities will be invited to propose different, equally resilient and sustainable, agricultural practices and to participate in the Innovation Platforms, particularly in regard to agroecology and integrated approaches to addressing the food-energy-water-ecosystems nexus at landscape level. The CRA sub-assessment in the Feasibility Study provides further information on the CRA packages (please see Annex IIb).

89. CRA packages include practices such as soil conservation, low till or no-till and other appropriate tillage techniques, targeted fertilization, incorporation of trees and shrubs into cropping systems, multiple cropping/polycultures, integrated crop-livestock systems, and others. Diversification of crops will also be pursued to reduce and manage climate risk using climate-resilient varieties and practices. The CRA packages also include use of drought-tolerant crop varieties - identified as a priority adaptation strategy in Zimbabwe's Third National Communication to the UNFCCC – that have been tried and tested successfully in the UNDP-supported Coping with Drought Project in Chiredzi District in southeast Zimbabwe and other dry areas. Irrigation and rain-fed farmers will be encouraged to adopt climate-adaptive practices for livestock rearing, such as raising of drought and heat tolerant livestock breeds, water harvesting, fodder production, and hay or silage making using irrigated crop residue. Note that this Activity is implemented in conjunction with Activity 1.2, above.

90. The knowledge and experience gained during FFS will be codified and disseminated to smallholders in communities and districts across southern Zimbabwe through exchange visits, easy-to-access information circulars and other means organized by AGRITEX.

This activity includes the following sub-activities:

2.2.1 Training of Trainers (155 national, provincial, district and ward level AGRITEX staff), particularly women, to conduct Farmer Field Schools in 15 target Districts of southern Zimbabwe (10 workshops at the national and provincial level, and 85 trainings at the district and ward level)

2.2.2 Organization and activation of 251 Farmer Field Schools for promotion of climate-resilient agriculture in the 15 Districts

⁶⁰ AGRITEX, with the support of DR&SS, ICRISAT, CIMMYT and other partners, leads the development of climate-resilient agricultural practices and their participatory field testing and adaptation to different smallholder agro-ecological and economic conditions.

2.2.3 Procurement of inputs and technologies (e.g. seeds, tools, fertilizers) to implement CRA packages on 6,900 lead farmer plots

2.2.4 Workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient agricultural practices and cropping systems (One community open day per FFS. Under AGRITEX supervision, each lead farmer engages additional 10 farmers each through workshops and on-site assistance)

The targeted beneficiary community wards for the provision of the climate resilient practices under Activity 2.2 were identified during the project preparation process using the preliminary criteria below (see Feasibility Study), will be reviewed and updated at the outset of project implementation for purposes of the Executing Entity's selection of such beneficiaries and practices:

- (i) **Most climate vulnerable wards:** Application of climate vulnerability analysis in selection of wards to target most climate vulnerable districts, mainly in relation to risk of mid-season dry spells, droughts and other extreme weather phenomena.
- (ii) **Potentials for synergies:** Analysis of potentials for synergies and complementarities with similar project interventions and avoidance of overlaps and doubling efforts. Both large scale projects and local community initiatives should be taken into account.
- (iii) **Ownership:** Analysis of target populations' social and economic vulnerabilities and capabilities, their level of organization and ability and willingness to engage actively in project interventions, based on the expectation that ownership of and investment of time and resources in interventions is key to ensure sustainability.
- (iv) **Market and value chain development potentials:** Assessment of potential for entry into value chains / strengthened value chains, including access to market infrastructure, suitability of suggested value chains, local market actors.

Beneficiary community wards will be first confirmed by the Project's Responsible Parties as part of sub-activity 2.2.3 and 2.2.3 subsequently confirmed by the Executing Entity.

Activity 2.3 Enhance institutional coordination and knowledge management capacities for climate-resilient agricultural production in the face of increasing climate hazards

This activity will support the improved coordination, generation and sharing of knowledge regarding climate-resilient agricultural practices, water management, value-chains, marketing and other factors among key government departments; these will include Department of Economics and Markets, AGRITEX and DR&SS in collaboration with Department of Livestock and Veterinary Services and Department of Irrigation within the Ministry of Lands, Rural Resettlement and Agriculture. The focus will be on ensuring that the lessons learned and best practices identified through FFS, upscaling and Innovation Platforms are shared across departments at the national level in an evidence-based format that facilitates decision making and out-scaling of climate-resilient agricultural practices and water management. Specifically, it will upgrade ICT/GIS data collection/sharing platforms and protocols across knowledge centers in participating agricultural colleges and research centers, engage technical expertise to support generation, codification and exchange of knowledge across agricultural colleges and research centers for climate-resilient agriculture, and undertake impact evaluation and codification of best practices/lessons for systemic, evidence-based learning to scale-up resilient agricultural livelihoods.

91. At provincial and district level, the project's knowledge generation and learning activities will be grounded at the five Innovation Platforms (IPs) with support from each of three anchoring agricultural training colleges - Masvingo, Makoholi, and Esigodini – and relevant DR&SS research stations (e.g. Matobo, Chisumbanje and Chiredzi stations). Together with national level experts, these agricultural training colleges are responsible for the training of AGRITEX field personnel, as well as thematic experts. The project – with GoZ and GCF financing - will invest in strengthening five centers to serve as climate-resilient agricultural knowledge centres, providing knowledge generation services to the five Innovation Platforms and their members, facilitating smallholder assessments of on-the-ground experience with CRA initiatives and irrigation management, enabling student participation in field studies, engaging experts in assessments of specific issues, including value addition technology piloting, and employing writers to draft readily accessible case studies and policy analyses. Together with the Innovation Platforms, and beyond

the project lifetime, these centers of excellence will support dissemination of lessons learned and best practices through the continuous monitoring and evaluation of climate change adaptation experiences. This material will be channeled through a national multi-stakeholder Innovation Platform to influence decision making and policy development for upscaling of evidence-based good practices and lessons learnt, and to inform strategies to facilitate future scaling through AGRITEX training platforms for new staff and in-service learning and ultimately extension services to farmers.

92. At the national level, efficient institutional coordination and knowledge management is essential in facilitating system-level changes to enable sustained and transformational climate resilience and adaptation impacts lasting beyond the lifetime of project interventions. The project supports measures to enhance collaboration and knowledge sharing on climate change adaptation between key institutions and stakeholders so that improved communication and more coordinated sharing of data and information can more easily take place, mainly through the national upscaling Innovation Platform, with participation of national level decision makers. Also, the project seeks to strengthen the systematic documenting and sharing of information through adequate ICT and GIS systems (hardware and software) base to support data collection, analysis, evidence generation and sharing of knowledge; development of knowledge management and information sharing guidelines; and training in effective organizational knowledge management systems and advanced data analysis for climate-risk informed and resilient water and agricultural management.

93. In addition, the M&E plan (Section H.2) will include impact evaluation to support systemic and evidence-based learning. Lessons learned and best practices (reports, publications, and other communication and knowledge products for various media) will not only support adaptive project management but also inform learning across national/sub-national/community levels within Zimbabwe, as well as regionally for future investments and decision-making.

This activity includes the following sub-activities:

2.3.1 Upgrade ICT/GIS data collection/sharing platforms and protocols for knowledge management on climate resilient agricultural systems and livelihoods across knowledge centers in participating agricultural colleges and research centers

2.3.2 Generation, codification and exchange of knowledge across agricultural colleges and research centers for climate-resilient agriculture

2.3.3 Impact evaluation and codification of best practices/lessons for systemic, evidence-based learning to scale-up resilient agricultural livelihoods

Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture

94. This Output addresses Barrier #4, above. To effectively address weather and climate-related risks through adaptive management and planning during the growing season, farmers require information on available water-related resources (primarily irrigation and rainfall), extreme temperatures and evaporation, as well as the timing of these with respect to the crop growth cycle. This information can then be used to plan crop planting times, varietal choices, application of inputs (e.g. fertilizer), and irrigation scheduling. To address this need, water managers and agricultural extension officers (ZiNWA, AGRITEX and IMCs) require: i) the development of climate-related information packages for different periods in the cropping cycle and for different forecasting timescales (weather, 1-10 days and seasonal, 1-6 months); ii) the translation of weather/climate-related information into impacts on water availability for crops; iii) translation of information into understandable language (colloquial and technical); iv) the dissemination of information through appropriate media; and v) and training/explanations of how to use/interpret the information. In Zimbabwe this requires the development of systems to provide forecasts of water availability for irrigation (allowing catchment managers to better plan their expected water allocations and dam releases) and dryland crops, based on weather forecasts, seasonal forecasts and water resource models.

95. This Output will support the establishment of a comprehensive, functional climate information system to enhance the resilience of agricultural livelihoods. It will enhance existing observational networks (meteorological and hydrological), utilizing a combination of standard and low cost (particularly for O&M) technologies, as well as develop capacities to ensure the generation of timely weather/climate and hydrological forecasts and information for water resource management, irrigation management and dryland cropping. Weather/climate/hydrological information will be appropriately packaged and combined with other sources of

information related to household vulnerability/food security by multi-institutional task teams (AGRITEX & MSD), and disseminated through mobile telecommunications and radio programs, with training conducted by both international and local universities. Further support from universities will be provided for water resource capacity development at ZiNWA, with DoI contributing to materials on the use of water/weather forecasts and observations for irrigation scheduling by IMCs. This Output includes the following activities:

Activity 3.1: Installation and operationalization of weather/climate and hydrological observation networks

96. This activity addresses existing gaps in weather station coverage by installing 12 automatic weather stations, 10 automatic rainfall stations and 10 hydrological gauging stations at proposed irrigation sites that are not currently covered by the existing weather station network, and at catchment locations needed to monitor rainfall, river levels and flow. It will also upgrade systems and institutional capacities for hydro-meteorological data transmission and processing and train MSD, ZiNWA, DR&SS/AGRITEX officials, community observers in collecting data, operating and maintaining equipment. It builds the capacity of MSD to generate gridded observational datasets based on satellite observations, thus extending observations to areas without weather stations, as well as further developing the ability to generate quantitative downscaled weather forecasts via statistical and dynamical techniques. Targeted seasonal forecasts (based on ENSO/IOD state) will be evaluated and utilized over the south western region. These quantitative outputs will build the foundations for developing the tailored sectoral forecasts in activity 3.2. This activity will also support the quality control of data and its access and storage in databases at ZiNWA and MSD, as well as the development of shared weather data for modelling and forecasting. It will further provide training for MSD, ZiNWA and other observers (e.g. for schools/communities hosting low-cost stations) on O&M of equipment.

This activity includes the following sub-activities:

3.1.1: Install 12 automatic weather stations to cover key agricultural zones and 10 automatic low-cost rainfall/weather stations to improve rainfall monitoring in the three catchments

3.1.2: Install 10 water level/gauging stations at strategic points in the three catchments

3.1.3: Upgrade systems and institutional capacities for hydro-meteorological data transmission and processing to enable localized weather, climate and hydrological model forecast generation

3.1.4: Train MSD, ZiNWA, DR&SS/AGRITEX officials, community observers (low-cost stations) in collecting data, operating and maintaining equipment (two trainings for MSD & ZiNWA and DR&SS/AGRITEX officials and observers from three catchments over two years)

Activity 3.2: Develop, disseminate and build institutional capacities (MSD and AGRITEX) on tailored climate and weather information products

This activity will scale up innovations, developed through the UNDP/GEF supported project, on targeted seasonal forecasts (based on El Nino and the Indian Ocean Dipole) and climate information dissemination (utilizing SMS communications) to smallholder farmers. Develop information products to strengthen existing national satellite/observation-based weather. Practically, it will train national level ZiNWA staff in the use of water resource models and ingesting input data from weather/climate observations and forecasts, develop regular hydrological forecasts and disseminate climate information through mobile phones, community radio, community meetings and local posters and bulletins. The project will also develop new tailored products to inform decision making for food security and water resource management under the NEWU, and to be used as part of the information dissemination network to smallholder farmers through SMS-based and radio services. These products will be developed through collaborative multi-institutional task teams and incorporate feedback on usability and information content as well as indigenous knowledge, garnered through participatory analysis and discussion. The regular production of these weather information products will be operationalized through the development of operating procedures and associated software/code development. ZiNWA, with support from University of Zimbabwe (UoZ), will undertake water resource modelling in the three southern catchments, as well as develop procedures (institutional and software/code) to operationally assimilate observations and forecasts from MSD to do forward projections of water resource availability. WFP will act as a service provider in coordinating efforts to improve the national

climate information systems and services, namely in regard to seasonal forecasting, and will again play a key role as a service provider in rolling out the Participatory Integrated Climate Services for Agriculture (PICSA) methodology in three representative districts across the three catchments (please see implementation arrangements. Section C.7, for details on role of WFP)⁶¹. Informed by the PICSA methodology, these efforts will be scaled up to cover the three catchments and to include the design and formatting of advisories and distribution of messages, based on the sectoral products, to community radio stations and other channels such as mobile phones (SMS messaging), community radio, community meetings and local posters and bulletins.

This activity includes the following sub-activities:

3.2.1 Develop information products to strengthen existing national satellite/observation-based weather, 10-day and seasonal forecasts and advisories targeted to smallholder farmers

3.2.2 Training national level ZINWA staff (partnering with UoZ) in the use of water resource models (two trainings in WEAP and Pitman models) as well as ingesting input data from weather/climate observations and forecasts

3.2.3 Develop regular hydrological forecasts, incorporating daily updates of hydromet observations and forecasts

3.2.4 Disseminate climate information through mobile phones, community radio, community meetings and local posters and bulletins

Activity 3.3: Capacity building for farmers and local institutional staff on effective use of climate and weather information and products for resilient water management and agricultural planning

97. Under this activity, the project will train local level Department of Information, ZINWA and Climate Change staff in data analysis and production of information products, train farmers and district and local level intermediaries and set up communication and database systems to facilitate climate information management (equipment and communication materials) at three agricultural training colleges. This activity supports capacity building of ZINWA, DoI, CMCs, IMCs and smallholder farmers to continuously access climate information services and to apply the knowledge to on-farm water management and crop production. This will involve training ZINWA and DoI at the national level, as well as ZINWA catchment management staff and CMCs at the subnational level, to be able to understand and interpret the modelling and forecast information provided by MSD (weather and seasonal forecasts) and ZINWA (water resource modelling), in terms of potential impacts on dam water levels to aid in managing water releases. It will further work with AGRITEX extension officers, IMCs and lead rain-fed and irrigated farmers (ToT) to interpret the forecasts, combine/utilize them with on-farm measured rainfall and temperature, understand risk management options and use them to plan crop/water management decisions and crop irrigation scheduling. The project intends to make use of the competencies of the University of Reading, on the PICSA, a participatory approach that combines local climate, crop, livestock and livelihood information with participatory planning and decision-making tools that smallholder farmers can use to decide the best farming and livelihood options. This activity will also increase capacity to disseminate weather and climate-related information to communities through DR&SS and AGRITEX district offices and given the increased capabilities of these offices and institutions, dissemination of climate information will go beyond the districts and ward targets by this project. These offices will be provided with printed materials, and officers will attend the training courses so that they can be a first point of call for weather/climate related questions from farmers and communities. Queries will be logged and feedback on the usefulness of the information sent to AGRITEX and DR&SS national headquarters to be considered when developing new materials and advisories. Climate information will be codified and communicated in local languages and in accessible formats through the three agricultural training colleges, which will also serve as knowledge centers under Activity 2.3.

This Activity includes the following sub-activities:

3.3.1: Training of local level DoI, ZINWA and CC staff in data analysis and production of information products (based on observed and forecast water levels and weather/climate forecasts) for water resource management

⁶¹ This collaboration is key to ensure complementarity between the activities of this proposed project and the WFP project proposal to the GCF with a focus on climate services in Zimbabwe, submitted early 2018.

3.3.2: Participatory training of farmers and district and local level intermediaries – including Agriculture Extension, MSD and IMC staff - in interpretation and use of climate and weather information products for crop/water management

3.3.3 Set up communication and database systems to facilitate climate information management (equipment and communication materials) at three agricultural training colleges - Masvingo, Makoholi, and Esigodin.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

98. The project sponsor is the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR). The MLAWRR was set up to implement the *Climate Change Policy* and the *National Climate Change Response Strategy (NCCRS)* and to coordinate a sectoral response to climate change. MLAWRR has the mandate to receive climate change and related funding and channel it appropriately. The Ministry operates three parastatals under its mandate, which have established funds that support the Ministry's core operations. These include the Environment Management Agency (EMA), the Zimbabwe National Water Authority and the Parks and Wildlife Management Authority. The Meteorological Services Department, Forestry Commission and the Environment Management Agency also fall under the MLAWRR.

99. MLAWRR has coordinated a number of national climate change projects in the country through collaborative partnerships with the UNDP, World Bank, EU, UNICEF and UNEP. Some of the national projects that the MLAWRR has coordinated include the development of the NCCRS, the National Climate Policy, and the *Coping with Drought and Climate Change* and the *Scaling Up*

Adaptation projects. Currently, the Ministry is implementing a UNDP funded project entitled *Supporting Enhanced Climate Action for Low Carbon and Climate Resilient Development Pathway (SECA)*, which is expected to deliver results aligned with the NCCRS.

100. The MLAWRR has 22 years of experience in managing large donor funds. Since its eligibility for Global Environment Facility (GEF) support, the MLAWRR has received GEF grants totaling USD 25,035,556, which leveraged USD154,313,050 in co-financing for 13 national projects. These include five projects in climate change, five in biodiversity, two in multi-focal areas, and one in persistent organic pollutants. Similarly, Zimbabwe has participated in 14 regional and global projects financed by the GEF totaling USD56,224,913, which leveraged USD176,421,348 in co-financing. These include seven projects in biodiversity, two in land degradation, two in international waters, one in climate change, one in persistent organic pollutants, and one multi-focal area project.

101. *Technical input:* The Ministry anchors three strategic entities in regard to this project, namely: the Meteorological Services Department (MSD), the Zimbabwe National Water Authority (ZINWA), and the Environment Management Authority (EMA). MSD has a prime function of measurement and collection of accurate weather records. The Ministry maintains 47 Manual Synoptic Stations and 17 Part-time Manual Synoptic Stations manned by Agriculture Extension Officers, and about an additional 300 voluntary Rainfall Stations. The MLAWRR has plans to enter into partnerships to set up 150 automatic weather stations and decentralize data collection. It has piloted the establishment of Climate User Interface Platforms for smallholder farmers to participate in co-designing, co-producing and using tailored climate products in partnership with a number of players, including UNDP and the Universities. Through its departments responsible for the environment, meteorological services, water management and climate change, MLAWRR has a large pool of technical experts who can support the project in EWS, Water infrastructure investments and catchment management. MLAWRR has a strong collaborative relationship with the Ministry of Lands, Rural Resettlement and Agriculture and the Ministry for Local Government, responsible for disaster risk management.

102. *Management and Operational inputs:* Under the proposed implementation arrangements outlined in section C.7, below, the Executing Entity (EE) for this project is the MLAWRR. The MLAWRR will have oversight of the project by co-chairing the Project Steering Committee with UNDP. Through this national implementation modality arrangement, the MLAWRR will be accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. The project will be implemented through UNDP's National Implementation Modality (NIM). UNDP, in agreement with the Government of Zimbabwe, will provide extensive implementation support (support to NIM) and oversight through the UNDP Country Office in Zimbabwe. MLAWRR has implemented similar projects before, and external audits, including HACT micro assessments, have been positive.

91. To determine the capacity for the MLAWRR to undertake this role in the project, an external capacity assessment of the Ministry of Environment, Water and Climate was conducted in March 2017. This is part of the requirements under the UNDP Harmonized Approach to Cash Transfers (HACT) Framework. The assessment was also specially designed to identify any managerial and operational shortfalls that needed to be addressed for effective implementation of this GCF project. Based on the assessment done on capacity for Programme Management, Organizational Structure and Staff, Accounting Policies and Procedures, Fixed Assets and Inventory, Financial Reporting and Monitoring and Procurement, the overall risk rating for the MLAWRR was assessed as low. This indicates a low risk to the effective functioning of the Executing Entity's (IP) control framework and a low likelihood of a potential negative impact on the IP's ability to execute the programme in accordance with the work plan and stated objectives⁶².

C.5. Market Overview (if applicable)

⁶² United Nations Development Programme Micro Assessment Report – March 2017 Review regarding the Ministry of Environment, Water and Climate. Deloitte Risk Advisory.

103. Smallholder farmers' communities in Southern Zimbabwe live predominantly on communal lands. Settlements are mainly concentrated near rivers and in scattered villages inland where some water is available from natural pools and springs. Across this area, smallholders practice a diverse range of crop and livestock combinations and strategies, comprising of rain-fed crop production systems, livestock production systems and mixed crop-livestock production systems. The Feasibility study provides a more detailed overview of crop and livestock strategies per natural region and district. The semi-arid zone stretching across the Southern Lowveldt is mainly characterised by animal husbandry (small and big livestock) and in some areas rain-fed cultivation of maize, sorghum, pulses and sweet potatoes. In semi intensive farming regions such as Bikita and Zaka, smallholder farmers supplement cereal agriculture, such as maize by cash cropping (groundnuts, round nuts and cotton) and animal husbandry. In the high potential agricultural Eastern Highlands in Manicaland province, smallholder farmers in the Chipinge and Chimanimani districts intensively farm small plots of mixed food and cash crops. Maize is a primary crop but crop diversity is a key feature here (cereals, root crops, fruits, tea/coffee, tobacco). Several value chain studies indicate that there is significant demand and ready markets for a variety of agricultural products, but that companies often struggle to meet the demand as the smallholder farmers are not well integrated into the formal market systems. Experience from recent projects, incl. Scaling Up Adaptation and the ZRBF consortia projects, shows that contract farming, if done in a transparent manner by all parties involved, has the potential to improve smallholder farmers' production levels, unlock access to credit for inputs, develop farmers technical expertise, support access to buyers/markets, provide insurance and other services such as storage and transportation for smallholder farmers. (For further details on applicable value-chains and markets for the targeted farmers, refer to the CRA and Value-Chain sub-assessment reports under the Feasibility Study - Annex IIb and IIc)

C.6. Regulation, Taxation and Insurance (if applicable)

104. The Zimbabwe National Water Authority – ZINWA, a wholly Government owned entity tasked with managing the country's water resources - provides technical advice on groundwater planning, development and management to the Ministry of Environment, Water and Climate. In Zimbabwe; permits from Catchment Councils are required for borehole drilling and ground water abstraction. Authorization and a valid permit for water use needs to be sought from the relevant Catchment Council – for both ground water and surface water use. Catchment Councils are corporate bodies operating in different catchments of the country, with ZINWA being their Secretariat. Holders of a water permit, such as irrigation schemes, are charged with a water levy, paid into the national Water Fund which is mandated with the development of water resources in Zimbabwe under the Water Act. It is the responsibility of individuals and communities (through their representative structures) to obtain the required permits where needed from Catchment Councils in their region.

105. Land is owned and administered by the government under the Communal Land Act 1982, according to which rural district councils allocate land for occupancy and use. As Communal Land, use by communal land holders does not require a permit. For purposes of an irrigation scheme, such land is designated for such purpose in terms of a rural development plan approved by the Minister responsible for lands and the Rural District Council.

106. For any activities related to procurement of services through UNDP, taxes are exempted by refund. Section 7 of the Convention on the Privileges and Immunities of the United Nations provides *inter alia* that the United Nations and its subsidiary agencies are exempt from all direct taxes (except charges for utilities services) as well as from customs duties and charges of a similar nature in respect of articles imported or exported for official use. If the services are procured directly by GoZ, then national legislation will apply, including payment of taxes such as VAT according to the national rates, as applicable.

107. There are no specific insurance policies relevant for the project activities, however, insurance shall be applicable for all major project assets including project vehicles, ICT equipment and staff recruited for the project in accordance with UNDP rules and procedures. In terms of the Environment Protection Act, any activities being financed through the project, or in parallel with it, that are obliged to conduct an Environmental Impact Assessment will do so.

C.7. Institutional / Implementation Arrangements

108. The project will be implemented under UNDP's National Implementation Modality (NIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of Zimbabwe, the Country Programme Document (CPD), and as policies and procedures outlined in the UNDP Programme and Operations Policies and Procedures (POPP - see <https://info.undp.org/global/popp/ppm/Pages/Defining-a-Project.aspx>) The national Executing Entity - also referred to as the 'Implementing Partner' in UNDP terminology - is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including the NIM Guidelines). In legal terms, this is ensured through the national Government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document, which will be signed by the Executing Entity to govern the use of the funds (once the funds are secured). The Standard Basic Assistance Agreement (SBAA) was signed with the Government of Zimbabwe in May of 1980.
109. The project will be executed through the Host Country, represented by the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) (the "**Executing Entity**"). MLAWRR, through the Permanent Secretary, is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. UNDP, in agreement with the Government of Zimbabwe, will provide implementation support services (support to NIM) , including procurement⁶³ of goods and services, as agreed and costed in the letter of agreement ("**LOA**"⁶⁴) signed between MLAWRR (on behalf of the GoZ), the UNDP and oversight through the UNDP Country Office in Zimbabwe and BPPS/UNDP Global Environmental Finance Unit in Addis Ababa Regional Hub and Headquarters in New York.
110. UNDP provides a three-tier oversight and quality assurance role involving UNDP staff in Country Offices and at regional and headquarters levels. The quality assurance role supports the Project Steering Committee by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance must be independent of the Project Management function; the Project Steering Committee cannot delegate any of its quality assurance responsibilities to the Project Manager. The project assurance role is covered by the Accredited Entity fee provided by the GCF. As an Accredited Entity to the GCF, UNDP is required to deliver GCF-specific oversight and quality assurance services including; (i) Day-to-day oversight supervision, (ii) Oversight of the project completion, (iii) Oversight of project reporting.
111. In addition, the Government of Zimbabwe may request UNDP to provide direct project services for this project. The UNDP and Government of Zimbabwe acknowledge and agree that those services are not mandatory and will be provided only upon Government request and specified in the Letter of Agreement. If requested, the direct project services would follow UNDP policies on the recovery of direct project costs relating to GCF funded projects.

⁶³ The following procurements, including but not limited to the items outlined below, will be supported by UNDP: Procurement for the 21 Irrigation schemes; Hydromet stations; Consultant and Service contracts processes over USD 300,000; 5 vehicles; ICT packages and equipment; Communications packages; Visibility products, Contracts for operationalizing innovation platforms, Contract farming support service contracts, Various micro processes (venue hire, minor procurement etc. for workshops and trainings).

⁶⁴ The LOA was signed on 19 December 2019 and is an engagement modality under relevant UNDP's policies and procedures to provide the specified services to the Executing Entity and does not include or regulate UNDP's Co-financing.

112. The Executing Entity will enter into or put in place arrangements and/or legal agreements with the following Responsible Parties⁶⁵ for the implementation of certain outputs and/or activities: (i) The Department of Irrigation (“DoI”), (ii) AGRITEX, (iii) the Meteorological Services Department (“MSD”), and (iv) the Zimbabwe National Water Authority (“ZINWA”), who will serve as the Responsible Parties for the execution of the irrigation, CRA and climate information related activities of the project, respectively. WFP will be a service provider in relation to activity 3.2 of the project for the Participatory Integrated Climate Services for Agriculture (PICSA) and will be engaged by UNDP as a service provider through a UN to UN agreement. The responsible parties will provide the day to day leadership and be accountable to the Executing Entity for their support in the undertaking of the relevant activities, while the MLAWRR will facilitate their collaboration for each activity. Each of the responsible parties will support the delivery of the specific project activities indicated below:

Outputs	Activities	Responsible Party(ies)
1.	<i>Activity 1.1:</i> Climate proofing irrigation infrastructure for enhanced water security in the face of climate change	DoI
	<i>Activity 1.2:</i> Field-based training and technology investments for farmers on rain-fed farmlands for climate-resilient water management	AGRITEX
2.	<i>Activity 2.1:</i> Establish transformative multi-stakeholder innovation platforms for diversified climate resilient agriculture and markets	AGRITEX
	<i>Activity 2.2:</i> Investments in inputs, technologies and field-based training to scale up the implementation of climate-resilient agricultural production in the face of increasing climate hazards (rain-fed and irrigated farms)	AGRITEX
	<i>Activity 2.3:</i> Enhance institutional coordination and knowledge management capacities for climate-resilient agricultural production in the face of increasing climate hazards	AGRITEX

⁶⁵ Due to recent changes in the Government of the Host Country, MSD is now a department under the new Ministry of Environment, Climate, Tourism and Hospitality Industries (“METCHI”), while DoI and AGRITEX remain as departments under the MLAWRR; which do not have legal personality. On the other hand, ZINWA is a state-owned legal entity (parastatal) responsible for managing the countries’ water resources.

3.	<i>Activity 3.1:</i> Installation and operationalization of weather/climate and hydrological observation networks	MSD/ZiNWA ⁶⁶
	<i>Activity 3.2:</i> Develop, disseminate and build institutional capacities (MSD and AGRITEX) for tailored climate and weather information products	MSD
	<i>Activity 3.3:</i> Capacity building for farmers and local institutional staff on effective use of climate and weather information and products for resilient water management and agricultural planning	AGRITEX/MSD

113. The **Department of Irrigation** will be responsible for delivering activities under Output 1 including climate proofing of irrigation infrastructure and equipment in 21 irrigation schemes; training of 21 IMCs, support to O&M and networking of IMCs for learning. The Department of AGRITEX, will be responsible for the agricultural extension service activities under Output 1 and 2, with the support of the DR&SS and the Department of Livestock and Veterinary Services, including training of farmers in CRA and water conservation techniques through Farmer Field Schools, support to farmer-to-farmer peer learning and extension, training in business development and farming as a business. AGRITEX will also be responsible for activities under Output 2 related to innovation platforms, with the support of DR&SS and collaboration with Department of Economics and Markets and DLVS. Activities include the setup of five multi stakeholder innovation platforms, development of crop and livestock specific strategies for production and market linkages and facilitation of partnerships with private sector.

114. Under the instructions and supervision of MLAWRR, **MSD** and **ZINWA** will be jointly responsible for delivering activities under Output 3 with participation from AGRITEX and DR&SS related to capacity building of MSD, ZINWA, DR&SS and AGRITEX on collecting data and maintaining equipment; analysis of weather information and development of climate information products targeted smallholder farmers, engagement with private sector on services and business models for climate information services and enhance and develop existing DR&SS and AGRITEX knowledge centers. MSD will take responsibility for the installation and maintenance of weather stations, ZINWA for hydrological stations and together ZINWA and MSD will be responsible for strengthening the hydro-meteorological data transmission and processing system to enable localized weather, climate and hydrological model forecast generation. WFP will be responsible for the implementation of the Participatory Integrated Climate Services for Agriculture through a UN to UN agreement.

115. Given the potential of investment towards policy reform, the Department of Markets and Economics, under MLAWRR, as a Department responsible for Policy, will mainly take up a coordinating role around policy, participating in the project board and working closely with the PMU to manage the project.

116. The project proposed will be established and delivered through a project management unit, which will partly use the implementation and management structure of the current UNDP Zimbabwe Resilience Building Fund.

117. **Overview of the Zimbabwe Resilience Building Fund:** The ZRBF was established in May 2015 through an agreement between UNDP and the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) to implement the Zimbabwe Resilience Building Fund. Currently three donors - DFID, EU and SIDA - have contributed to the ZRBF. The ZRBF is implemented as a UNDP-Assisted National Implementation Modality (NIM). This modality is guided by the Standard Basic Assistance Agreement

⁶⁶ MSD will be responsible for the installation and operationalization of weather/climate observation networks while ZINWA will be responsible for the installation and operationalization of hydrological observation networks.

between the Government of Zimbabwe, represented by Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) and UNDP, guided by the Zimbabwe United Nations Development Assistance Framework (ZUNDAF) Action Plan and policies and procedures outlined in the UNDP Programme and Operations Policies and Procedures. Thus, the ZRBF is a framework mechanism that guides the implementation of resilience programmes and projects in Zimbabwe, enabling synergies to be built and programmes to build on each others' successes and take successive initiatives to scale.

118. Under the current Assisted NIM arrangement of ZRBF, UNDP through the ZRBF Management Unit, ensures management, good governance and fiduciary oversight of the ZRBF. To perform this responsibility UNDP operates under the existing Memorandum of Understanding (MoU) with the Government of Zimbabwe and the grant agreements with grant recipients. The ZRBF is guided by a Steering Committee which is co-chaired by government (MLAWRR) and donors (EU, DFID and SIDA on a rotational basis). UNDP is part of the quorum of the Steering Committee. The ZRBF Steering Committee, on a consensus basis, makes key policy decisions, and guides the Executing Entity and responsible parties in the execution of the projects. The ZRBF Steering Committee is supported by the ZRBF Secretariat and Project Management Unit (PMU) which manages and oversees the day-to-day work of the ZRBF and prepares technical inputs for consideration of the ZRBF Steering Committee.
119. Given the potential for synergies between ZRBF and the proposed project and considering aid effectiveness principles, a coordinated management structure is desirable. Synergies can be found both at the strategic level (i.e. joint steering committee to ensure strong synergies for resilience building strategies), operational level (i.e. joint project management capacities) and substantive level (i.e. programmatic collaboration based on similar and complementary interventions to build resilience). Hence, rather than establishing two discrete management structures, the current proposal considers joint management arrangements to ensure a shared national resilience building approach. At the same time, the proposed management structure (below) also caters for sufficient specificity for each of the pillars (ZRBF and the proposed GCF project) to facilitate decision-making and appropriate accountabilities per the different contractual arrangements vis-a-vis the ZRBF and the proposed project.

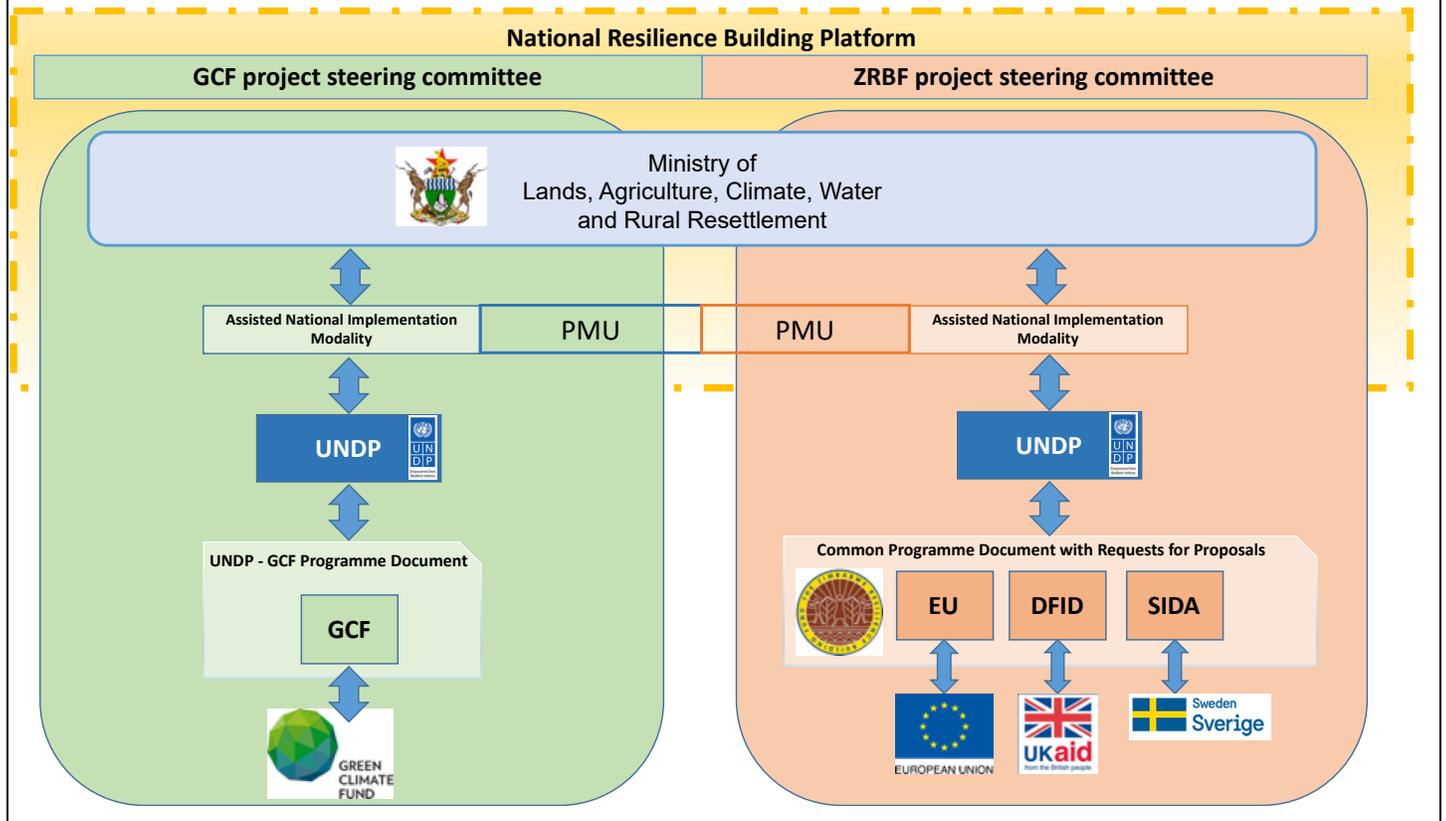


Figure 4: Coordinated management structure

The implementation and the management arrangements specific for the GCF project are summarized in the chart below:

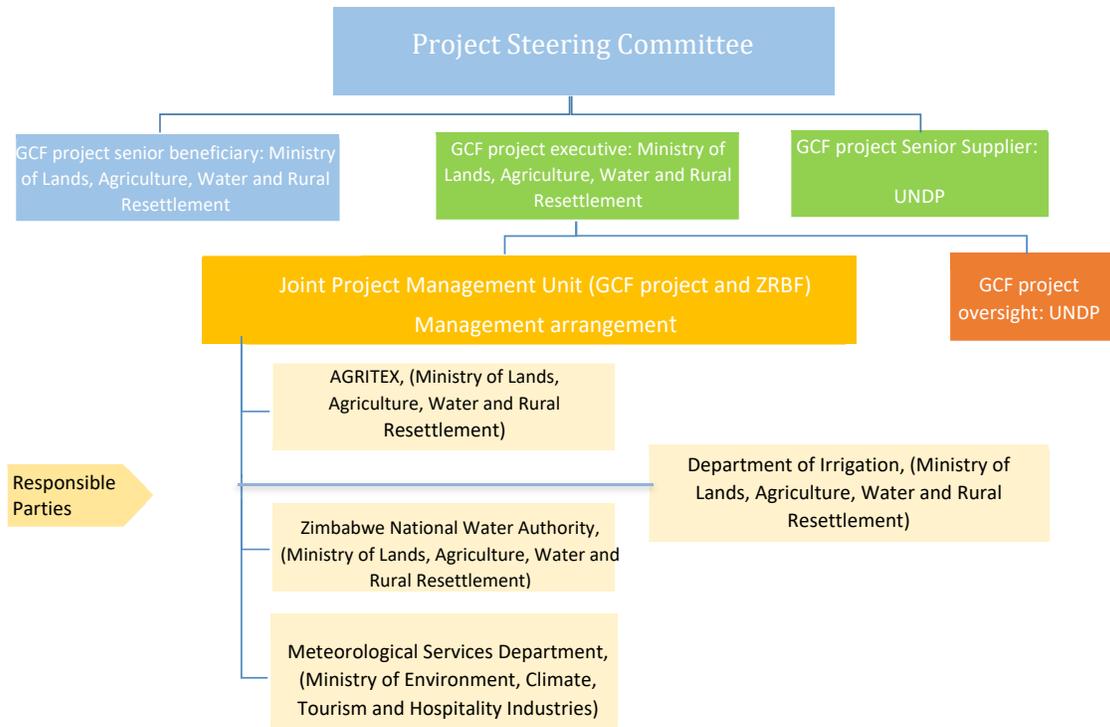


Figure 5: Implementation Arrangements

120. **Governance arrangements:** The proposed project will be governed by a **Project Steering Committee (“PSC”)**, co-chaired by the Executing Entity and UNDP. The proposed project steering committee will consist of a group of representatives responsible for making consensus-based strategic, policy and management decisions for the project, oversee implementation and review compliance with applicable requirements for the project. The PSC will comprise of:

121. Responsible Parties and Service Providers to the proposed Project namely MSD, ZINWA, DOI, AGRITEX, and technical departments namely DR&SS, Dept of Economics and Markets, WFP, and DLVS;

122. All ZRBF PSC members, incl. ZRBF donors; and

123. Relevant UN agencies / development partners – e.g. FAO, as there is potential for collaboration on the climate modeling

For avoidance of doubt, where consensus cannot be reached, the final decision over any issue concerning Project implementation will be made by UNDP .

124. The Steering Committee will ensure appropriate oversight, sustainability, and the necessary backward-forward linkages into the work of the respective Ministries. Further, it will oversee the project implementation; review compliance with GoZ, UNDP and GCF requirements; and ensure implementation of the management plan for the risks identified. The Committee will be responsible for the approval of the Annual Work Plan (AWP), budget allocation and revisions when required. It will meet quarterly and consecutively with ZRBF Project Steering Committee meetings. As such the consecutive ZRBF PSC and the

proposed project Steering Committee meetings may function as a national **Zimbabwe Resilience Building Platform** that includes both ZRBF and GCF project stakeholders. This platform will enable substantive synergies from the various initiatives in resilience building in Zimbabwe (including ZRBF and GCF funded projects). This is in line with current government thinking to set up a shared national platform to mainstream resilience thinking across GoZ ministries, departments and projects with time. Management of results and monitoring of GCF funded activities and expenditures will be done independently, meeting all GCF requirements.

125. WFP will be a responsible party, and a member of the PSC. It will be engaged to provide services for the implementation of activities associated with the PICSA elements of Activity 3.2 under coordination of the Executing Entity MLAWRR. This responsibility is based on the ongoing collaboration of WFP with the University of Reading on PICSA, the need to take a coordinated approach to implementing the project's PICSA components given that both WFP and UNDP are supporting proposals to the GCF related to climate information systems in Zimbabwe, and WFP's comparative advantage from its existing presence at district level. WFP has a record of cost-effective delivery and experience of managing roll out of PICSA in other countries, e.g. Malawi, and the two GCF projects, if approved, will share the implementation of the PICSA package over four years. In addition, both proposed projects support the strengthening of national climate information systems and will coordinate on the improvement of seasonal forecast related to rainfall, as well as hydrological monitoring. There will be no duplication of efforts or activities between this proposal and the WFP-GCF project but rather complementarity since the two projects are aligned and will coordinate closely in their pursuit of application of the PICSA methodology across different regions.
126. **The proposed GCF project day to day operational arrangements:** The Executing Entity will designate a National Project Director responsible for the overall direction, strategic guidance and timely delivery of the Project. The project will set up a PMU, including recruiting a Project Manager or Coordinator, who will be responsible for the day-to-day management and implementation of the GCF activities, under the guidance of the PSC. The PMU is set up and managed by UNDP, including recruitment of its staff, and operates under the overall guidance of UNDP senior management at the country office level and will follow UNDP rules and regulations. Additional administrative and logistical support staff for processing of human resources, procurement and logistic aspects of the implementation of the project may be assigned by UNDP.
127. The proposed project management unit will operate in synergy with the existing ZRBF PMU structure and the head of the ZRBF PMU will become the anchor point for ensuring synergies and complementarities across the ZRBF and the proposed project. As the current ZRBF funding cycle runs until 2021, the ZRBF PMU Head of Unit will act as resilience advisor to the GCF project team during the first three years of the project (2019-2021) to ensure synergies and complementarities between the ZRBF and proposed GCF project investments and resilience approach. Based on workload estimates, the ZRBF PMU Head of Unit will be proportionally funded by the proposed GCF project. Operational synergies will be leveraged by drawing on the technical capacities of the ZRBF PMU and the proposed project PMU. The proposed management structure will reduce transaction costs for partners (both national and development), and hence further operational synergies will be realized.
128. The project coordinator will have day-to-day management and supervisory responsibility of the GCF proposed project team and will be supported by four thematic specialists in the PMU responsible for Climate Resilient Irrigation Design and Operations, Climate Smart Agricultural Development, Market Linkages, Climate Change and EWS. Gender equity will be mainstreamed in each output and activity and oversight for gender mainstreaming will be provided from the UNDP Country Office gender specialist. The Project Coordinator's prime responsibility is to ensure day-to-day planning and implementation of activities and accountability for the delivery of results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The annual work plan is prepared by the Project Coordinator and, reviewed and approved by the proposed project steering committee.
129. The Project Coordinator will run the GCF project on a day-to-day basis with advice from the ZRBF PMU Head as resilience advisor and will have the responsibility to ensure complementarities between the two projects. The advantage of a shared resilience advisor from 2019-2021 lies in the facilitation of joint learning, knowledge management and sharing, systematic evidence building and better collaboration for resilience building. Likewise, a strong collaboration across the ZRBF and the proposed GCF project also mirrors and facilitates the collaboration between key stakeholders and departments relevant to rural climate change adaptation and resilience building. The PICSA activity will be executed by WFP (as a service provider) and

the related advisor for PICSA climate information services will be cost-shared with WFP (two years for WFP and two years for the proposed project), as part of the delegation of responsibilities for the PICSA component of Activity 3.2 and the related interagency collaboration around seasonal forecasting.

130. **Funds Flow:** Donor funding, including the GCF funding, will be received by the administrative agent (UNDP) on behalf of the Executing Entity (MLAWRR) based on a standard letter of agreement signed between the donors and UNDP and an MOU between UNDP and the Executing Entity separately. For funds channeled through UNDP a ‘Direct Payments’ option is being utilized whereby transfers will be made directly from UNDP to the goods and service providers upon the request of the EE. For avoidance of doubt, GCF Proceeds and the Accredited Entity’s Co-financing will not flow through the Executing Entity. Instead UNDP (as administrative agent of the Executing Entity) will channel such funding via a “Direct Payments” option whereby transfer will be made directly to goods and services providers hired by the Accredited Entity and upon request of the Executing Entity⁶⁷. On the other hand, the Co-financing from the Government of the Host Country will flow to the MLAWRR as budget allocations and used directly by such ministry to pay procured parties and/or transfer such funds to the relevant Responsible Parties.

131.

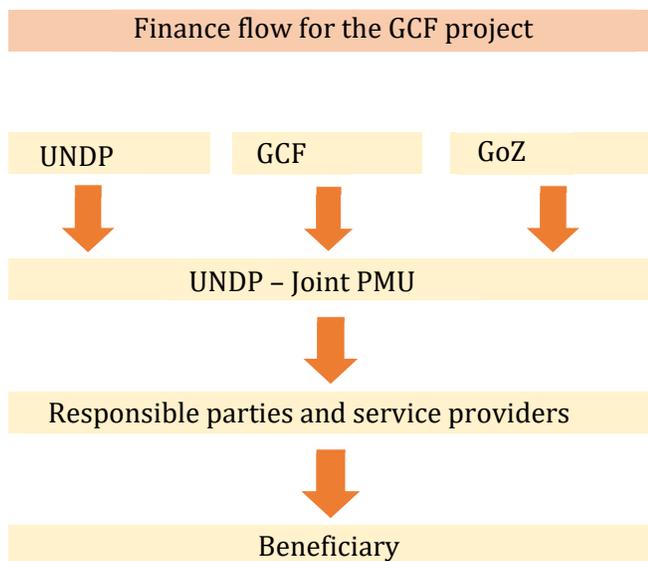


Figure 6: Financial Flows from Donors to Beneficiaries

⁶⁷ To regulate these financial transactions, UNDP will separately sign a standard letter of agreement with the relevant donors and a Letter of Agreement (LOA) and Project Document (ProDoc) with the Executing Entity that includes all the details regarding project implementation arrangements including financial.

C.8. Timetable of Project/Programme Implementation

The implementation schedule with detailed activity progress timeline and output completion, including monitoring and evaluation, is provided in Annex X.

D.1. Value Added for GCF Involvement

132. In the absence of GCF engagement to complement or strengthen ongoing efforts and address key insufficiencies and gaps, the Government of Zimbabwe is unable to take sufficiently robust measures to assist vulnerable smallholder farmers to adapt to climate-related risks and impacts on water and food security at scale across southern Zimbabwe. Given the indebtedness⁶⁸ of the country, the government is constrained to invest in adaptation measures that are critical to secure the resilience of the agricultural sector in the climate-vulnerable areas. GCF support facilitates additional private and public-sector investments that will foster scaling up of existing and additional efforts for transformative change and impact across southern Zimbabwe.

GCF involvement is, therefore, critical in:

Addressing the financial limitations in investing in the incremental costs of building climate change resilience of vulnerable smallholder farming systems in southern Zimbabwe

133. Smallholder farmers in southern Zimbabwe have largely maintained traditional approaches to managing water, soil and crops for food security and income albeit in an increasingly unpredictable environment. The productivity and stability of these agro-ecosystems have deteriorated over the years due to a number of factors, including overly intensive cultivation and land degradation, compounded by increasing climate change-related extreme weather events, primarily droughts and, secondarily, floods. Farmers have been constrained in adapting to hydro-meteorological hazards by their intensity and frequency, which leaves farmers unable to repair irrigation infrastructure and equipment held in common - in particular as they are caught in a cycle of increasing drought or rainy season dry spells under the changing climate, compounded by inadequate consideration of climate risks in the baseline investments in irrigation infrastructure, climate change-induced water deficits, reduced yields and revenues, and heightened food insecurity. Smallholder farmers themselves in southern Zimbabwe clearly lack sufficient resources to invest in addressing the incremental costs of enhancing agro-ecosystem resilience to climate change.

134. Development investments over the past decades, particularly in relation to irrigation infrastructure, have suffered dramatically from the impacts of climate change. Extreme weather events, such as sudden onset of heavy rains, have damaged or destroyed canals, dams and pumps with sedimentation of erosion of banks and stream beds. Current investments and projects are insufficient to counteract or mitigate growing climate risk as they fail to incorporate climate resilience into infrastructure design. The private sector has little incentive to invest given the risks and uncertainties associated with smallholder production, including technical, capacity, financial and other barriers.

135. With the impacts of climate change projected to increase over the coming years, the Government of Zimbabwe fully recognizes the significance to the country's food security of ensuring that vulnerable smallholder farmers have the means, information, capacities, incentives and institutional support they require to manage their resources in a climate risk-informed manner. While some government funds have been made available as co-financing, the current public expenditure budget of the Government of Zimbabwe is limited and insufficient to move smallholder farmers to climate resilient and improved livelihoods. The IMF describes Zimbabwe to be in an 'external debt distress' state as of 2017⁶⁹, and in the absence of stronger economic growth or more concessional financing and debt relief, Zimbabwe has little chance of emerging from its debt problems even in the long term. The government is unable to increase investments in climate resilient agriculture, which not only impacts farmers' income, but also negatively affects the country's future economic growth prospects. The smallholder farmers in the project's target areas themselves have insufficient income and resources to invest in irrigation and inputs for resilient agricultural livelihoods. GCF resources are indispensable to address the incremental costs of climate-proofing community irrigation systems, promoting climate-resilient agricultural practices, diversifying income and managing climate risk by facilitating public-private partnerships for climate resilient value chain development, and ensuring that climate information is produced and disseminated to decision and policy makers at all levels, from farmer to the national level.

Leveraging and combining public and private sector financing for community-level investments for adaptation among smallholders

136. GCF financing will galvanize government investment in building the resilience of vulnerable smallholder agroecosystems in southern Zimbabwe by mobilizing its institutional and financial support towards the proposed investments. This co-financing (detailed in Section B.1) will cover costs associated with addressing non-climate agricultural development factors through financing and comprehensive staff mobilization. Without GCF support, the financial and institutional barriers identified above will hinder investment by government in the proposed integrated approach to climate-resilient water and agro-ecosystem management in southern Zimbabwe. In the absence of climate finance from GCF, GoZ is unable to safeguard development investments for water and agricultural security.

137. GCF funding enables leveraging of additional resources to support adaptation investments that, together with community contributions, will help ensure sustained benefits from infrastructural resiliency. This project will engage the private sector in public-private partnerships to promote value chain linkages for priority, climate-resilient, high value crops. These partnerships will integrate suppliers, buyers, credit institutions, relevant government agencies, and smallholder producers' organizations in Innovation Platforms aimed at ensuring rapid communication, consensus and agreement around strategic production and commercialization goals, coordination of input provision and marketing, and use of climate information and climate-resilient agricultural advisories. These partnerships will ensure efficient coordination of project resources for sustained impact on the ground. GCF resources will motivate government agencies to invest in improved multi-sectoral coordination, mobilize communities to invest in managing public infrastructure, incentivize farmers to invest in soil and water management, and engage and sustain private sector investments beyond the project lifetime.

138. GCF financing will facilitate parallel and complementary financing from private sector and development partners for community level initiatives in southern Zimbabwe aimed at strengthening the sustainable rural livelihoods of smallholder households and organizations. The proposed project will enable smallholder producers' groups to access credit by linking them directly to lenders on multi-stakeholder Innovation Platforms.

Reaching the most vulnerable population in southern Zimbabwe

139. GCF funding will directly support the efforts of a significant, vulnerable population who, over the past decade, has experienced a high degree of food insecurity due to the impacts of climate change on temperature and water availability. These smallholders have very limited market access and few alternate employment or income opportunities. Investing in local irrigation schemes will have a number of ancillary benefits impacting the current baseline of climate vulnerability by allowing for the production and sale of marketable climate-resilient crops, creation of complementary rural enterprises, and increased participation in development and decision making in their villages and districts. Addressing the vulnerabilities of this important segment of the population of Zimbabwe through this project will preclude the need to provide extensive relief later in response to continuing climate change events.

140. Without GCF support, the Government of Zimbabwe will be unable to invest adequately in building the capacities of smallholders at scale to adapt and manage their rain-fed and irrigated agriculture and rural livelihoods in the face of increasing climate hazards. By restoring and revitalizing irrigation schemes for climate-resilient production, providing climate information for more informed decision making, ensuring the adoption and implementation of climate-resilient agricultural packages, and leveraging inter-institutional coordination and public-private partnerships for increased food security and income, GCF investment will play a catalytic role in helping the GoZ to strengthen its adaptive capacities.

D.2. Exit Strategy

⁶⁸ Zimbabwe: Debt Sustainability Analysis; IMF Country Report No. 17/196, June 19, 2017.
<https://www.imf.org/external/pubs/ft/dsa/pdf/2017/dsacr17196.pdf>

⁶⁹ *ibid*

141. The project exit strategy is premised on stakeholders' abilities to continue to implement project activities beyond project termination. This includes increased knowledge and technical skills; securing ongoing investment in resilience-enhancing agriculture and for O&M of irrigation and hydromet infrastructure; and achieving access to markets for climate-resilient crops and products.

142. *Key elements of the exit strategy, as discussed below, include* integration of traditional and modern agro-ecological methods and systems to achieve greater and more sustainable yields; building the capacities of small farmers and other local stakeholders for integrated, locally owned solutions; leveraging complementary investments by government and local communities for post-project implementation of project activities; establishing and operationalizing O&M funds in each irrigation scheme and training of IMCs in maintenance and operations; and crowding in private sector engagement through value chain, market and financial linkages for sustained production and commercialization of climate-resilient crops.

143. The project proposed here has been designed in close consultation with the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR), particularly AGRITEX and the Department of Irrigation (DOI), Department of Research and Specialist Services (DR&SS), the Meteorological Services Department (MSD), and other relevant government agencies, institutions and technical line Departments, as well as local governments, local and national NGOs, private enterprise, and men and women farmers of the three targeted provinces of southern Zimbabwe. These consultations and discussions (see Stakeholder Consultations Annex XIII for details), combined with the information, analysis and conclusions from the technical assessments forming part of the Feasibility Study, lay the foundations for the project approach and identified a corresponding integrated set of interventions to be implemented with the full participation of all key stakeholders. Building on these foundations, project design ensures that project investments and results will be sustained beyond the project's duration through:

144. **Integrating traditional knowledge and production practices with modern agro-ecological methods and systems to establish climate-resilient agriculture as a basis for greater, more stable and more sustainable yields:** Smallholder farmers, particularly women who constitute the majority of irrigation and dryland farmers, typically have a reserve of local contextual knowledge based on their experience of crop and livestock production accumulated over time. Innovators among smallholders generally have a very clear idea of production constraints and opportunities and have adapted their production practices over time to overcome the former and take advantage of the latter. With increasing climate change, however, this cumulative generation and acquisition of indigenous knowledge cannot keep pace with rapidly emerging climate-driven obstacles and production problems. This project will use traditional knowledge of the local smallholder context as a point of departure for the continuous development, application and evaluation of innovative climate-resilient practices and technologies. The project will integrate modern, climate-resilient agro-ecological science with traditional knowledge through a participatory action research methodology in which crops and climate-driven production issues identified and prioritized by local farmers are discussed and solutions identified and implemented, building on the portfolio of CRA packages designed during project preparation. Collaborating national and international research institutions (for instance, ICRISAT) will continue to provide the scientific knowledge and expertise to support integration with traditional knowledge and continual development and dissemination of climate-resilient practices and technologies.

145. **Building the capacities of smallholders and other local stakeholders for integrated, locally owned solutions:** By using a participatory action research methodology, local smallholders confirm the climate-driven production problems they currently endure as well as their solutions. Implementation of specific practices, technologies or systems are evaluated and the appropriate knowledge systematized, codified and evaluated in a smallholder process of learning-by-doing. This actively participatory methodology builds capacities for analysis and identification of solutions, ensures ownership of the process and results, builds confidence among smallholders, and strengthens a relationship of trust with and confidence in government service providers, especially in regard to climate-resilient solutions. This methodology is structured formally around Farmer Field Schools in which lead farmers come together with AGRITEX staff and other partners to learn innovative climate-resilient practices, apply them, and then replicate and adapt this experience in other smallholder communities through farmer-to-farmer exchanges.

146. The project builds capacities of smallholders and institutional staff including through Farmer Field Schools and peer-to-peer learning for sustained impact beyond the project. Capacities are built for climate-adapted operations and maintenance of irrigation systems, resilient and efficient water and management techniques and practices (Output 1), climate-resilient agricultural production, and business development and organizational and financial management for production (Output 2), and use of climate information for risk-informed agricultural planning (Output 3). Institutional service providers are also capacitated to organize their support to smallholders around the locally selected climate-driven production issues to overcome the sectoral and piecemeal approach to smallholder support that has been the norm until now. AGRITEX field staff will receive training to become FFS trainers (Activity 2.2), and ZINWA will receive training in the use of water resource models (Activity 3.2). DoI, ZINWA and CC staff will be trained in data analysis, modelling, forecasting and the use/production of information products on water allocations and irrigation system design (Activity 3.3). Training will also be provided to district and local level intermediaries - Agriculture Extension, MSD and IMC staff - in interpretation and dissemination of climate and weather information products for crop/water management and crop irrigation scheduling.

147. Leveraging **complementary investments by government institutions and smallholder communities**: Government institutions and smallholder organizations in southern Zimbabwe are committed to the objectives and outcomes of this project, as evidenced in contributions in cash and in kind to support the proposed interventions during the project lifetime as well as mobilizing of resources to support post-project implementation. Investments by these institutions include resources totaling USD 6.1 million for revitalization of community irrigation schemes, contributions totaling USD 910,000 towards development and dissemination of climate-resilient agriculture packages and training of smallholders in Farmer Field Schools and support to extension of the practices and methods learned to thousands of other farmers; and the co-development of tailored agricultural advisories and climate and hydrological information for agricultural and water management planning (USD 70,400).

148. The project also leverages significant contributions from smallholders themselves mainly through Irrigation Management Committees and to a smaller extent through rain-fed farmers' organizations. Farmer field application of climate-resilient packages of inputs and practices and their extension to other smallholders will be implemented with community co-financing in cash and/or in kind. Due to the depressed economic situation among many dryland smallholder farmers, a minimal cash contribution for group/community-owned farming equipment is estimated at USD 1,200,000 for the full project period across 251 farmer field schools (lead farmers and beneficiary farmers). Maintenance of community irrigation schemes will be supported by revenues generated from sales of high value, irrigated climate-resilient crops, and members of irrigation schemes are expected to be able to provide significant contributions in cash and in kind. Community contributions per member per year are estimated at USD 47 USD in kind, USD 21 in cash contribution for own equipment, and a proposed annual financial contribution to the maintenance fund of USD 70 per member. With 21 schemes and 5,900 beneficiaries, there will be an estimated USD 2,430,240 in cash contributions for the Operations and Maintenance funds, USD 707,880 in contributions for own equipment and USD 1,667,430 in in-kind contributions for the full project period (2019-2025) from targeted irrigation schemes.

149. Overall, with this co-financing - "skin in the game" - smallholders strengthen their commitment to and ownership of climate adaptation of their agroecosystems and livelihoods. These contributions manifest stakeholder commitments to sustain their investments beyond the lifetime of the project.

150. The project's close collaboration with ZRBF will also enable ongoing support by ZRBF, post project, to generation and dissemination of evidence for policy dialogue and program development for climate resilient agriculture, including marketing. In this regard, ZRBF will continue to explore possible future non-grant options, including private sector investment.

151. **Establishing Operations and Maintenance funds for each irrigation scheme and training in project and post-project O&M**: To ensure continual support to cultivation of irrigated climate-resilient crops, it is necessary for irrigation infrastructure and equipment to be fully operational on demand. This is an especially important requirement given the nature of irrigation established in a communal setting i.e. one irrigation scheme for multiple farmers requiring close scheduling of irrigation of individual plots. An overall O&M plan for the 21 targeted schemes was developed during project preparation – based on consultations and CRIDF experience with O&M of the irrigation schemes they have supported in the past and an in-depth analysis of each scheme - that

lays out the corresponding activities, costs and responsibilities, as well as the approximate capital required to maintain and operate irrigation schemes on an annual basis. This provides the participating Irrigation Management Committees with financial benchmarks for capitalization of their schemes' O&M funds as well as the individual contributions to be required of each participating smallholder. As such, this project will work with each Irrigation Management Committee to establish its O&M fund and prepare a detailed plan for capitalization from the revenues generated from crop sales. The project will support IMCs to build their organizational capacities to plan and manage irrigation and water allocations, manage on-going capitalization of their O&M funds, and prevent or address conflicts. The project will support development of O&M procedures and financing plans, O&M manuals, technical guidelines for water management, and SOPs, among other tools. The O&M plan is detailed in Annex XIII.

152. Operations and Maintenance of the hydro-meteorological infrastructure: Operations & Maintenance (O&M) of the installed hydro-meteorological infrastructure will be pursued through two approaches. These will include the leveraging of domestic resources (government budget allocations) and capacity building (human and financial planning) for regular/sustained O&M. Domestic resource allocations and provision of training for O&M will enable country ownership and strengthen the mandates of MSD and ZiNWA, helping them to negotiate future increases in allocated domestic finances and commitments, which in turn strengthens the long-term viability of established infrastructure. Maintenance and service contracts (for three years) will be bundled in procurement notices for the supply of all hydro-meteorological equipment, beyond which O&M will be provided by MSD and ZiNWA through their budget allocations. USD 145,000 in post-project O&M will be financed by MSD and ZINW; see O&M plan in Annex XIII(b)

153. Crowding in private sector engagement through value chain, market and financial linkages for sustained production and commercialization of climate-resilient crops: This project will bring together in Innovation Platforms all stakeholders in selected value chains to develop climate-resilient production and commercialization plans with the aim of using market incentives to ensure sustainability of climate adaptation by smallholders. These Innovation Platforms will comprise representatives of all important stakeholders in the value chain - smallholder farmers, private sector buyers, technical assistance institutions, credit providers, the water allocation authorities, local government authorities, research institutions and others, as feasible. Innovation Platforms will identify and analyze climate-resilient value chain objectives and develop medium to long term strategies and action plans to overcome obstacles and bottlenecks to climate-resilient value chain development. Since a highly functioning, effective value chain is a common goal for and in the best interest of all Innovation Platform members, it is expected that the relationships and processes established will serve to sustain climate-resilient value chain development beyond the life of the project. Through participation on Innovation Platforms microcredit institutions will be positioned to support community level enterprises and the production of high value, climate-resilient crops, and the private sector – buyers, processors, etc. – will be able to form contractual relationships with growers. Enabling access to finance through technical support to both smallholder borrowers and lenders (credit associations, MFIs, etc.) will allow for beneficiaries to build on the investments made by the project and sustain and scale their agricultural livelihoods beyond the project lifetime.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

154. The project will contribute to the following GCF Fund-level impacts for adaptation: 1.0 "Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions" and 2.0 "Increased resilience of health and well-being, and food and water security" for vulnerable smallholder communities in southern Zimbabwe. The project outcome will strengthen the adaptive capacities of vulnerable smallholder farmers, especially women, to climate change-induced impacts on their agroecosystems and livelihoods through revitalization of irrigation schemes, upgraded water and soil moisture management and water use efficiency, climate-resilient agriculture, improved access to climate information and markets, and partnerships with public and private sector actors.

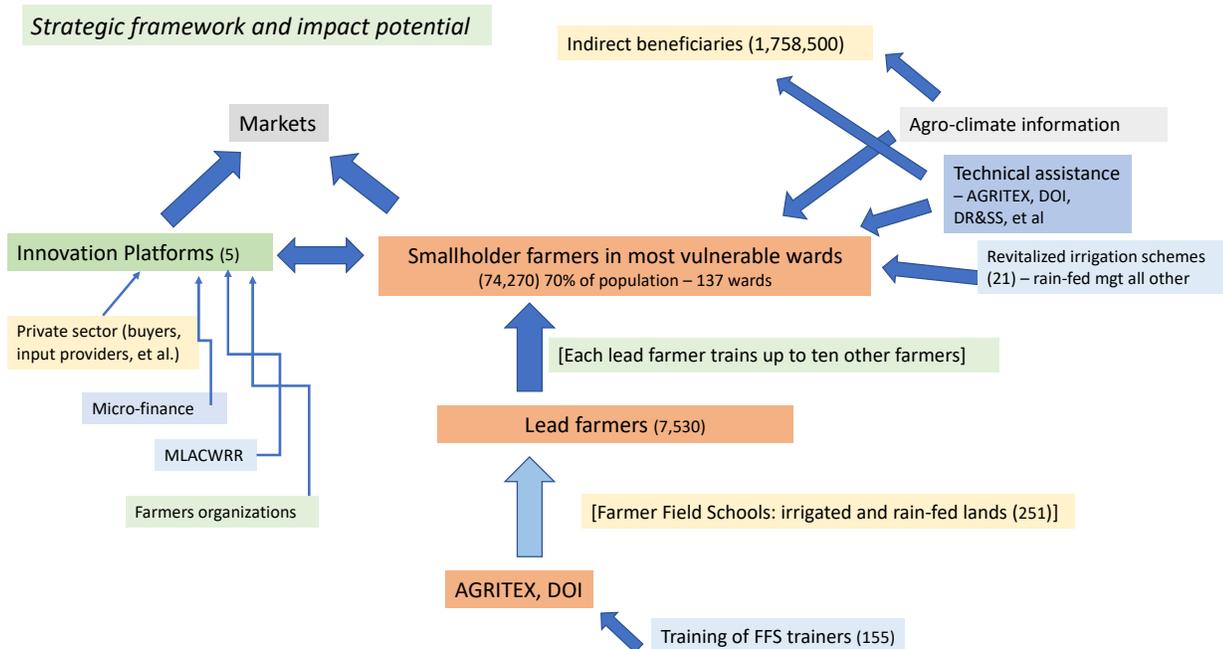


Figure 7: Linkages fostering Impact Potential

155. Overall, the project will benefit 2,302,120 direct and indirect beneficiaries in 15 districts and 137 priority wards in vulnerable Agro-Ecological Regions IV and V of the provinces of Manicaland, Masvingo and Matebeleland South in southern Zimbabwe (about 24% of the total population of the three provinces), with 543,620 rural beneficiaries directly benefiting from the project interventions in building climate-resilient agriculture capacities and climate and weather information services, as well as government and other partners. The interventions will provide indirect benefits to an estimated additional 1,758,500 people in the 249 remaining wards of the 15 districts by mainstreaming climate change concerns into planning and implementation of the service-providing agencies, as well as through pathways established to enable replication in other wards through knowledge and learning mechanisms. The project will also influence the government to transform its spending on its existing input supply scheme in the three provinces towards climate-resilient inputs. Specifically:

- 5,900 smallholder households (of which at least 30% are female-headed households) will directly benefit from the revitalization of 21 irrigation schemes in the targeted 15 Districts for a total of 29,500 people overall;

- 21 Irrigation Management Committees will be trained in a) climate-adapted operations and maintenance of irrigation systems, b) project planning and monitoring methods c) organizational management and administration, conflict resolution, and establishment and fiscal management of O&M Funds
- 7,530 (6,900 dryland and 630 irrigation) lead farmers will be trained in 251 Farmer Field Schools in soil moisture management and water use efficiency, including rainfall harvesting, for a total of 37,650 people (estimating five persons per household) benefitted; Farmer field schools will target to reach at least 3,765 female lead farmers, which is 50% of the total targeted.
- 69,000 dryland beneficiary farmers and 5,270 irrigation beneficiary farmers will receive training from selected lead farmers, under the supervision of AGRITEX extension workers on soil moisture management, rainfall harvesting, and water use efficiency for a total of 371,350 people benefitted. Lead farmers are encouraged to target at least 50% female farmers – reaching out to at least 37,135 female farmers.
- Five Innovation Platforms will be established across the 15 districts for selected climate-resilient crop and livestock value chains, consisting of an estimated 25 members each, representing all value chain stakeholders – public and private sector; CSOs, NGOs, smallholder organizations. These 125 stakeholder representatives will benefit from increased awareness of climate vulnerabilities of crops and livestock, improved climate risk management, collaboration in developing shared strategies for climate-resilient market linkages and value chain strengthening and formal partnerships for production and commercialization. Farmer representatives are requested to ensure 50% female farmer participation in Innovation Platforms
- At least 4,110 women on dryland farms and in irrigation schemes across the 137 climate-vulnerable wards will receive women-targeted training under a financial empowerment training programme in business development and organizational and financial management for climate resilient production at scale, in addition to the facilitation of market linkages through Farmer Field Schools, reaching at least 37,135 female farmers. Gender equality will be championed through 137 trainings of mixed groups of men and women of 30 people each, under an AGRITEX-supported, ward-based gender equality action learning program.
- 155 AGRITEX trainers, with the aim of 50% as female, will benefit from training to lead Farmer Field Schools using participatory analysis of agro-ecosystem vulnerability to climate change, comparative testing methodologies, and other topics;
- 1.5 million food-insecure smallholder farmers (constituting 47% of the population in the three provinces) will benefit directly and indirectly from the project through the secondary benefits derived from institutional capacity building investments and related improved service delivery by AGRITEX and Catchment Councils across the three provinces, including improved climate, weather and agricultural information;
- At least 30 members of staff from the Zimbabwe National Water Authority will benefit from improved capacities for the use of water resource modelling, as well as analysis, forecasting and use/production of information products on water allocation and irrigation system design;
- At least 13 members of staff from the Meteorological Services Department at national and provincial level, as well as at least 10 national and provincial DR&SS officers, 55 district and ward level AGRITEX officers, five academic staff (e.g. from University of Midlands) benefit from training in the PICSA methodology, collection of data and operating and maintaining equipment at the district level;
- A minimum of 171 district and local intermediaries – AGRITEX, MSD, IMCs – benefit from training in interpretation and dissemination of climate and weather information products for crop/water management and irrigation scheduling.

156. The project outcome will strengthen the adaptive capacities of vulnerable smallholder farmers, especially women, to climate change-induced impacts on their agroecosystems and livelihoods through revitalization of irrigation schemes, upgraded water and soil moisture management and water use efficiency, climate-resilient agriculture, improved access to climate information and markets, and partnerships with public and private sector actors. The project directly benefits female and male

farmers, for a total of 408,995 people through implementation of gender-equitable climate-resilient agricultural practices and water security management strategies and activities to respond to climate change and variability.

157. The project will have substantial impacts for the vulnerable smallholders whose agricultural livelihoods have suffered from diminishing productivity and increasing exposure to climate change impacts, primarily a high degree of variability in rainfall. Investments in assets, climate-resilient agricultural skills, multi-stakeholder partnerships, and institutional and farmer capacities for development of agro-climate advisories and climate-resilient value chain development create significant adaptation benefits, yielding enhanced incomes and resulting in reduced vulnerabilities to the impacts of climate change. Community-based interventions by smallholder organizations throughout selected climate-resilient value-chains promote economies of scale and sustainability of the impact beyond the project. These organizations will receive climate, weather and agricultural advisories prepared by AGRITEX and MSD to assist them in managing climate risk associated with crop and livestock production. It is expected that 543,620 people, dependent on agricultural livelihoods in the priority wards, will benefit directly from timely climate and weather information and advisories for climate risk management, with an additional 1,758,500 people in the 249 non-priority wards of the 15 districts indirectly benefiting from improved climate and weather information. Accurate climate information services have particular relevance for the approximately 1.5 million food insecure smallholder households across the three provinces.

158. The project builds the technical capacities of MEWC (particularly ZiNWA, MSD and Catchment Councils) and MLARR (particularly AGRITEX, DR&SS and DOI) to assess climate risks and adaptation needs for smallholder livelihoods, agricultural planning and climate change responses, as well as to integrate gender and climate adaptation concerns into agricultural and rural development programs and policies. 155 AGRITEX staff at national, provincial and district level will be trained to support 251 Farmer Field Schools in building the capacities of lead farmers. 60 staff from ZiNWA, DoI and MSD (20 per province, including local level equipment managers) as well as 60 members from the Catchment and Sub-Catchment Councils will be trained in hydro-meteorological modelling, collection and interpretation of data and formulation of user-friendly climate, weather and agricultural advisories. *In total, the project will benefit at least 315 government staff directly (local, district, provincial, and national) with capacities to implement gender-equitable, climate-resilient solutions for water security and sustainable agriculture.*

159. A reliable supply of water, together with farmer-based water management and governance structures (both women and men as leaders and decision makers), enables smallholders to plan and manage water resources effectively to offset climate risk. The project will enhance the capacity of Irrigation Management Committees to plan and implement irrigation operations, resolve scheduling and supply conflicts, and finance operations and maintenance of their irrigation systems. IMCs, representing 5,900 households, (30% from female-headed households) will be networked across the target area permitting transfer of knowledge and experience to an additional 60 IMCs beyond the 21 directly benefiting from this project.

160. With more secure access to irrigation water (Output 1), along with the adoption of climate-resilient agricultural practices (Output 2), smallholder farmers will enhance food security and income generation as an adaptive response to evolving climate variability. The project will ensure that approximately 6,900 dryland lead farmers and 630 irrigation lead farmers and their households (at least 30% of lead farmers will be drawn from female-headed households) adopt diversified, climate-resilient agricultural practices and systems through Farmer Field Schools (FFS) supported by AGRITEX. FFS have been proven to impact smallholder uptake of innovations to their cropping and livestock production systems. Climate-resilient production practices will be replicated and scaled up to reach a broader range of farmers through the multiplier methodology implemented by this project, in which each lead farmers train 10 additional neighboring farmers for a total of 69,000 dryland beneficiary farmers and 5,269 irrigation beneficiary farmers. The adoption of climate resilient practices by farmers will be further incentivized and supported through practical and strategic partnerships with value chain stakeholders joined together in Innovation Platforms (Output 2). These partnerships will enable access to markets and sources of finance to cover ongoing production costs.

161. Multi-stakeholder Innovation Platforms (Output 2) will strengthen access to finance, and markets, based on value chain improvement strategies and practical partnerships developed by IP stakeholders. Training in business skills, particularly with

women farmers, will ensure that climate-resilient products are marketed successfully. This will help farmers and their households to become more resilient to climate change. With greater and more sustainable income, farmers, their households and communities will develop increasing resilience to climate change impacts. *About 4,110 women (30% from female-headed households) will directly benefit from training in business development and organizational management.*

162. In an environment of increasing rainfall variability, access to more accurate and dependable weather and climate information will help farmers to make better risk management decisions. Use of localized agro-climate advisories based on enhanced weather and climate information will permit smallholders to effectively plan for and manage climate risk (Output 3). Institutional capacities will be strengthened to generate integrated advisories and guidance at different levels across institutions. Farmers, in a participatory co-development process with key government institutions, will acquire the technical capacities, tools and resources to interpret and use weather and agro-climate information to strengthen their planning and decision-making around climate-resilient agricultural production. With increased planning skills, farmers will be able to prepare their operations and assets to manage climate risk. Links between IMCs, between IMCs and Catchment and Sub-catchment Councils, and between value chain stakeholders will also be strengthened. This will help ensure that water management, infrastructure and catchment planning integrate reliable climate and water monitoring information, and farmers and value chain partners are able to make market-based decisions which consider impacts of climatic changes.

163. The installation of solar powered irrigation technology in the irrigation schemes will lead to reduction in greenhouse gas emissions as this will replace or avoid the use of electricity generated using fossil fuel (coal, diesel). In the case of Zimbabwe where electricity is scarce, the alternative without solar are diesel generators. Solar pumps It is estimated that solar powered water pumps can avoid 97 to 98 percent of the GHG emissions produced by diesel powered water pumps. Given that the project targets installing solar irrigation pumping systems to irrigate a total of 630 ha (30 ha per irrigation scheme for 21 irrigation scheme), the an average of 2,705 t CO₂ eq of greenhouse gas emissions reduced or avoided directly, with more to be realized if the project leads to wider uptake of solar irrigation pumping system (The figure ranges from 104 t CO₂ eq (if improved electrical pumps are replaced), 3,636 t CO₂ eq if improved diesel pumps are replaced or avoided to 4,375 t CO₂ eq if non-improved diesel pumps are being replaced.)⁷⁰

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	<i>Expected tonnes of carbon dioxide equivalent (t CO₂ eq) to be reduced or avoided (Mitigation only)</i>	<i>Annual</i>	Not applicable
		<i>Lifetime</i>	Not applicable
	<ul style="list-style-type: none"> <i>Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);</i> 	<i>Total</i>	<ul style="list-style-type: none"> 2,302,120 direct and indirect rural beneficiaries expected (of which 50% are female) 543,620 direct beneficiaries 1,758,500 indirect beneficiaries

⁷⁰ This is based on estimates derived from case studies in different countries including in Africa:

- <http://www.fao.org/3/a-bt437e.pdf>
- Assessing greenhouse gasses emitted from on-farm irrigation pumps: Case studies from Egypt
- UNDP-GEF Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Feasibility Assessment for the Replacement of Diesel Water Pumps with Solar Water Pumps

	<ul style="list-style-type: none"> • <i>Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)</i> 	<p><i>Percentage (%)</i></p>	<p>24% of the population of the 23 Districts in the three Provinces are directly targeted;</p> <p>70% of the population in the 137 most climate vulnerable wards are directly targeted.</p>
<p><i>Other relevant indicators</i></p>	<p>Not applicable</p>		
<p>164. Direct Beneficiaries: The total number of direct beneficiaries of the project include those smallholder households that will participate in irrigation scheme revitalization and in Farmer Field Schools to learn climate-resilient agricultural practices and water and soil moisture management techniques, as well as those reached through farmer-to-farmer extension and enhanced institutional services providing climate information, and weather and agricultural advisories in the targeted wards.</p> <ul style="list-style-type: none"> • The target population for the revitalization of irrigation schemes was identified during project preparation based on analysis of the total number of irrigation schemes, identification of the schemes with the most pressing needs, and enumeration of the constituents of each scheme based on Irrigation Management Committee records. This produced a total of 5,900 smallholder households for a total of 29,500 beneficiaries. • The target population for water resources management on dryland was calculated taking the number of wards in the fifteen districts, calculating the number of Farmer Field Schools required to cover the wards, taking 30 FFS lead farmer participants as a maximum feasible number for each FFS, and then adding the number of beneficiary farmers, which was calculated by multiplying lead farmers by ten to arrive at a total of 75,900 smallholder farmers. For total beneficiaries, this number is multiplied by five, as the average number of people per household: 379,500 beneficiaries. • The total target population for climate-resilient agriculture training in Farmer Field Schools management was calculated as in the foregoing example i.e. by taking the number of wards in the fifteen districts, calculating the number of Farmer Field Schools required to cover the wards for both dryland and irrigated land, taking 30 FFS lead farmers as a maximum feasible number for each FFS, and then adding the number of beneficiary farmers, calculated by multiplying lead farmers by ten to arrive at a total of 75,900 dryland smallholders and 5,900 smallholders on irrigated land. For total beneficiaries, this number is multiplied by five, as the average number of people per household: 409,000 beneficiaries. • The total number of direct beneficiaries receiving climate information and weather and agricultural advisories was estimated by taking the total rural population in the 137 selected climate-vulnerable wards, 543,620 persons, who are expected to be directly targeted by AGRITEX through FFS and general extension services. The total rural population benefiting indirectly from climate information, weather and agricultural advisories in the selected 15 districts is 1,758,500, as per data from ZIMSTAT, ZRBF, UNICEF and WB. <p>165. Direct beneficiaries are estimated as the aggregate number of people participating in Farmer Field Schools to receive training on water and soil moisture management, water use efficiency and climate smart agriculture, together with the smallholders reached in the farmer-to-farmer extension post FFS and the smallholders receiving climate information and weather and agricultural advisories in the fifteen targeted districts. As the beneficiary groups overlap for maximum impact, the total direct beneficiary number is 543,620 people, of which at least 50 per cent are women. The female ratio for smallholder farmers was estimated at approximately 70% per cent based on census data.</p> <p>166. Indirect beneficiaries: The number of indirect beneficiaries is comprised of:</p> <ul style="list-style-type: none"> • Those smallholders who live within the three provinces of southern Zimbabwe but outside the project target districts who will receive climate, weather and agricultural information and advisories as a result of the institutional capacity development of AGRITEX and MSD in this project (Output 3); 			

- Those smallholders outside the target wards in the fifteen districts who will receive enhanced technical assistance services from AGRITEX as a result of improved institutional capacities and mainstreaming throughout of project knowledge and CRA practices, principles and methodologies.
- Those smallholders within the three provinces of Southern Zimbabwe who will receive climate-resilient crop and animal varieties through the government input supply scheme.

167. In aggregate, the number of indirect beneficiaries is, 1,758,500 which is the total number of beneficiaries across the 15 districts minus the number of direct beneficiaries.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

168. Enabling scale up and replication is a fundamental part of the project strategy. The project aims, during project implementation, to create a critical mass of farmers practicing climate resilience-enhancing agriculture in the most vulnerable wards of the project area. Through FFS and peer-to-peer exchanges the increasing number of CRA-practicing farmers is expected to reach a tipping point where CRA becomes a “new normal” supported by stronger institutions, markets and multi-stakeholder partnerships. Farm households directly benefitting from this project represent approximately 24% of the population of the 23 targeted districts and 70% of the population of their most vulnerable wards.

169. The benefits of partnerships established through Innovation Platforms between stakeholders in the different value chains will also motivate other farmers beyond the immediate direct beneficiaries to adopt CRA to increase their productivity and sustainability and, through collaborative agreements with IP partners, their incomes. With stronger institutions providing improved technical assistance, climate and market information, and training, this project’s integrated approach can be applied in the remaining less-vulnerable districts of the project area and then elsewhere in Zimbabwe. With systematization of project experience, evidence-based proposals for further country-wide support to CRA can be presented at national level.

170. The project provides an innovative, sustainable, and integrated adaptation solution to the threat of declining food security in southern Zimbabwe resulting from increasing vulnerability to climate change. The project shifts the prevailing paradigm away from a focus on short-term, sectoral, production-oriented responses towards an integrated approach, in which all actors in specific climate-resilient value chains - producers, input providers, technical assistance agents, financial intermediaries, buyers and others – coordinate under multi-stakeholder platforms to overcome barriers to production and market access for climate-resilient crops, thus providing the incentive to maintain and innovate climate-resilient agricultural practices and cropping systems. Crop-specific strategies and partnerships between private and/or public entities will enable and sustain climate-resilient smallholder production from increased access to water for agriculture through climate-resilient irrigation systems and water resource management; scaled up climate-resilient agricultural production and diversification; and improved access to weather, climate and hydrological information for climate-resilient agriculture.

171. GCF financing will ensure that:

- Smallholders, government agencies, NGOs and private sector entities – input suppliers, contractors, processors, buyers, credit providers – convene value chain Innovation Platforms to strengthen the climate-resilient production of staple and high-value crops as a climate adaptation solution, establish partnerships, engage private sector investment, access potential markets, identify policy gaps, provide requisite technical, institutional and financial support, and develop and implement agreed strategies for market penetration and expansion;
- Smallholder farmers possess increased water security in the form of climate-proofed irrigation systems, as well as improved capacities for water efficient soil and crop management on rain-fed lands;

- Smallholder farmers – increasingly vulnerable to a changing climate - possess the means, information, capacities, incentives, and enabling support required to adapt to climate change through the practice of climate-resilient agriculture for increased and more stable yields and more diversified income from a wider variety of climate-resilient staple and high value crops;
- Smallholder farmers, agricultural extension agents, and other institutional service providers possess and are able to use the climate and weather information needed to effectively support agricultural planning and manage crops, soil and water resources efficiently in the face of climate change;
- Knowledge from smallholder experience with climate-resilient agriculture and crop diversification and commercialization is captured to provide evidence-based policy inputs to policy dialogue by local and national authorities for adaptive climate risk management, building on the fora and stakeholder groups for resilience building established through the ZRBF;
- Markets accessed by this project will provide ongoing incentives to smallholders to organize climate-resilient production and commercialization in coordination with other private sector and government actors as part of multi-stakeholder Innovation Platforms;
- Farmer-to-farmer training on CRA becomes an established practice under AGRITEX supervision and support, permitting upscaling of CRA practices and cropping systems to farmers across the region;

Effective collaboration is catalyzed across key government departments, namely AGRITEX, DR&SS, Department of Livestock and Veterinary Services, Department of Irrigation and Department of Economics and Markets within the Ministry of Lands, Rural Resettlement and Agriculture, through improved coordination and strategic, systematic knowledge management and sharing of knowledge.

172. Pathways that enable future replication and scale include the following:

- The revitalization of climate-vulnerable irrigation schemes and ensuring their long-term operations through appropriate maintenance (Output 1) can be readily replicated to approximately 60 other non-functional or partially functional irrigation schemes in southern Zimbabwe and other communities in Agro-ecological Regions IV and V. This represents a multiple of about 3 times the 21 irrigation schemes proposed for revitalization in this project. The knowledge gained from revitalization of the 21 schemes will be used to implement further replication more efficiently. UNDP, CRIDF and MLAWRR have expressed a shared interest to work towards leveraging more resources and mainstreaming capacity building for climate proofing irrigation schemes across the country in a phased approach, with this proposed project providing the basis for scaling out climate proofing of irrigation.
- The project will also build on successful pilots to promote the use of solar energy through investment to the tune of USD 2.55 million for solar installations for water pumping which in turn will further demonstrate and promote the use of solar energy and increase potential replication in irrigation schemes across other regions as well as initiatives across the country.
- Under Output 2 the project proposed here will train 137 ward level and 15 district level AGRITEX trainers. These will work through 251 FFS and 30 lead farmers at each FFS, resulting in 6,900 dryland lead farmers and 630 irrigation lead farmers having been trained in the three target provinces. These lead farmers will, in turn, train approximately ten smallholders each in communities around the project area. This methodology, if applied across Zimbabwe, has a replication potential to reach several hundred thousand additional smallholders and their families when mainstreaming of the contents and methodology is achieved nationally.
- The process of climate-resilient market linkage development will be easily up-scaled to potentially involve more communities as value chain stakeholders create and implement partnerships that result in improved performance for market access. Innovation Platforms (Output 2, Activity 2.1) represent voluntary associations of key stakeholders who by working together on building climate-resilient value chains develop trust, transparency and collaboration in pursuit of their mutual self-interest. This approach could be replicated in 15 other districts in southern Zimbabwe (apart from the targeted 6) and potentially in all climate-vulnerable districts around Zimbabwe, estimated roughly at 40 rural districts, which are historically,

currently and/or projected to be at risk of flooding, droughts and mid-season dry spells. At the same time, the development of a network of Innovation Platforms and their partnerships will allow climate-resilient value chain development to upscale to a national level with implications for crop production and market planning, as well as policy analysis, dialogue and reform.

- The climate, weather and agricultural advisories produced by this project (Output 3, Activity 3.2) will be replicated in other districts of southern Zimbabwe and potentially elsewhere in the country through digital and print media as well as through mobile text messaging in 23 districts (an additional eight districts), which will then cover 100% of the total population of 3,921,680 in the three target provinces in southern Zimbabwe (Census 2012).

173. Catchment and Sub-Catchment Councils across the country's four other catchments can benefit from the lessons learned, information and experience generated by this project (Output 3, Activity 3.3) in regard to hydro-meteorological monitoring and analysis, and the production of climate and weather advisories.

E.2.2. Potential for knowledge and learning

174. The proposed project improves the generation and dissemination of knowledge from systematization of project experience. This knowledge, appropriately codified within the project, will be disseminated to all communities participating in the project as well as others within the target provinces and elsewhere in Zimbabwe, highlighting best practices and lessons learned by smallholders and service provider institutions, including NGOs. The knowledge hubs will be hosted at existing DR&SS research stations and AGRITEX training institutions and agricultural colleges to anchor the knowledge codification in existing training and research efforts on climate resilient agriculture. The project will generate extensive knowledge of water management, climate-resilient agriculture, the development and use of climate information systems, and the development of climate-resilient value chains. Experience with Innovation Platforms and market access will be analyzed and documented, and local knowledge of agricultural production, weather patterns and water management will be analyzed, compared and ultimately synthesized with conventional modern scientific methods and approaches in a process of co-creation of technical knowledge of smallholder adaptation to climate change. Knowledge products will include manuals, case studies, and protocols for climate-resilient production and water management. These products will complement smallholder training to evaluate and manage climate risks and permit smallholders to identify and revise locally suited adaptation measures on an ongoing basis. Knowledge generation and learning will also enhance the capacities of local communities and government agencies to operate and maintain irrigation technologies and sustain CRA practices beyond the project lifetime.

175. The project supports measures to enhance collaboration and knowledge sharing on climate change adaptation between key institutions and stakeholders so that improved communication and more coordinated sharing of data and information can more easily take place, mainly through a *national upscaling Innovation Platform*, with participation of national level decision makers. The project also seeks to strengthen the systematic documenting and sharing of information through ICT/GIS systems to support collection, analysis, evidence generation and sharing of knowledge, development of knowledge management and information sharing guidelines, training in effective organizational knowledge management systems and advanced data analysis. The project will enhance evidence-based learning through impact evaluation and codification of lessons learned and best practices that can promote resilient agricultural livelihoods across other areas of the country, as well as in the SADC region. See section C.3 of this proposal for more detail under Activity 2.3.

E.2.3. Contribution to the creation of an enabling environment

176. **Enabling coordinated and sustained engagement of private and public-sector actors:** By addressing some of the underlying factors that lead to gender disparities –such as through facilitating equal access to skills, knowledge, training and opportunities for taking up leadership and access finance by women the project will help transform gender norms. The project invests in smallholder capacities, especially those of women, to build ownership and sustained commitment. Building on and valuing smallholder knowledge and experience encourages empowerment and ownership and increases the likelihood of activities lasting beyond the project lifetime. A participatory approach will be used in Farmer Field Schools to analyze local priorities and opportunities and select the tested practices developed in partnership with agricultural extension and research institutions. The project will build on existing local structures and strengthen community organizations and their collective management of assets and infrastructure. Irrigation Management Committees will be trained to support the effective management and operations of their irrigation schemes and will contribute to Operations and Maintenance Funds, as codified in stakeholder-drafted irrigation scheme constitutions, from the additional revenues generated from increased yields. Co-development of agro-climate advisories by the farmers will ensure sustained engagement and application of the information for agricultural management.

177. Through this project, Government institutions will build their capacities to more effectively and efficiently provide services to smallholders, particularly concerning training and technical assistance, and climate, weather and agricultural advisories. AGRITEX capacities will be strengthened through training of FFS trainers, AGRITEX participants on the Innovation Platforms and extension workers engaged with and supervising lead farmers and their further work with their communities. Government and academia’s capacities will be enhanced in developing and delivering actionable climate information. Government commitments are leveraged to sustain climate information infrastructure and pave the way for the development of potential commercial applications.

178. Multi-stakeholder engagement through Innovation Platforms will enable crowding in of public and private sector actors into enhancing value-chains and markets for greater production and/or market development of climate-resilient crops. This close cooperation will boost community-based enterprise development supported by agreements between and with Innovation Platform participants that will essentially lower risks associated with smallholder adoption of new climate-resilient agricultural production techniques and systems. The private sector linkages will be facilitated to support smallholder enterprises as they perceive diminished risk stemming from improved smallholder production capacities, more focussed technical assistance, the heightened accessibility of micro-credit, climate-proofed irrigation infrastructure, availability of climate-resilient seeds and other inputs, etc.

179. **Innovation, market development and transformation:** This project’s innovative climate-resilient approach to irrigation scheme revitalization factors climate change impacts on water and land resources into irrigation design, using hydrological assessments, flood forecasting and tools such as a localized Climate Change Risk Assessment and GESI and political economy assessments. It is based on financial and economic analysis to determine the viability of the schemes, a key aspect of which is the amount of capital needed to ensure sustainable O&M, which will be undertaken by the IMCs over time.

180. The overall project approach for water security comprises a number of complimentary components, including institutional capacity support to build climate risk management into O&M, support to agricultural productivity in the face of a changing climate, and facilitation of off-taker arrangements with agribusinesses in climate resilient value chains. In irrigation schemes women do most of the watering (aligned to gender roles), and the practice is often inefficient in water management and is labor-intensive. Efficient climate-resilient water management practices and decision-making processes will contribute to equity, lessening the burden on women whereby women will be able to manage their plots more efficiently. This will contribute to the sustainability of the intervention.

181. The project brings stakeholders together to address shared challenges to effective value chain functioning and inclusive, climate-resilient value chain development. Interventions encourage climate-resilient agriculture production based on strategic market linkages, with the aim of incentivizing companies to incorporate smallholder farmers into their value chains (to increase and stabilize their supply) and attract investment (public and private) over the long term to increase the efficiency and climate



E.2.4. Contribution to regulatory framework and policies

182. This project specifically supports the implementation of adaptation priorities identified in Zimbabwe's *Nationally Determined Contribution* by directly promoting adapted crop and livestock development and climate smart agricultural practices; strengthening management of water resources and irrigation in the face of climate change; and promoting practices that reduce risks of losses in crops, livestock and agricultural incomes. It also contributes to the implementation of the *National Climate Change Response Strategy* by mainstreaming climate change adaptation into planning across sectors and institutional levels in a coordinated manner, through multi-stakeholder engagement. The project supports key actions listed in the NCCRS such as sustainable intensification and commercialization of agriculture; strengthened capacity of agricultural support services, and increased agriculture specialization according to the constraints and opportunities of Agro-Ecological Regions. The project also contributes to the GoZ five-year economic plan - *Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimAsset) (2013 to 2018)* with actions aimed at supporting ZimAsset priorities for a) revitalizing agriculture and the agro-processing value chain; b) infrastructure development, particularly in relation to the water subsector; c) unlocking the potential of small to medium enterprises; and d) encouraging private sector investments. The project supports implementation of the *National Climate Policy (2017)*, which aims to achieve coordinated delivery of strategic responses to climate change among GoZ departments and for them to guide effective implementation with key stakeholders, including research institutes, NGOs, international donors and private sector actors. Responses to the agriculture and water sectors include: integration of climate change analyses into the planning and design of irrigation investment; promotion of irrigation and water use efficiency in agriculture, including adequate assessment of irrigation potential and irrigation demand under climate change; and promotion of sustainable land-use systems in line with principles of Climate-Resilient Agriculture (CRA).

183. This project will generate knowledge and lessons from implementation of project activities with the goal of improving evidence-based decision making for planning, policy and investments in rain-fed and irrigated agriculture. This is in line with the strategic priorities of the Zimbabwe Resilience Building Fund and will complement the data collection and ongoing efforts of the ZRBF to improve application of evidence in decision making of central and local government partners. The ZRBF has already supported the development of a national strategic resilience framework, as well as the revision of an agricultural extension policy to include a focus on building resilience of agricultural livelihoods to climate and non-climate related shocks. The evidence of successful approaches to reducing climate vulnerabilities through climate-proofing of irrigation systems and smallholder agro-ecosystems will be systematized, codified and disseminated to decision makers at multiple levels, including partners on the Innovation Platforms from the public and private sectors.

184. Through Innovation Platforms, the project will support the generation of evidence on: a) effective climate-proofing of irrigation infrastructure, best practice in climate-resilient irrigation technology and capacity building of Irrigation Management Committees for operations and maintenance of their schemes; b) best approaches for development and smallholder adoption of CRA practices and climate resilient crop varieties / livestock breeds; c) effective models for facilitating smallholder access to input and output markets, promotion of stakeholder partnerships, and incorporation of climate risk analysis in climate-proofing value chains; and d) effective models and tools for weather forecasting targeted at smallholder farmers for agricultural decision making.

185. The identified good practices and lessons learnt will be disseminated from field level through five district level Innovation Platforms to a national level Innovation Upscaling Platform, whose members will include directors of AGRITEX, DR&SS, DOI and other departments as well as other key decision makers in MLAWRR and other relevant ministries. This will enable project experiences on climate resilience to inform formulation/revision of agricultural policy, legal frameworks, planning, and investments, including the planned policies for contract farming, irrigation and mechanization, Climate-resilient Agriculture and other national policies and frameworks important to agriculture, such as the National Adaptation Plan. In addition, the Innovation Platforms will be used as tools for facilitating strategic public-private partnerships to drive investment into the agricultural sector in a climate smart and inclusive way. Strategic partnerships between private sector, NGO/CBOs, government departments, donors and others create natural constituencies for climate-resilient policies which can advocate the formulation of adaptation solutions, joint risk analysis, identification of mutual interests in dealing with climate risks and climate proofing value chains, capturing lessons learnt from complementary sectors and facilitation of multi-sectoral initiatives and investments to adapt to climate change.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

Environmental co-benefits:

186. Smallholder agriculture in southern Zimbabwe has become increasingly maladaptive with increasing climate change. With increasing temperatures, yields of the primary foodstuff – maize – has declined. Extreme rainfall events have resulted in massive erosion as rainfall arrives faster than the soil is able to absorb it, resulting in surface transport of soil to rivers and streams. In southern Zimbabwe, this has resulted in sediments choking stream channels and the progressive elevation of stream beds. Eroding lands quickly lose their fertility and structural properties as organic matter and clays are carried away by run off, and smallholders often feel forced to clear other land to take advantage of its initial fertility. Without human intervention, lands, once eroded, recuperate their fertility very slowly, a process which can be jeopardized as a result of demographic growth and the need for farmland i.e. farmers may return to farm once-eroded land before it has fully recovered its fertility.

187. This project will build on and strengthen current conservation agriculture practices to adapt agro-ecosystems to increasing climate hazards. A primary objective will be to control and manage the movement of water onto and across the farm field, allowing it to penetrate as much as possible with concomitant benefits to the water table. This will be done by encouraging and supporting practices such as contour farming, conservation tillage, rainwater harvesting and storage, grass-lined bunds, gabions, gully plugs, etc., through training in Farmer Field Schools. With control of water movement onto and across farm fields, soil fertility can recover with appropriate cropping and livestock systems. These will include the use of climate adapted crop varieties as part of agroforestry systems where biomass from trees/shrubs can be used to add nutrients to the soil or as mulch to prevent soil moisture loss. Climate-resilient crop varieties will also be used in multi-cropping systems, as well as in integrated crop-livestock systems. These systems will provide improved soil cover to mitigate the impact of rain on soil as well as additional organic inputs from livestock. With the increased stability in the agro-ecosystem, soil biota will benefit, pollinators will recover, and biodiversity in general will benefit. Irrigation systems have traditionally relied on diesel generators for power for pumping and distribution. This project will support solar-powered pumping installations on revitalized irrigation schemes, financed by GoZ, which will improve local air quality and generate a carbon mitigation benefit. The Environmental and Social Risk assessment has taken the range of risks associated with both water provision and agricultural interventions into account, and the Environmental and Social Management Framework has been developed to both avoid and mitigate these risks, promote enabling regulation and policy, and build capacity to enhance the environmental benefits of the project.

Social and gender co-benefits:

188. This project will strengthen community resilience through increased food security (higher yields), improved health and productivity, greater incomes and enhanced social cohesion. The project builds social capital by strengthening Irrigation Management Committees through training that strengthens their capacities to function as productive community-based organizations, including climate-adapted operations and maintenance of irrigation systems, project planning and monitoring methods, organizational management and administration, conflict resolution, and establishment and fiscal management of O&M Funds. Social capital is also strengthened through FFS, as cohorts of lead farmer trainees work and learn together over two seasons and is further strengthened when each lead farmer trains 10 additional farmers and organizes and supports farmer-to-farmer learning interactions. Multi-stakeholder Innovation Platforms enhance social capital by bringing a variety of value chain stakeholders together to strategize climate resilient commodity production and access to markets and implement action plans in pursuit of agreed goals and objectives.

189. This project will help transform existing gender norms around women's capacity to manage soil, water, and biomass resources, as well as crops and livestock, and to participate fully within the selected crops and livestock value chains as part of Innovation Platforms. This project recognizes the importance of addressing underlying gender norms and constraints

contributing to women's vulnerability, as well as assisting women to leverage and use their basic assets, training and agency to better face the increasing climate risks.

190. The majority of smallholder farmers in the project's targeted area are women, and the project aims to achieve gender-equal participation in all activities as well as promoting gender equality and women's opportunity through women's empowerment activities. By engaging in climate-resilient agricultural production and partnerships for market linkages and value chain development, women will generate their own stream of income. With an increase in income, they may allocate a larger portion of their budgets to education and health maintenance of their households. With this increase in their autonomy, women will provide a positive role model for adolescent girls within those households. Moreover, as women and girls become more empowered members of their communities and the decision making bodies, such as IMCs, they are in a position to more effectively advocate community level improvements of infrastructure and institutions to better serve their needs, which can increase the adaptive capacity of their communities. Women's groups who receive training in business development through this project will be in a position to identify and take advantage of market linkages through their participation in Innovation Platforms.

191. Project activities have been designed - drawing on lessons learned from similar interventions - that recognize women's central importance in agricultural production and their potential for accessing market linkages and strengthening value chains. These interventions will be helpful in changing women's role in water management, climate-resilient agriculture and accessing climate-resilient market linkages, and will also potentially transform the norms within communities around women and girl's agency, mobility, and productivity. The project emphasizes gender relations at the household and community levels, with interventions and trainings designed to change norms around women's mobility and the shifting community perceptions around 'appropriate' work for women. The project will take a continuous learning approach to challenges encountered by women's groups and lessons learned through gender-sensitive project evaluations. The project aims at challenging the beliefs and norms which contribute to women's marginalization and hence their disproportionate vulnerability to climate shocks. The project aims not only at empowering women through project activities to increase women's agency and decision-making capacity within their households and communities, but also to support the GoZ to develop more gender responsive approaches to both agricultural development and rural livelihoods.

Economic co-benefits:

192. The economic co-benefits of the project include potentially greater income, stronger assets, job and enterprise creation, and benefits of enhanced productivity from adoption of climate-resilient agriculture practices, improved water security, and value chain partnerships. Project support to smallholders for climate-resilient agriculture results in increased income and enables participation in the climate-resilient value chains as part of the formal economy, for a total expected increase in income of USD 44.88 million (over the life of the project). The project will increase economic assets of smallholders and their households and spur enterprise development among farmer organizations in the communities. The project's activities in support of value-chain strengthening and access to market linkages creates income enhancing opportunities for private sector actors both upstream and downstream and enables job creation across the value-chains. The investments in irrigation schemes also contribute to community-managed asset creation, jobs (such as caretakers for O&M), increases opportunities for private sector engagement with smallholder enterprises, and improves the overall wealth and resilience of the beneficiary communities.

193. The project will yield indirect economic co-benefits at the macro-level derived by the contribution to livelihood and food security from increased and more stable agricultural yields. There is also scope for import substitution for key crops. Adoption and application of climate-resilient agricultural practices should lead to higher yields and potentially incomes that may reduce the need for social protection and social safety net pay-outs. By upscaling and out-scaling climate-resilient agriculture, bolstered by revitalization of irrigation schemes, enhanced soil moisture management, and efficient water use, the socio-economic status of the smallholder communities of southern Zimbabwe will be enhanced from strengthening of market-based partnerships and access to market linkages.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

194. Zimbabwe continues to experience deteriorating economic circumstances. The country suffered its greatest annual decline in GDP in history after the financial crisis of 2008 and a prolonged period of hyperinflation⁷¹. This has resulted in deteriorating quality and number of basic services and infrastructure, affecting the rural poor most profoundly, along with the collapse of the rural economy. The economy grew slightly between 2009 and 2011, mainly because of price stability due to the introduction of a multi-currency system in 2009, but decreased from 2011 to 2015, from 11.9 to 1.5%, which was more than halved to 0.5% in 2016^{72,73}. The financial sector is characterized by low liquidity and non-performing loans⁷⁴. Credit is increasingly difficult and expensive to acquire, affecting the rural poor in particular who have historically found it difficult to access financial services. The private sector is best described as fragmented, as it recovers from sharp economic decline, spurred on by a ban on fresh produce imports⁷⁵. The majority of the rural population is not effectively integrated into formal value chains and participates in inefficient informal markets, such as unofficial municipal markets^{76,77}. The country is a net importer of food. In 2015, it bought one million tons of maize, mainly from Zambia⁷⁸.

195. An increase in the frequency and severity of extreme events, namely droughts, mid-season dry spells and floods, is causing significant shocks to agricultural production and livelihoods and is limiting economic growth in the absence of adaptive measures in the agriculture sector. Annual GDP significantly declined in the drought years of 1983, 1987, 1992 and 1995⁷⁹ and is expected to fall by 5% as a result of the impacts of the most recent drought, recorded to be the strongest in 35 years.⁸⁰ From April 2016-March 2017, GoZ provided food relief to nearly two million vulnerable people affected by drought at an estimated cost of USD215 million^{81,82}. On a recurring basis, droughts systematically destroy communities' assets and their capacities to build climate risk management into their livelihoods.

196. The vast majority of farmers practicing rain-fed agriculture in southern Zimbabwe are likely to experience significant deteriorations in crop yields, as mid-season dry spells are projected to increase in frequency and intensity in southern, semi-arid

⁷¹ IFAD. 2016. Republic of Zimbabwe. Smallholder Irrigation Revitalization Programme. Detailed Design Report. East and Southern Africa Division. Programme Management Department.

⁷² World Bank. 2016. World Bank: Zimbabwe. Available on: <http://data.worldbank.org/country/zimbabwe> (Accessed 18 June 2016)

⁷³ African Economic Outlook. 2017. Available on: <http://www.africaneconomicoutlook.org/en/country-notes/zimbabwe> (Accessed 5 May 2017)

⁷⁴ World Bank. 2017. Zimbabwe Economic Update: The state in the economy. June 2017, Issue 2. World Bank.

⁷⁵ African Economic Outlook. 2017. Available on: <http://www.africaneconomicoutlook.org/en/country-notes/zimbabwe> (Accessed 5 May 2017)

⁷⁶ Value Chain Analysis Sub-assessment.

⁷⁷ The total value added contributed by the informal sector in Zimbabwe is USD1,256.8 million, with USD446.7 million from households engaged in agricultural activities. *Source*: ZIMSTAT. 2013. Poverty Income Consumption and Expenditure Survey 011/2012 Report. ZIMSTAT and UNDP Harare.

⁷⁸ CESVI. 2017. Country Case Study: Zimbabwe. CESVI.

⁷⁹ Ansew, A. Kapuya, T., and Saruchera, D. 2012. *Zimbabwe's agricultural reconstruction: Present state, ongoing projects and prospects for investment*. Development Planning Division Working Paper Series No. 32. Development Bank of Southern Africa, Johannesburg.

⁸⁰ ZimVAC. 2016. Zimbabwe Vulnerability Assessment Committee 2016 Rural Livelihoods Assessment. SIRDC. ZimVAC, Harare.

⁸¹ United Nations. 2017. ZUNDAF: Development Partnership Delivers Strong Results in Zim. Available on:

<http://www.zw.one.un.org/newsroom/news/development-partnership-delivers-strong-results-zim> (Accessed 17 April 2017)

⁸² The total amount applied for in the 2016-2017 Drought Disaster Domestic and International Appeal for Assistance was \$1.5 billion. *Source*: ZimVAC. 2016. Zimbabwe Vulnerability Assessment Committee 2016 Rural Livelihoods Assessment. SIRDC. ZimVAC, Harare.

areas under climate change⁸³. Rainfall is one of the most critical factors determining the production of maize, the staple food crop in southern Zimbabwe. Increasing temperatures and rainfall variability, leading to reduced water availability, are causing maize to become increasingly maladapted to agro-ecological conditions. This has direct consequences for the food and income security of over 3.9 million people (or 700,000 households)⁸⁴. Climate-induced water stress in the absence of irrigation technologies for harnessing water, or effective water and moisture conservation practices in rain-fed farming systems, may force more smallholders onto stream-bank and in-stream cultivation in search of sufficient soil moisture. This increases siltation in river-beds and channels, reducing the useful life of dams.

197. Yield reductions in crops, particularly cash crops, will significantly reduce household and national level revenues, incomes and employment⁸⁵. The financial losses incurred from cash crop yield reductions will substantially undermine rural livelihoods, as there will be a significant loss of farm jobs, wages, and net farm incomes, which finance various social needs (e.g. health, education etc.)⁸⁶. Increasing temperatures and variable precipitation are causing droughts that also pose significant and particular threats to livestock production systems. Increased soil erosion and reduced natural soil processes are projected to have severe effects on natural forage production. Primary biomass production is predicted to fall over the next 35 years, significantly decreasing the potential use value of rangelands^{87,88}. About 58% of total cattle deaths were due to diseases, followed by 33% due to drought. The 2015/16 drought resulted in widespread crop failure and deaths of over 25,000 cattle, mainly in southern parts of the country, with 15,000 cattle lost in Matabeleland South, Masvingo and Manicaland⁸⁹. Additionally, declining livestock watering sources, especially in communal areas, presents a serious challenge.

198. Women are disproportionately affected by climate change. Zimbabwe's demographic data published by the National Statistical Agency shows that more women than men are poor and live in rural areas where livelihoods are intimately linked with natural resources and are extremely vulnerable to climate change impacts^{90,91}. Gender differences in property rights, access to information, finance, markets, and cultural, social and economic roles equip women with the least capacity to cope or prepare for climate risks, resulting in women experiencing the greatest impacts. Unequal access, control and ownership over natural resources by women excludes them from important decision and policy-making institutions that govern the natural resources on which their livelihoods depend on. Governance and decision-making structures at all levels are still dominated by men. This is demonstrated by the absence of gender in policy frameworks involving the management and protection of environment and natural resources in Zimbabwe⁹². Further, the impacts of climate change will continue to widen the gap between and exacerbate existing inequities between women and men (Table 5). For example, recurring droughts and low rainfall patterns have impacts on accessible water supplies and fuel wood, especially in rural areas, which increases the distances that women and girls have to walk to secure these resources. This increases the time women will have to spend walking to fetch fuel, limiting the time they would have available to invest in themselves, and also increases security risks. Women are also particularly vulnerable to the knock-on effects of climate change. For example, women in some areas of Shurugwi district in Masvingo province reported that a shift in livelihood strategies to beer brewing (more resilient to climate variabilities), led to higher alcoholism and an increase in

⁸³ Tadross, M, P. et al. 2008. Growing-season rainfall and scenarios of future change in southeast Africa: implications for cultivating maize. Climate Research: Integrating analysis of regional climate change and response options. Vol. 40, pp.147-161.

⁸⁴ Ibid.

⁸⁵ Manzungu, E. et al. 2016. (Draft) Potential impacts of Climate Change and Adaptation Options in Zimbabwe's Agricultural Sector. World Bank.

⁸⁶ Manzungu, E. et al. 2016. (Draft) Potential impacts of Climate Change and Adaptation Options in Zimbabwe's Agricultural Sector. World Bank.

⁸⁷ Net Primary Productivity provides an estimate of how much biomass and therefore forage is available in a rangeland.

⁸⁸ Vulnerability studies on the livestock sector, carried out during formulation of Zimbabwe's Second Communication to the UNFCCC: Mavedzenge, et al. 2006. Changes in the livestock sector in Zimbabwe following land reform: the case of Masvingo province. www.lalr.org.za. Ndebele, et al. 2007. Cattle breeding management practices in the Gwayi smallholder farming area of South-western Zimbabwe. Livestock Research for Rural Development 19 (12). Available on: <http://www.lrrd.org/lrrd19/12/ndeb19183.htm> (Accessed 18 July 2016)

⁸⁹ ZimVAC. 2016. Zimbabwe Vulnerability Assessment Committee 2016 Rural Livelihoods Assessment. SIRDC. ZimVAC, Harare.

⁹⁰ ZIMSTAT. 2014. ZIMSTAT. Available on: <http://www.zimstat.co.zw/> (Accessed 5 May 2017)

⁹¹ ZimVAC. 2013. Zimbabwe Vulnerability Assessment Committee 2013 Rural Livelihoods Assessment. SIRDC. ZimVAC, Harare.

⁹² Chagutah, T. 2010. Climate Change Vulnerability and Preparedness in Southern Africa: Zimbabwe Country Report. Heinrich Boell Stiftung, Cape Town.

domestic violence and abuse of women. The vulnerability of women to climate change in Zimbabwe is succinctly described in Table 5 of the Gender Analysis and Action Plan found in Annex XIIIc.

199. The disabled are another particularly vulnerable group. People Living with Disability (1.4 million) constitute approximately 10% of Zimbabwe's total population⁹³. Households with disabled members have lower mean income, which, while other indicators are also important, impacts their ability to cope in the face of climate risks. The 2012 National Census revealed that elderly people (65 years and above) also find it difficult to cope with climate-related extreme events or participate in adaptation initiatives to mitigate risks because of their advanced age and home confinement⁹⁴.

200. The project will invest in adaptive capacities of smallholder farmers in southern Zimbabwe, focusing on gender-equal access to adaptation resources and options, in light of the evolving climate risks and impacts on livelihoods and water security. Through investments in assets, skills, knowledge, and capacities for adaptive livelihood planning and implementation, the project will enhance the incomes and assets of the vulnerable households and strengthen market linkages for sustained scale of these benefits. Climate-risk informed planning, innovation, and improved knowledge and learning will create an enabling environment for long-term adaptive capacities of the vulnerable and poor smallholder communities in southern Zimbabwe.

E.4.2. Financial, economic, social and institutional needs

201. The agricultural sector in Zimbabwe accounts for about 20% of GDP^{95,96}; is the largest single source of export earnings (estimated at about 40%)⁹⁷; contributes between 25 and 30% to formal employment⁹⁸; and accounts for about 60% of raw

⁹³ DFID. 2007. Disability Scoping Study. Available on: https://www.ucl.ac.uk/lc-ccr/downloads/scopingstudies/dfid_zimbabwreport (Accessed 18 July 2016)

⁹⁴ ZIMSTAT. 2012. Zimbabwe Population Census 2012. Population Census Office. ZIMSTAT.

⁹⁵ United Nations. 2014. Zimbabwe Country Analysis: Working Document, 3 October 2014. Available on: www.zw.one.un.org (Accessed 1 December 2015).

⁹⁶ Anseew, A. Kapuya, T., and Saruchera, D. 2012. *Zimbabwe's agricultural reconstruction: Present state, ongoing projects and prospects for investment*. Development Planning Division Working Paper Series No. 32. Development Bank of Southern Africa, Johannesburg.

⁹⁷ Ibid.

⁹⁸ Kapuya T, Saruchera D, Jongwe, A, Mucheri, T, Mujeyi, K, Ndobongo, LT & Meyer, FH, 2010. *The grain industry value chain in Zimbabwe*. Unpublished draft prepared for the Food and Agricultural Organization (FAO). Available on: www.fao.org/fileadmin/templates/est/AAACP/eaafra/UnvPretoria_GrainChainZimbabwe_2010_1_1_.pdf (Accessed 18 June 2016)

materials for the country's largely agro-based industries^{99,100}. Agriculture is also the basis of the direct and indirect livelihoods of almost 70% of the population¹⁰¹. Increasing temperatures and rainfall variability, leading to increasing aridity of lands and reduced water availability, are having direct consequences for the food and income security of over 3.9 million people (or 700,000 households)¹⁰². Due to its heavy dependence on rainfall, a reduction in precipitation negatively affects GDP¹⁰³. Exposure to climate change risks and impacts on Zimbabwe's economy will continue to undermine the development gains invested in by GoZ, donors, and communities; as a result, generation of fiscal resources is weak.

202. The impact of limited fiscal capacity on the principle departments involved in building climate resilience - MSD, ZiNWA and AGRITEX - is significant. MSD and ZiNWA lack sufficient funding to invest in the required weather/climate and hydrological monitoring infrastructure to gain an accurate and timely picture of climate risks in agricultural livelihoods. The cost of site identification, installation, maintenance and monitoring of the stations (whether automated, manual or voluntary), is beyond the financial capacity of these departments, as is the funding needed to upgrade the gauging stations and process the information gathered (regarding both analysis and dissemination). AGRITEX lacks the financial capital to invest in training courses for Extension Officers in CRA, climate risk management for adoption by rain-fed and irrigated farmers, and training in 'farming as a business'. There is scope for improving training, as necessary baseline investments are in place: GoZ has invested in developing Agricultural Training Colleges across the country (see Chapter 2, of the Feasibility Study). It is also important to note that despite limited fiscal space; most training centers have devised means to self-sustain, reflecting the drive of GoZ institutions. However, there is very limited financial capacity to develop new curricula that addresses climate change and to deliver relevant training to extension staff and lead farmers.

203. Zimbabwe's agriculture and water sectors have very well-developed institutional structures to deliver services at every level, however, a significant barrier is a lack of implementation of a coordinated response to climate change, especially in the management of multiple stakeholders across the water and agricultural sectors, whose aggregate activities, if effectively coordinated, can build resilience to climate change. This transcends state agencies, the AGRITEX extension service, research institutions, private companies, IMCs and farmer associations. A lack of coordination by government service providers contributes to inadequate service provision to smallholders. Existing resource, technical capacity and operational challenges in key departments such as AGRITEX, ZiNWA, and MSD constrain coordination efforts for climate resilience building¹⁰⁴. This coordination barrier is mirrored at subnational and district operational levels, where the same institutions are represented. Weak horizontal and vertical coordination also limits the capacity to manage and share knowledge and capitalize on synergies across departments. This is particularly pertinent in the climate information system, where a number of government departments, including MSD, ZiNWA, AGRITEX, Department of Civil Protection and the NEWU, participate at different levels in the generation, processing, and dissemination of climate/weather products and agriculture advisories.

204. Changes in climate require community institutional arrangements to be adaptive and responsive, building climate risk management into their set-up and operations. The extension service provided by AGRITEX, the most importance source of advice for decisions on crops and agricultural practices¹⁰⁵, does not equip farmers to adequately respond to climate change impacts. This presents a significant barrier at the community institutional level, and exacerbates problems such as poor management and

⁹⁹ Mudimu, G. 2003. *Zimbabwe Food Security Issues Paper*. Forum for Food Security in Southern Africa. London: Overseas Development Institute (ODI). www.odi.org.uk/projects/03-food-security-forum/docs/ZimbabweCIPfinal.pdf, accessed 24 January 2011.

¹⁰⁰ United Nations. 2014. Zimbabwe Country Analysis: Working Document, 3 October 2014. Available on: www.zw.one.un.org (Accessed 1 December 2015).

¹⁰¹ Anseew, A. Kapuya, T., and Saruchera, D. 2012. *Zimbabwe's agricultural reconstruction: Present state, ongoing projects and prospects for investment*. Development Planning Division Working Paper Series No. 32. Development Bank of Southern Africa, Johannesburg.

¹⁰² Ibid.

¹⁰³ MWRDM. 2012. Water resources development and management background paper: Towards a water secure Zimbabwe: Improving governance and utilization of water resources, Background paper for the National Water Policy for Zimbabwe. GoZ, Harare.

¹⁰⁴ CSA validation workshops, June 2017.

¹⁰⁵ Moyo, M. *et al.* 2017. Irrigation development in Zimbabwe: understanding productivity barriers and opportunities at Mkoba and Silalatshani irrigation schemes. *International Journal of Water Resources Development*. 33(5), pp.740-745.

governance practices to enable communities to work collectively (rather than on a micro-plot by plot basis) to capitalize on economies of scale.

205. Current gaps in domestic financing are hampering the government’s ability to implement adaptation measures and overcome these barriers. In the absence of GCF resources, vulnerable, smallholder farmers of the critical Agro-Ecological Regions (IV and V) of southern Zimbabwe will continue to struggle with the growing impacts of climate change on their lives and livelihoods, driving them further into poverty and food insecurity. The impacts of such a downward dynamic will affect women the most, eroding their incipient coping capacities to deal with current challenges to food production and income generation in a region that has high numbers of women-headed households. Therefore, the government of Zimbabwe seeks to combine GCF grant-resources with co-financing from budgetary allocations to enhance the productivity, sustainability and climate resiliency of agricultural production and livelihoods in the vulnerable communities of southern Zimbabwe.

Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

206. **Zimbabwe’s Nationally Determined Contribution:** Zimbabwe’s Nationally Determined Contribution (NDC) highlights the agriculture sector as the country’s core vulnerability to climate change¹⁰⁶. Adaptation in the agricultural sector is stated as a “national priority, demanding policy direction at the highest level”¹⁰⁷. The project proposed here contributes to the Government of Zimbabwe’s priorities outlined in the NDC, as follows:

- Strengthening capacities to generate new forms of empirical knowledge, technologies (including conservation agriculture) and agricultural support services that meet climate challenges
- Promoting the use of indigenous and scientific knowledge on drought tolerant crop types and varieties and indigenous livestock that are resilient to changes in temperatures and rainfall.
- Developing frameworks for sustainable intensification and commercialization of agriculture at different scales across agro ecologies.
- Strengthening management of water resources and irrigation in the face of climate change by:
 - Promoting and supporting water harvesting as a climate change adaptation strategy.
 - Developing, rehabilitate and maintain surface and groundwater resources.
 - Strengthening and intensify monitoring systems for hydro-meteorological parameters.
 - Promoting efficient water use practices in the economy
 - Strengthening institutional capacity, research and extension for integrated water resources management.
 - Strengthening water and moisture conservation initiatives.
- Strengthening the capacity of the national meteorological and hydrological services to provide climate data timely.

¹⁰⁶ UNFCCC. 2015. Zimbabwe’s Intended Nationally Determined Contribution (INDC). Available on: <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Zimbabwe/1/Zimbabwe%20Intended%20Nationally%20Determined%20Contribution%202015.pdf> (Accessed 18 July 2016)

¹⁰⁷ Ibid, p.2.

The proposed project is prioritized for inclusion in Zimbabwe's GCF Country Work Programme, currently under development.

207. Climate change considerations are increasingly mainstreamed into new policy in Zimbabwe, with the Renewable Energy Policy that is currently being finalized (see below) and several sectoral policies and strategies as examples: these include the National Policy and Programme on Drought Mitigation; the Draft Disaster Risk Management Policy and Strategy; the Second Science, Technology and Innovation Policy 2012; the Water Policy, the Zimbabwe Agricultural Policy and Investment Plan, the Irrigation Policy, the Agriculture Marketing and Pricing Policy and the Small, Micro and Medium Enterprises Policy.

208. While the National Climate Policy, approved in April 2017 (see below), provides an overall policy framework for climate change, there are practical coordination challenges to delivering a coordinated response to climate change impacts.

209. **National Climate Change Response Strategy:** The National Climate Change Response Strategy (NCCRS) (2014) provides the strategic framework and response plan to deal with climate change impacts. The goal of the strategy is to mainstream climate change adaptation into planning across sectors and institutional levels in a coordinated manner, through multi-stakeholder engagement. For 'agriculture and food security', key actions presented are: sustainable intensification and commercialization of agriculture; strengthened capacity of agricultural support services, and increased agriculture specialization according to AERs. It also highlights the role of technology and strengthening mechanisms for commodity exchange, trading and marketing.

210. **National Climate Policy:** Approved in April 2017, the National Climate Policy (NCP) follows the NCCRS and provides the policy framework for climate change action in Zimbabwe. It aims to achieve coordinated delivery of strategic responses to climate change among GoZ departments and for them to guide effective implementation with key stakeholders, including research institutes, NGOs, international donors and private sector actors¹⁰⁸. Agriculture and water are considered key sectors to develop adaptive capacity to climate change¹⁰⁹. Responses in the sectors include: integration of climate change analyses into the planning and design of irrigation investment; promotion of irrigation and water use efficiency in agriculture, including adequate assessment of irrigation potential and irrigation demand under climate change; and promotion of sustainable land-use systems in line with principles of Climate Smart Agriculture (CSA).

211. **Renewable Energy Policy:** Zimbabwe is developing a Renewable Energy Policy (REP) due to be presented for cabinet approval in 2018. The policy will advocate for a larger share of renewables in the national energy mix, incentives for renewable energy investments and access to sustainable energy for all. This includes a focus on off-grid renewable energy technologies for areas that will not be reached by the grid in the near future (as mapped out in the Rural Energy Master Plan 2017) and may include solar technology for use by both farmers and national authorities. Zimbabwe is also implementing the African Development Bank's Sustainable Energy for All Action Agenda (SE4ALL AA) and Investment Plan (IP)¹¹⁰, which have informed development of the REP.

212. **Environmental Management Act:** The Environmental Management Act (EMA) of 2002 is a framework legislation that establishes coordinated legal and institutional mechanisms to improve national capacity for management of the environment across sectors¹¹¹. It provides for the Environmental Management Agency to manage all environmental issues in the country, including water quality and monitoring, land degradation and pollution management, which operates at national, provincial and district levels. It includes a provision for the establishment of an Environment Fund, used to provide environmental management services across the country. *It stipulates Environmental Impact Assessments (EIA) to be undertaken in certain projects*

213. **National Adaptation Plan:** Zimbabwe is currently in the process of developing a National Adaptation Plan with readiness funding from the GCF. UNDP supports the stocktaking process assessing climate vulnerabilities and risks as well as adaption

¹⁰⁸ MEWC (now MLAWRR). 2016. National Climate Policy 2017. GoZ, Harare.

¹⁰⁹ Ibid.

¹¹⁰ AfDB. 2016. Validation of the Zimbabwe Sustainable Energy for All Action Agenda. Available on: <https://www.afdb.org/en/news-and-events/validation-of-the-zimbabwe-sustainable-energy-for-all-se4all-action-agenda-16281/> (Accessed 18 July 2016)

¹¹¹ EMA. 2002. Environmental Management Act 13 of 2002. Amended by Act 5/2004. GoZ, Harare.

options, led by the Environmental Management Agency, in cooperation with the MLAWRR. A final stocktaking report is expected in the first quarter of 2018, which is expected to inform the development of the final NAP document, anticipated by the end of 2018.

214. Zimbabwe Agricultural Investment Plan (ZAIP) (2013-2018): This proposal is in line and contributes to the *ZAIP* (2013-2018), which is the shared national framework for coordinating public, private and development partners' investment into the agriculture sector.¹¹² The overall programme objective of ZAIIP is to facilitate sustainable increases in production, productivity and competitiveness of Zimbabwean agriculture that focuses on client and consumer needs through building capacities of farmers and institutions, improving the quantity and quality of public, private and development partner investment, and policy alignment. ZAIIP's 'strategic thrust' focuses on supporting farmers to become an integral part of domestic and export value chains.

E.5.2. Capacity of accredited entities and executing entities to deliver

Experience and track record of the accredited entity

215. UNDP is one of the world's largest brokers of climate change grants for developing countries, with a current portfolio of USD1.34 billion in grant-financed mitigation and adaptation projects in over 140 countries, supported by co-financing of USD6.7 billion. In Zimbabwe, UNDP has a strong track record of delivering results in partnership with the government. It has worked closely with the GoZ for the last four decades in supporting its development efforts. UNDP has collaborated with GoZ in various programs and projects in the areas of disaster risk management, climate change, poverty reduction, better governance and environmental management with technical and capacity building support. UNDP has focused on capacity building, policy and community interventions, targeting the poorest and most marginalized women, men, girls and boys. The UNDP Zimbabwe Country Programme (2012-2016) has been prepared jointly with the government to meet its development priorities. UNDP currently manages five programs with GoZ using resources committed by bilateral, multilateral and global funds such as the Global Environment Facility (GCF) with an annual average delivery of USD 70 million.

216. The proposed project is built on UNDP Zimbabwe's extensive track record in implementing climate change adaptation, social protection and disaster risk management work. This includes the UNDP-supported *Coping with Drought Project* in Chiredzi and *Scaling Up Adaptation for Climate Change* and the *Zimbabwe Resilience Building Fund (ZRBF)*, financed by EU, DFID, SIDA and UNDP and managed by MLAWRR in management arrangement with UNDP. UNDP has supported government in formulating key national policies and strategies including: the *National Climate Change Response Strategy*, the *Forestry Policy*, the *Renewable Energy Policy*, the *Climate Policy* and others.

217. Experience and track record of the Executing Entity: MLAWRR has coordinated a number of national climate change projects in the country through collaborative partnerships with the UNDP, World Bank, EU, UNICEF and UNEP. Some of the national projects that the MLAWRR has coordinated include the development of the NCCRS, the National Climate Policy, and the *Coping with Drought and Climate Change* and the *Scaling Up Adaptation* projects. Currently, the Ministry is implementing a UNDP funded project entitled *Supporting Enhanced Climate Action for Low Carbon and Climate Resilient Development Pathway (SECA)*, which is expected to deliver results aligned with the NCCRS.

218. As part of the requirements under the UNDP Harmonized Approach to Cash Transfers (HACT) Framework, a capacity assessment was undertaken designed to identify any managerial and operational shortfalls that needed to be addressed for effective implementation of this GCF project. Based on the assessment done on capacity for Programme Management,

¹¹² AUC. (2018). African Agricultural Transformation Scorecard (AATS). Addis Ababa, Ethiopia: African Union Commission.

https://www.resakss.org/sites/default/files/Zimbabwe%20CAAP%20Biennial%20Review%20Brief%20-%20Ahid_tm_clean_RN.pdf

ReSAKSS (Regional Strategic Analysis and Knowledge Support System). (2016). Zimbabwe Joint Sector Review – Agriculture: Strengthening Mutual Accountability and Preparing for the Malabo Biennial Review through Joint Sector Review Assessment.

https://www.resakss.org/sites/default/files/Zimbabwe_CORRECT.pdf

Organizational Structure and Staff, Accounting Policies and Procedures, Fixed Assets and Inventory, Financial Reporting and Monitoring and Procurement, the overall risk rating for the Ministry of Environment, Water and Climate was assessed as low.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

219. The Government of Zimbabwe, led by the NDA, has been very involved in the crafting of this proposal – both in terms of strategic decision making, feedback and validation through a series of consultations as well as through active participation in the field trips and data collection for the feasibility study and the proposal. The following has been undertaken since September 2015 in developing the proposed project:

220. A series of consultations with government officials, donor organizations, inter-governmental organizations, private companies, research institutions, and NGOs to identify opportunities to build on and synergize with other investments (see the Stakeholder Engagement Annex XIII d-2 for more details). Interviews with research institutions, NGOs and CSO's were carried out, with a focus on practical experience on the ground, namely on strategies for promotion of Climate-resilient Agriculture (CRA), CRA methodologies, market development for smallholder farmers and climate information systems. Key NGO's consulted included OXFAM, SAFIRE, Welt Hunger Hilfe, World Vision, SNV, CESVI, Practical Action and Agricultural Partnership Trust. Research institutions consulted included ICRISAT and CIMMYT. Intergovernmental organizations such as WB, WFP, FAO and IFAD were consulted along with donors such as USAID on major resilience building projects and ZRBF stakeholders, including MLAWRR, ZRBF PMU and ZRBF donors to facilitate synergies and avoid overlaps.

221. Interviews with senior government officials, including directors and senior members of departments at national headquarters, who provided further guidance on ideas for the proposal.

222. Meetings and validation workshops between the Think Tank established by the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) - comprised of a multi-sectoral team of climate change experts from government, civil society, the private sector and research institutions, to spearhead the process of identifying and developing projects for funding by the GCF - the Climate Resilience Infrastructure Development Facility (CRIDF - a DFID-funded water infrastructure facility working in southern Zimbabwe), and the United Nations Development Programme (UNDP) to present progress in project development and obtain feedback and guidance. In total, 7 Think Tank Meetings were carried out, led by the NDA and with participation of key GoZ stakeholders. Key stakeholders included the Ministry of Lands, Agriculture and Rural Resettlement with participation namely from the DOI and AGRITEX as well as representatives from MSD and ZiNWA.

223. Interviews, Focus Group Discussions and field visits to 35 farming communities, of which 29 were irrigated farming communities, where consultations with farmers and other key stakeholders, such as AGRITEX Extension Officers and provincial engineers, were undertaken. Key informant information from farmers and CSOs were based on interviews with the leadership of the particular communities in the presence of other farmers (where they were available), during data collection. These farmers were encouraged to participate in the discussions, an approach which yielded important field-based information and evidence;

224. A total of 147 government officials, resource persons and NGO's were consulted from end 2015 to September 2017. Visiting teams to communities were composed of officials from the Climate Change Management Department and Department of Water Resources Management of the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR), Department of Irrigation (DOI) and Department of Agricultural, Technical and Extension Services (AGRITEX) of the Ministry of Lands, Agriculture and Rural Resettlement, as well as CRIDF and UNDP consultants. The irrigation schemes and communities were chosen by DOI, in collaboration with AGRITEX, based on the climate vulnerability assessment and potential for successful adoption of climate-resilient agricultural practices and irrigation technologies, as well as receiving no or limited donor activity, to prevent duplication of efforts.

225. A Concept Note and Pre-feasibility Study, developed in partnership between GoZ, UNDP and CRIDF, were formally submitted to the GCF by the Zimbabwe **National Designated Authority (NDA)** in September 2016. The Concept Note and Pre-feasibility Study were developed in consultation with the afore-mentioned Think Tank, led by the NDA and comprising key institutional and organizational stakeholders. Having received positive feedback, work progressed to development of the full Proposal and Feasibility Study. This involved further field work, focusing on more farmer consultations, as well as in-depth analyses through the commissioning of Sub-assessment reports to resolve gaps identified by the Pre-feasibility Study. Community consultations and Focus Group Discussions (FGDs) were conducted for all Sub-Assessment Reports by the proposal development team between September 2016 and June 2017, with a focus on conducting women’s Focus Group Discussions, wherever possible. The following areas were explored in more detail in the Sub-assessments, the findings of which are summarized in this Feasibility Study and presented in Annexes IIa, IIb, and IIc:

Irrigation design and solar PV viability analysis;

Value chain analysis;

Climate Smart Agriculture packages analysis.

In addition to these Sub-assessments, a climate information systems analysis was carried out and fed directly into the development of this feasibility study. A gender analysis and action plan was developed and is attached to this proposal.

226. The findings of each Sub-assessment were validated in presentations to the Think Tank and through continuous engagement with Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) and its key departments. The main donors and programs operating in the country, namely ZRBF, DFID, UNDP, FAO and IFAD, and research institutes including ICRISAT, were engaged in the targeting and intervention design, to capitalize on lessons learned and best practice sharing. Donor engagement has been particularly pertinent to build on baseline investments and facilitate synergies in interventions and geographical targeting, as well as prevent duplication of effort. UNDP and MLAWRR have also met with donors and projects working with a similar focus to discuss potential co-financing (see a detailed list of consultations in the Stakeholder Engagement Annex XIIIId-2 to this proposal).

227. Stakeholder engagement in project implementation will start with inception workshops at the national and provincial levels to kick off the project. Each project output will be delivered in close collaboration with key stakeholders as detailed in the Stakeholder Engagement annex. (Annex XIIIId)

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

Adequacy of the financial structure

228. GCF grants are critical for this proposed project given the country’s current economic situation. While some government funds have been made available as co-financing, the current public expenditure budget of the Government of Zimbabwe is limited. This budget is insufficient to move smallholder farmers to climate resilient and improved livelihoods. According to an IMF debt sustainability analysis¹¹³ of Zimbabwe’s public debt, as of end-2016, the Government of Zimbabwe had a total public debt of 44.8% of GDP, of which 70% stood in arrears (overdue payments). Private external debt stood at 13% of its GDP as of end-2016, resulting in a total external debt-to-GDP ratio of 58%, one of the highest levels among developing countries. External debt-to-GDP ratio has increased steadily every year from 47.6% in 2013 to 58% in 2016. The IMF describes Zimbabwe to be in an ‘external debt distress’ state as of 2017, and in the absence of stronger economic growth or more concessional financing and debt relief, Zimbabwe has little chance of emerging from its debt problems even in the long term. Therefore, the government is unable to increase investments into climate resilient agriculture, which not only impacts farmers’ income, but also negatively

¹¹³ IMF Report titled “Zimbabwe: Staff Report for the 2017 Article IV Consultation – Debt Sustainability Analysis”, June 2017

affects the country's future economic growth prospects. The smallholder farmers in the project's target areas have insufficient income and resources to invest in irrigation, and inputs for resilient agricultural livelihoods. Hence, GCF grants are critical for this project's proposed investments.

229. Financial analysis of proposed activities and investments under outputs 1 and 2 of this project over a 25-year period results in a positive Financial Net Present Value (FNPV) of USD 160 Million and a positive Financial Internal Rate of Return (FIRR) of 20.1% which is higher than WACC/hurdle rate (which is 0% in this case due to GCF grants). Hence, investments proposed to be made under outputs 1 and 2 are computed to be financially viable and sustainable for the long-term. Sensitivity analysis of financial returns computed above was performed primarily to assess the impact of lower than assumed revenues or higher than estimated costs. The financial returns are still positive if revenues decrease by 20% or costs increase by 20%. Activities under output 3 are more of public good nature, and direct incremental revenues to the project's intended beneficiaries under this output is difficult to be quantified, and hence, activities/investments under this output 3 have not been included in financial analysis. Details on input data, estimation and assumptions that have been used for financial analysis are available in the Financial Analysis Annex XII(c).

230. Given that public funding from sources such GCF are scarce and need to be used only if they bring additionality to the project, an assessment was conducted to compute the financial returns under outputs 1 and 2 in the absence of proposed GCF funds. In the absence of GCF grants, which form nearly 75% of the total capital expenditure estimated under these two outputs, the only alternative to these smallholder farmers is to borrow from local Banks or Microfinance Institutions (MFIs) for investing in irrigation infrastructure and climate resilient inputs and market linkages. Micro-loans in Zimbabwe carry very high interest rates, at times as high as 20% per month, as reported by studies. In 2016, Zimbabwe's Central Bank, the Reserve Bank of Zimbabwe (RBZ), issued a directive to Banks/MFIs to restrict interest rates on micro-loans to a maximum of 10% per month, which still works out to 120% rate of interest per annum. To be on a conservative basis, we use a micro-loan interest rate of 60% per annum and loan tenors are typically for 2 years.¹¹⁴ Under these financing terms for capital costs of outputs 1 and 2, FNPV value is negative, and FIRR is way lower than WACC/hurdle rate (which is now computed using micro-loan interest rate of 60% (for local currency-denominated loans) and government co-financing which is assumed to be a grant to farmers), indicating that proposed activities under output 1 and 2 are not financially viable if they are financed by microfinance loans. Hence, GCF funding brings additionality to investments under these proposed outputs 1 and 2. However, the project enhances the creditworthiness of the smallholder borrowers (building incomes and capacities) as well as provided technical training and linkages across financial intermediaries such as women savings and loan associations and MFIs to lower the risk of lending to the farmers and enable access to credit for sustained investments in resilient agriculture beyond the project lifetime.

231. The government of Zimbabwe and the smallholder communities of the vulnerable southern Agro-Ecological Regions have little capacity to meet the additional costs of adaptation. GCF grant resources are necessary to overcome a combination of financial, technical, institutional and market barriers that together prevent climate-vulnerable smallholders from adequately building the resilience of their agro-ecosystems and livelihoods to increasing climate hazards. These include the inability of smallholder farmers to irrigate crops efficiently and effectively as a key adaptation strategy to climate-driven variability in volumes and availability of water resources; increasing risks faced by smallholder farmers to the productivity and yield stability of their dryland agro-ecosystems, given increasing drought and mid rainy season dry spells; the inability of smallholders and government, private sector and NGOs are to access and use appropriate climate and weather information to inform water resource management and agricultural planning; and a lack of the coordinated institutional support required by smallholders to carry out the development and implementation of their climate-resilient agricultural ecosystems and water management.

232. Grant funding is necessary to overcome the above barriers to climate-resilient rural livelihoods in southern Zimbabwe by financing key investments in a) climate-resilient irrigation systems of targeted communities; b) strengthening the technical capacities of government institutions and service providers to assist smallholder farmers to plan and manage their agroecosystems and water resources for climate-resilient crop production that is more diverse, more productive and more

¹¹⁴ RBZ, information from Bank/MFI websites, news articles

sustainable; c) guaranteeing the ready availability of climate and weather information for more effective agricultural and water resource planning and management; and e) ensuring a strong multilevel institutional framework that supports, sustains and coordinates climate risk management services, knowledge generation and dissemination, and the operations and maintenance of irrigation and climate smart agricultural systems. Incidental revenue generated by smallholder farmers as enabled by these project outputs will improve agricultural incomes and food security, as well as finance the operations and maintenance of revitalized irrigation schemes, and the ongoing purchase of inputs for climate resilient agricultural production. The outcomes of these interventions do not lend themselves to reflows back to the government or the GCF, and thus require maximum concessionality in grant financing.

Cost-effectiveness

233. Design of project investments is based on experience and lessons learned from solutions implemented in a series of previous and ongoing initiatives in Zimbabwe and southern Africa. The solutions identified during the process of analysis and design offer a high degree of confidence in their predicted impacts and cost-effectiveness. The project has been designed with an analysis of best practices detailed in Chapter 5 of the Feasibility Study, and also described in section E.6.4, below. In particular, the experience of the Climate Resilience Infrastructure Development Facility (CRIDF), a DFID-funded water infrastructure facility working in southern Zimbabwe, is particularly pertinent and several of their community projects are described on page 60 and page 88 of the Feasibility Study; the latter references CRIDF's Kufandada Irrigation Scheme Economic & Financial Analysis.¹¹⁵

234. At the same time, the project will build on, complement and consolidate investments of the ZRBF and *Scaling Up Adaptation* initiatives. GCF investments and activities will build on the investments made by other actors, e.g. by sustaining support to market linkages, replicating and consolidating proven CRA practices, and scaling up and scaling out good practice through national level agricultural extension services. The GCF project will draw on the ZRBF and *Scaling Up Adaptation* evidence base to ensure cost-effectiveness and impact of irrigation design and management/governance, climate smart agriculture and climate information systems. The GCF project will also complement the ZRBF work regarding evidence generation by aligning with the ZRBF evidence building principles and complementing ZRBF data collection and evidence generation for long term resilience building. Together, the two projects will contribute to extend the generation of evidence to other geographic and thematic areas over time.

235. The financial and economic analyses accompanying this proposal cite the cost-effectiveness of Farmer Field Schools as a well-tested methodology for training farmers in agricultural innovations and a highly successful means of upscaling new practices to multiple other farmers. AGRITEX's Training of Trainers, who go on to train lead farmers in FFS, who then go on to train neighboring farmers in their communities, ensures efficient uptake of climate-resilient agricultural practices and systems at scale. Organizational strengthening of scheme-based Irrigation Management Committees also guarantees effective operations and maintenance of rehabilitated irrigation infrastructure and technologies through improved community-based funding of O&M and training in planning, conflict resolution, and operations. Multi-stakeholder Innovation Platforms, by bringing together representative stakeholders of a particular value chain to develop strategies and plans, as well as practical partnerships, increase collaboration, trust and coordination thereby reducing information, investment, and other barriers to climate-resilient value chain development.

236. More effective institutional coordination fostered by this project among the different government agencies and departments will significantly enhance coherence of their services at field level based on a more systematic approach to generating knowledge gained from experience and disseminating it in accessible formats and language to farmers, institutional staff and policy makers.

237. Detailed consultations and assessments with a multitude of stakeholders were carried out regarding traditional and more modern knowledge of agro-ecological conditions and constraints; climate change trends, patterns and expected impacts; poverty and vulnerability of rural communities; agricultural potential, including existing and promising climate-resilient crops and

¹¹⁵ CRIDF. 2014. Kufandada Irrigation Scheme Economic & Financial Analysis. CRIDF

livestock management practices; market linkages; and potential for public-private partnerships to enable access to inputs, finance, technical assistance, markets, research and other factors in value chain functioning.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

Not applicable

E.6.3. Financial viability

238. Financial analysis of proposed activities and investments under outputs 1 and 2 of this project over a 25-year period results in a positive Financial Net Present Value (FNPV) of USD 160 Million and a positive Financial Internal Rate of Return (FIRR) of 20.1%, which is higher than WACC/hurdle rate (which is 0% in this case due to GCF grants). Hence, investments proposed to be made under outputs 1 and 2 are computed to be financially viable and sustainable for the long-term. Sensitivity analysis of financial returns computed above was performed primarily to assess the impact of lower than assumed revenues or higher than estimated costs. The financial returns are still positive if revenues decrease by 20% or costs increase by 20%. Activities under output 3 are more of public good nature, and direct incremental revenues to the project's intended beneficiaries under this output is difficult to be quantified, and hence, activities/investments under this output 3 have not been included in financial analysis.

E.6.4. Application of best practices

239. The effectiveness of the best practices proposed for application in this project are the result of a number of on-the-ground experiences with irrigation revitalization and climate-resilient agriculture in southern Zimbabwe. Lessons and best practice are discussed and analyzed in detail in Chapter 5 of the Feasibility Study (see Annex II).

Irrigation revitalization

240. Analysis of previous and existing efforts from a desk study, site visits to 16 irrigation schemes and multiple consultations with stakeholders, including provincial engineers, AGRITEX Extension Officers and farming communities, finds that a climate-resilient, 'revitalization' design approach to existing irrigation schemes overcomes challenges faced by previous irrigation investments to sustainably increase reliability and assurance of water supply for smallholders in the face of increasing climate risks. Best practice in designing climate-resilient irrigation, predominantly from the practical experience of CRIDF's pilot projects is detailed in Chapter 3, section 3.3.1 of the Feasibility Study. While it is not possible to mitigate the frequency or duration of flooding, climate proofing techniques that protect irrigation and related infrastructure should be employed. Methods of climate proofing infrastructure against floods are described in detail in the Feasibility Study and Irrigation Sub-Assessment.

Operations and Maintenance of Irrigation Schemes

241. ***The basic premise for O&M sustainability on communal irrigation schemes is that incomes from increased agricultural production will allow communities to meet O&M costs.*** CRIDF best practice shows that O&M costs should be factored into the project budget for the first two years of the project, to allow time for IMCs to put appropriate measures in place to eventually fulfill their upkeep responsibilities and operationalize their capacities to manage climate risk. Another best practice from CRIDF is to support IMCs to develop a communally-owned scheme 'Constitution' to manage individual participation in the collective maintenance of communally used irrigation infrastructure. A key part of a scheme's Constitution, as is the case in CRIDF's pilot projects, is a 'Maintenance Fund', which each member benefiting from the scheme is expected to contribute to on a monthly basis. While project budgets should build in costs to provide an initial buffer for this fund (as part of the O&M budget line), over

time, community contributions, made possible by increased incomes from increased yields, will generate enough capital to pay for the upkeep of the irrigation infrastructure, including paying engineers to troubleshoot, repairing faulty equipment, etc. The evidence and experience base for the suggested O&M model is documented in Chapter 5, section 5.1.2 of the Feasibility Study.

Farmer Field Schools and adoption by smallholders of Climate-resilient Agriculture practices

242. Farmer Field Schools are a tried and tested methodology in Zimbabwe to support farmers to increase productivity of their crop and livestock and irrigated farming systems. Experience from the *Coping with Drought* project, the UNDP/GEF-supported *Scaling Up Adaptation* project and ZRBF-supported projects reveals that building the capacity of farmers to diversify into climate resilient crop production through farmer-managed demonstrations of a variety of adaptation measures has shown successful results. Farmers are exposed to a range of climate-resilient cropping options, and farmer-managed demonstrations are the best way to show what works, why and under what circumstances in a participatory, engaging way. Farmer-managed trials also screen for technologies that will not be easily adopted by farmers, because of farmers' constraining circumstances. These experiences are detailed in the Feasibility Study Chapter 5, section 5.2.2. In the selection and promotion of CRA crops and practices, the project draws on the evidence base from the practical experience of AGRITEX and DR&SS, the work of research institutions such as CIMMYT and ICRISAT, the *Scaling Up Adaptation* project, ZRBF consortia, VUNA and the recently finalized CRA manual - developed in a partnership between MLAWRR, CTCN and Green Impact Trust - to identify best practices for CRA.

Innovation Platforms

243. A combination of Farmer Field Schools and Innovation Platforms is considered by AGRITEX staff at national, provincial and district levels to be effective at ensuring adoption by smallholders of CRA, since smallholder production priorities and problems are inserted in the broader context of value chain development involving production, technical assistance, input supply, crop or livestock purchase, processors, micro-credit, research findings, and other factors. Innovation Platforms bring together representatives of these different fields so that, given their mutual interest and potential benefit, they can communicate more easily, plan more strategically and collaborate more effectively through formal and informal partnerships. Examples of these agreements to work together include FFS (technical assistance agencies and farmers), production contracts (farmers, suppliers, buyers, micro-credit providers), or participatory innovative development of production practices (farmers, TA agencies, research institutions). The Feasibility study (Chapter 5, section 5.2.3 details the documented positive effects of innovation platforms for value chain development, facilitation of market linkages and the usefulness of Innovation Platforms as a space for learning and action around new agricultural practices and behavioural change. Contract farming was also identified in the Feasibility Study as a highly effective means of linking smallholder farmers with input and ready output markets, ensuring a stable and profitable income base and access to much needed finance and input at the start of a season.

Climate information systems

244. The project will draw on the successful experiences of the Participatory Integrated Climate Services for Agriculture approach (PICSA), as well as the expertise of the University of Reading in providing capacity building to roll out the approach. PICSA aims to enable farmers to make informed decisions based on accurate, location-specific, climate and weather information and locally relevant crop, livestock and livelihood options, with the use of participatory tools to aid their decision making. The existing partnership and the lessons learned from the UNDP/GEF OXFAM *Scaling Up Adaptation* pilot on Climate User Information Platforms (CUIPs) will be built on and linked to the PICSA approach. The Feasibility Study (section 3.6) for the project proposed here documents the importance of: a) providing basic climate infrastructure in the form of weather stations; b) building capacity of extension personnel and farmers to understand climate information, and c) packaging climate information so that it is easily useable by farmers (which includes exploring the use of software as well as the development of different approaches to seasonal forecasts).

E.6.5. Key efficiency and effectiveness indicators

<i>GCF core indicators</i>	Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)
	Not applicable
	Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)
	Not applicable

F.1. Economic and Financial Analysis

Economic analysis

245. The economic feasibility of the project was determined using funds flow from small-scale farmers who will benefit from the project. Financial and gross margin analyses were conducted to assess the financial returns of the project's interventions for the project's beneficiaries.

246. The analysis of the project was carried out in accordance with the Guidelines for the Economic Analysis of Projects of the United Nations Development Program (UNDP 2015). The economic desirability of the investments was determined by computing the economic internal rate of return (EIRR) and economic net present value (NPV) and comparing the EIRR with the assumed 10% discount rate (as recommended in UNDP 2015).

247. Discounted fund flows period varies by intervention between 15 and 25 years. It was assumed that after the useful life of each intervention, the benefits become zero. The analysis is based on discussions at the project sites and data from different agencies in the country. The climate information and climate resilient cropping outputs of the projects are assumed to have a lifespan of 15 years while the irrigation component have a lifespan of 25 years.

248. The total cost of the project amounts to USD 47.82 million including co-financing by the government of Zimbabwe. This excludes the operating and maintenance costs for the interventions over the lifetime of the project. The cost benefit analysis shows that with a 10 percent discount rate, the discounted net present value of the project is valued at about 27 million USD. The economic internal rate of return is 20%, which exceeds 10%. Though the internal rate of return is 20% for the base case, there are other benefits not captured in this analysis. For example, based on the interventions in this proposal – specifically output 1 and 2, it is reasonable to assume that in the future without the project scenario, expected net revenues will reduce because of climate change, and that the project will prevent all or some of that projected climate change impact on agricultural productivity. The implication of not capturing the increase in the differences with or without the project in the face of climate change is that benefits estimated in this analysis provides a lower bound on the value of the project.

249. Three sensitivity test cases were examined: (i) total cost increased by 20%; and (ii) total benefits decreased by 20%; and (iii) total cost increased by 20% and total benefits simultaneously decreased by 20%. In all cases, the project remains economically feasible and EIRR remains above the minimum threshold. Results are presented in the Economic Analysis Report in Annex XII.

Financial analysis

250. Financial analysis of the proposed project was carried out in accordance with the 'Financial and Economic Analysis of Projects' guidelines of UNDP (2015). Details on input data, estimation and assumptions that have been used for financial analysis are available in the Financial Analysis Annex XII.

251. Detailed financial analysis has been conducted for outputs 1 and 2. Activities under output 3 are more of public good nature, and direct incremental revenues to the project's intended beneficiaries under this output are difficult to be quantified, and hence, activities/investments under output 3 have not been included in financial analysis. Financial analysis over a 25-year period results in a positive Financial Net Present Value (FNPV) of USD 162 Million and a positive Financial Internal Rate of Return (FIRR) of 22.4%, which is higher than WACC/hurdle rate (which is 0% in this case due to GCF grants). Hence, investments proposed to be made under outputs 1 and 2 are computed to be financially viable and sustainable for the long-term. Sensitivity analysis of financial returns computed above was performed primarily to assess the impact of lower than assumed revenues or higher than estimated costs. The financial returns are still positive if revenues decrease by 20% or costs increase by 20%.

252. In the absence of GCF grants, which form nearly 51% of the total capital expenditure estimated under these two outputs, the only alternative to these smallholder farmers is to borrow from local Banks or Microfinance Institutions (MFIs) for investing in irrigation infrastructure and climate resilient inputs and market linkages. Micro-loans in Zimbabwe carry very high interest

rates. In 2016, Zimbabwe's Central Bank, the Reserve Bank of Zimbabwe (RBZ), issued a directive to Banks/MFIs to restrict interest rates on micro-loans to a maximum of 10% per month, which still works out to 120% rate of interest per annum. To be on a conservative basis, we use a micro-loan interest rate of 60% per annum (for local currency-denominated loans) and loan tenors are typically for 2 years.¹¹⁶ Under these financing terms for capital costs of outputs 1 and 2, FNPV value is negative, and FIRR is way lower than WACC/hurdle rate (which is now computed using micro-loan interest rate of 60% and government co-financing which is assumed to be a grant to farmers), indicating that proposed activities under output 1 and 2 are not financially viable if they are financed by microfinance loans. Hence, GCF funding brings additionality to investments under these proposed outputs 1 and 2.

F.2. Technical Evaluation

253. Identification and selection of technical solutions to mitigate climate change risks to smallholder agriculture in southern Zimbabwe began with 1) consultations with a large number of local stakeholders to capture indigenous knowledge of climate risks and potential solutions; 2) consultations with private sector companies active in agriculture in southern Zimbabwe to obtain practical perspectives and economic potential of proposed solutions; 3) consultations with technical staff of key government agencies such as AGRITEX, MSD, DOI, DR&SS and others to determine previous experience with climate-resilient practices and cropping systems and lessons learned; 4) expert research into the proposed solutions as sub-assessments of the Feasibility Study; 5) consultations with experienced local and international NGOs regarding their experience with and lessons learned from past and ongoing programs in support of agriculture and irrigation in southern Zimbabwe; 6) consultations with international centers of excellence in agriculture (ICRISAT, CIMMYT) regarding innovations, research results, and potential solutions; 7) consultation with donors and multilateral agencies regarding experience with tested practices and technologies and lessons learned; and 8) an extensive literature review.

254. The project proposed here has been designed in close consultation with the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) particularly AGRITEX and the Department of Irrigation (DOI), Department of Research and Specialist Services (DR&SS), the Meteorological Services Department (MSD), and other relevant government agencies, institutions and technical line Departments, as well as local governments, local and national NGOs, private enterprise, and men and women farmers of the three targeted provinces of southern Zimbabwe. These consultations and discussions, combined with the information, analysis and conclusions from the technical assessments forming part of the Feasibility Study, provide the basis for the project approach as well as a corresponding integrated set of interventions. Building on these foundations, the project design process ensures that project investments and intervention results are technically robust and will be sustained beyond project duration.

255. The findings of each Sub-assessment were validated in presentations to the Think Tank and through continuous engagement with MLAWRR and key departments in MLAWRR. The main donors and programs operating in the country, namely ZRBF, DFID, UNDP, FAO and IFAD, and research institutes including ICRISAT, were engaged in targeting and intervention design to capitalize on lessons learned and best practice sharing.

256. Interviews with research institutions, NGOs and CSOs were carried out, with a focus on gleaning lessons and best practice from practical experience on the ground, namely on strategies for promotion of Climate-resilient Agriculture (CRA), CRA methodologies, market development for smallholder farmers and climate information systems. Key NGO's consulted included OXFAM, SAFIRE, Welthungerhilfe, World Vision, SNV, CESVI, Practical Action and Agricultural Partnership Trust. Research institutions consulted included ICRISAT and CIMMYT. Intergovernmental organizations such as WFP, FAO and IFAD were consulted along with donors such as USAID on major resilience building projects and ZRBF stakeholders, including MLAWRR, ZRBF PMU and ZRBF donors.

¹¹⁶ RBZ, information from Bank/MFI websites, news articles

257. A total of 147 government officials, resource persons and NGO's were consulted from end 2015 to September 2017. Visiting teams to communities were composed of officials from the Climate Change Management Department and Department of Water Resources Management of the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR), Department of Irrigation (DOI) and Department of Agricultural, Technical and Extension Services (AGRITEX) of the Ministry of Lands, Agriculture and Rural Resettlement, as well as CRIDF and UNDP consultants. The irrigation schemes and communities were chosen by DOI, in collaboration with AGRITEX, based on the climate vulnerability assessment and potential for successful adoption of climate-resilient agricultural practices and irrigation technologies.

258. Interviews, Focus Group Discussions and field visits to 35 farming communities, of which 29 were irrigated farming communities, where consultations with farmers and other key stakeholders, such as AGRITEX Extension Officers and provincial engineers, were undertaken. Farmers participated in the discussions, which yielded important field-based information and evidence.

259. An Environmental and Social Safeguards (ESS) assessment (see Section F.3) has been rigorously carried out to confirm best design and implementation practices to promote climate-resilient agricultural practices and cropping systems, climate information systems and agro-climate advisories, and irrigation revitalization.

260. All major components of this project – irrigation system revitalization, climate-resilient agriculture, farmer field schools, innovation platforms and climate information systems – have been designed based on extensive experiences and proven models under previous or contemporary projects. They have been adapted to be specifically relevant and viable in the context of Agro-ecological Regions IV and V of southern Zimbabwe. For further information on the technical feasibility of these elements, please see the corresponding sub-assessments of the Feasibility Study.

F.3. Environmental, Social Assessment, including Gender Considerations

261. A Social and Environmental Screening assessment was undertaken to identify and address any potential social and environmental risks that could arise from project activities. Based on the findings of this assessment, an Environmental and Social Management Framework was developed for the project (see Annex VIb).

The overall social and environmental risk category for this project is moderate. Specific project risks are listed in Section G below, together with appropriate mitigation measures.

Environment

262. The project is likely to have some short-term, small-scale environmental impacts during implementation, but will ultimately have considerable, long-term environmental benefits (See Section E.3.1).

The envisaged project has three inter-related Outputs:

- Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management
- Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets
- Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture.

263. Through delivery of the outputs, communities in Southern Zimbabwe will be better equipped to adapt to increasingly harmful climate hazards. Improved adaptation capacity and the ability to better utilize resources will result in less demands on the natural environment. Benefits will include increased food security through higher yields, improved weather information and

early warnings, improved management of water resources, more efficient irrigation practices, improved agricultural outputs through better crop selection and management, improved access to markets.

264. Environmental impacts associated with the project are considered acceptable due to the nature of the interventions, while social benefits are significant and can provide long-term improvements to the lives of communities in the target areas. The project will also promote inclusion, particularly of women and vulnerable groups. Key considerations in minimizing environmental and social impacts during the project are outlined in the ESMF, but include social inclusion and consultation, sediment and erosion control, and health and safety for workers and community.

265. Physical impacts will be primarily associated with construction and installation of equipment, such as barrages, river gauging stations, pumps, tanks, and the farming areas themselves. Construction impacts will be temporary in nature. Permanent infrastructure will be designed to minimize long-term impacts e.g. pumps will be placed out of river beds above flood levels – this not only protects the pump in times of floods, but also reduces the impacts to river flow and potential contamination of waterways by destroyed infrastructure debris. The implementation of the ESMF will ensure that these impacts are satisfactorily managed.

266. Furthermore, the project makes provision for a complaints' register along with a two-tiered Grievance Redress Mechanism consistent with the UNDP's Stakeholder Response Mechanism: Overview and Guidance (2014) and World Bank Group Safeguards Policies. The Grievance Redress Mechanism established goals and objectives along with eligibility requirements to make a complaint and/or grievance. It has been designed so that all parties will act in good faith throughout the process and more importantly, that arbitration will be followed in trying to achieve mutually acceptable resolutions for all parties. The Grievance Redress Mechanism also provides for the covering of costs for legitimate complaints or grievances so that individuals and/or groups are not disadvantaged by bringing complaints to the attention of CCDA and UNDP. Finally, the Grievance Redress Mechanism allows individuals and/or groups to also file a complaint with the Social and Environmental Compliance Unit within the Office of Anticorruption and Integrity within the UNDP should they have any concerns as to corruption, unethical behavior or where they believe their complaint or grievance has not been adequately addressed.

Social and Gender

267. Project interventions will be undertaken in areas of Southern Zimbabwe where communities are particularly vulnerable to the impacts of climate change. These communities are largely rural and often have constrained or marginal livelihood opportunities. The project has been designed with attention paid to gender and social inclusion considerations. Gender inequality in Zimbabwe is generally considered to be pervasive and deeply rooted, particularly as women have less access to productive assets and resources relative to their male counterparts. Yet it is estimated that 70% of smallholder farmers are women.

268. The gender analysis undertaken at the project design phase, acts as an entry point for gender mainstreaming throughout implementation, and builds on stakeholder consultation, existing analytical documentation and data from projects currently being implemented, and national statistics, where available. The project design takes into consideration a number of key gender implications, including, among other things, women's critical role in agriculture and food security; analysis of the gendered division of labor; women's access to and control over environmental resources; and identification of gender equality gaps.

Based on the Gender Assessment, the project implementation proposes a number of actions to strengthen gender equality from the outset. These include to:

- a) Develop specific strategies to include and target female farmers, in both male and female-headed households for interventions to ensure gender equal participation;
- b) Enhance capacities of both male and female farmers to understand climate change information and use this to inform farming practices and crop/livestock choices;

- c) Build capacities of both male and female farmers in climate smart agriculture production, with a particular focus on providing extension services to both husband and wife, taking into account women's daily routines and promoting both genders participation in agricultural decision making;
- d) Build capacity of male and female farmers in farming as a business and value addition for irrigation schemes as well as dry land farming;
- e) Develop strategies to build capacities of female farmers, in particular, in leadership and marketing skills;
- f) Advocacy and awareness should be adjusted to most effectively reflect gender-specific differences;
- g) Address the fact that women often have major roles in producing food and will therefore be key partners in the co-development of climate information messaging so that they are also reached effectively;
- h) Access and use gender expertise in the roll-out of the project, including through expert consultancy services, and the leverage of partnerships with agencies focused on promoting gender equality;
- i) Inclusion of all stakeholders involved in the project to develop awareness raising/training aimed at drawing attention to the implication of access to climate and weather information, and gender equality.

269. During project implementation qualitative assessments will be conducted on the gender-specific benefits that can be directly associated with the project. This will be incorporated into the annual Project Implementation Report, Mid-term Report, and Terminal Evaluation. Indicators to quantify the progress of project objectives in relation to gender equality are included in the Gender Action Plan. The complete Gender Assessment and Action Plan can be found in Annex XIIIc.

F.4. Financial Management and Procurement

270. The financial management and procurement of this project will be guided by UNDP financial rules and regulations available here: https://info.undp.org/global/documents/frm/Financial-Rules-and-Regulations_E.pdf. Further guidance is outlined in the financial resources management section of the UNDP Programme and Operations Policies and Procedures available at <https://info.undp.org/global/popp/frm/Pages/introduction.aspx>. UNDP has comprehensive procurement policies in place as outlined in the 'Contracts and Procurement' section of UNDP's Programme and Operations Policies and Procedures (POPP). The policies outline formal procurement standards and guidelines across each phase of the procurement process, and they apply to all procurements in UNDP. See here: <https://info.undp.org/global/popp/cap/Pages/Introduction.aspx>.

271. The project will be implemented following the National Implementation Modality (NIM) following NIM guidelines available here: https://info.undp.org/global/documents/_layouts/WopiFrame.aspx?sourcedoc=/global/documents/frm/National%20Implementation%20by%20the%20Government%20of%20UNDP%20Projects.docx&action=default&DefaultItemOpen=1. UNDP has ascertained the national capacities of the Executing Entity by undertaking an evaluation of capacity following the Framework for Cash Transfers to Executing Entity (part of the Harmonized Approach to Cash Transfers - HACT). This has been completed for MLAWRR, and a Partner Capacity Assessment Tool has been completed for the EE. All projects will be audited following the UNDP financial rules and regulations noted above and applicable audit guidelines and policies.

272. The NIM Guidelines are a formal part of UNDP's policies and procedures, as set out in the UNDP Programme and Operations Policies and Procedures (POPP) which are available here: <https://info.undp.org/global/popp/Pages/default.aspx>.

273. The NIM Guidelines were corporately developed and adopted by UNDP, and are fully compliant with UNDP's procurement and financial management rules and regulations.

274. The national executing entity, MLAWRR - also referred to as the National Executing Entity in UNDP terminology - is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including the NIM Guidelines). In legal terms, this is ensured through the national Government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document which will be signed by the Executing Entity to govern the use of the funds. Both of these documents require compliance. Prior to signature of the project document, all national Executing Entity like MLAWRR

need to have undergone a Harmonized Approach to Cash Transfer (HACT) assessment by UNDP to assess capacities to implement the project. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the Accreditation Master Agreement (AMA) and project confirmation to be agreed with the GCF. This may include, but is not limited to monitoring missions, spot checks, facilitation and participation in project board meetings, quarterly progress and annual implementation reviews, and audits at project level or at Executing Entity level on the resources received from UNDP.

275. The Harmonized Approach to Cash Transfer (HACT) framework consists of four processes: (1) macro assessments; (2) micro assessments; (3) cash transfers and disbursements; and (4) assurance activities. Assurance activities include planning, periodic on-site reviews (spot checks), programmatic monitoring, scheduled audits and special audits. During micro-assessment, there can be weaknesses identified for which actions are required to address the gaps. When a spot check finds that the gaps are not addressed it will mean that the level of assurance activities will have to remain higher and modalities of engaging with that Executing Entity will have to be reviewed if necessary. All details are available here: <https://undg.org/wp-content/uploads/2015/02/2014-UNDG-HACT-Framework-English-FINAL.pdf>.

276. The project will be audited in accordance with UNDP policies and procedures on audits, informed by and together with any specific requirements agreed in the AMA currently being negotiated with the GCF. According to the current audit policies, UNDP will be appointing the auditors. In UNDP scheduled audits are performed during the program cycle as per UNDP assurance/audit plans, on the basis of the Executing Entity's risk rating and UNDP's guidelines. A scheduled audit is used to determine whether the funds transferred to the Executing Entity were used for the appropriate purpose and in accordance with the work plan. A scheduled audit can consist of a financial audit or an internal control audit.

277. All GCF resources will be provided to the Executing Entity, less any agreed cost recovery amount. Under UNDP's national implementation modality, UNDP advances cash funds on a quarterly basis to the Executing Entity (executing entity) for the implementation of agreed and approved program activities, in accordance with UNDP standard policies and the NIM Guidelines. The Executing Entity reports back expenditure via a financial report on quarterly basis to UNDP. Any additional requirements will be as in accordance with the AMA as and when it is agreed

278. A draft procurement plan (which will be further discussed and revised prior to UNDP Project Document signature) is provided in Annex XIIIa.

G.1. Risk Assessment Summary

279. Effective project implementation faces technical, operational, institutional, and social and environmental risks (please see section F.3 for ESS assessment). Risks exist in relation to design, construction and operation of irrigation scheme revitalization and hydrological and meteorological monitoring stations. Construction and operation of renovated or new infrastructure will take place in rural areas that are often difficult to access. Effective and efficient operation of new irrigation equipment and infrastructure, as well as hydro-meteorological stations, requires appropriate levels of technical and operational capacities for smallholders whose formal education may be incomplete. Institutional weaknesses may impede timely completion of infrastructure or acquisition of efficient irrigation equipment. At the same time, limited coordination among agencies and stakeholders can risk delays in project implementation and inefficiencies throughout the project cycle.

280. Limited awareness and preparation of communities to involve themselves in the project can impede effective participation in project activities and adoption of the technologies, practices, and information advanced through the project. Farmers willingness to participate in training and planning meetings may be a challenge and risk delays in project implementation. Value chain stakeholders may be initially reluctant to participate in Innovation Platforms, thereby putting at risk the development of market linkages for climate-resilient value chain development

281. Climate shocks – extended droughts, extreme heatwaves or widespread flooding – if strong enough, could conceivably damage project investments, affecting project implementation as well as risking anticipated impacts. Finally, there are environmental and social risks related to sedimentation control, organizational function (IMCs), financial management, etc., that will affect smallholder communities in the project area. These are detailed in Section F.3, as well as added in the table below.

282. This project proposes a variety of mitigation measures to address these risks. The project will invest in local level awareness raising and technical and organizational capacity building for communities and government authorities to ensure appropriate design and operation of irrigation infrastructure and hydro-meteorological monitoring stations. Smallholders will receive intensive training to plan and manage irrigation of climate-resilient crops as well as continuous technical assistance from the DOI and AGRITEX. The project will implement tested O&M models for community irrigation and water management with clear guidelines and delineation of responsibilities at the outset and focus on building technical and financial capacity for sustained O&M.

283. The local community members operating the hydro-meteorological monitoring stations will receive special training and ongoing supervision of their activities. Developing SOPs for maintenance and data sharing for these stations and other weather information systems will ensure that reliable seasonal forecasts and flood information can be provided to smallholders.

284. Institutional coordination will attenuate the risk of delay and inefficiencies caused by a dispersion of activities among institutions. The implementation arrangements for this project stress multi-sectoral and multi-institutional coordination with a framework for close collaboration consisting of a GCF Project Steering Committee coordinating closely with the Zimbabwe Resilience Building Fund Steering Committee with representatives of key ministries, donors and other organizations – as well as strong collaboration across the project PMU and the ZRBF PMU. The Innovation Platforms for climate-resilient value chains will also bring stakeholders together around a common goal and strategy for mutual benefit. These mechanisms are intended precisely to ensure seamless coordination among institutions and organizations at the district level.

285. The risk of low commitment to adoption of climate-resilient agricultural practices is mitigated through an inclusive multi-stakeholder action-research approach to adoption and implementation in Farmer Field Schools. This approach sensitizes smallholders to the climate risks in a BAU scenario and builds ownership and commitment to climate-resilient solutions. The potential risk of climate shocks is mitigated through use of reliable forecasts for planning and operation of the infrastructure as well as incorporating design elements to increase the resilience of the investments to extreme events. Finally, a detailed ESMP plan (see Annex VIb) has been formulated to address any environmental and social risks arising from the project.

G.2. Risk Factors and Mitigation Measures

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Revitalization and climate-proofing of irrigation infrastructure could experience delays given logistical and operational challenges of construction in relatively remote areas.	Technical and operational	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

This risk will be mitigated by building on the sub-assessments, studies and consultations during project preparation; clear, formal delineation of responsibilities and division of labor among collaborating institutions; rigorous vetting of bidding companies, and intensive planning beginning at project inception. The project implementation arrangements will emphasize inter-institutional coordination, and sufficient seasoned staff will be employed to ensure efficiency in irrigation revitalization and climate-proofing. These measures maintain this risk at Medium.

Selected Risk. Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Farmers may be reluctant to adopt climate-resilient agricultural practices due to perceived risk associated with application of new techniques and inputs.	Technical and operational	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

Participatory action-research methodologies used in Farmer Field Schools will build on smallholder-identified needs and priorities, as well as their traditional knowledge of their agro-ecosystems. Lead farmers – the most progressive and respected smallholders in a community, both men and women – will be identified for FFS training to take place over the course of at least two years. Smallholder organizations will be represented on Innovation Platforms and will receive technical assistance and other support from the different institutional and private sector stakeholders to ensure climate-resilient crop and livestock production and commercialization. Given a long history of institutional support to smallholders in the region starting at the ward level, farmers have often been trained by AGRITEX staff and are accustomed to the FFS modality. These measures maintain this risk at Medium.

Selected Risk Factor 3

Description	Risk category	Level of impact	Probability of risk occurring
Elite farmers could capture the benefits of partnerships with the private sector.	Social and environmental	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

Partnership agreements with the private sector – leveraged through multi-stakeholder Innovation Platforms – will involve smallholder organizations, given that individual smallholder plots are unlikely to provide sufficient production for adequate commercialization. The project will offer technical training to all community smallholders, provide timely technical assistance to smallholder organizations in regard to

financial and post-harvest management, and ensure equal access to key inputs, including water and climate-resilient crop varieties. These measures maintain this risk at Medium.

Selected Risk Factor 4

Description	Risk category	Level of impact	Probability of risk occurring
Irrigation Management Committees do not participate in revitalization of irrigation schemes and feel no responsibility for Operations and Maintenance.	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

Confirmation of the willingness of IMCs to participate in revitalization of irrigation schemes and assume responsibility for O&M will be a key criterion for revitalization of their scheme by the project. The project will follow a participatory methodology in scheme revitalization with IMC members present and active during every step from design to maintenance. Farmers are required to put "skin in the game" in terms of financial commitment to IMC O&M funds, and this will be closely monitored by DoI and AGRITEX staff. Given the essential importance of irrigation to rural livelihoods, the probability of the risk of IMC disinterest is considered low.

Selected Risk Factor 5

Description	Risk category	Level of impact	Probability of risk occurring
Extreme weather events result in widespread erosion and sedimentation of irrigation infrastructure	Social and environmental	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

Design of irrigation infrastructure will be effected taking into account the worst-case scenario based on analysis of climate models as well as climate vulnerabilities of each selected irrigation scheme. While extreme weather events are expected to continue to occur and present high risks to irrigation infrastructure in general, climate-proofing using worst-case design parameters should maintain the probability of this risk occurring as medium. In addition, the project partners will work to mobilize resources and engage in partnerships for improved catchment management as a mitigation measure.

Selected Risk Factor 6

Description	Risk category	Level of impact	Probability of risk occurring
Private sector entrepreneurs decline to participate on Innovation Platforms as they perceive risks in terms of potential costs of time and effort to outweigh potential benefits	Technical and operational	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

Innovation platforms are designed to reach consensus around the development of specific climate-resilient crop or livestock value chains by involving all stakeholders, from production through to wholesale. Private sector entrepreneurs stand to gain from stable markets for inputs and outputs based on reliable production volumes, and they have expressed interest (in stakeholder consultations) in building stronger relationships with smallholders to access adequate amounts of produce for market. In addition, successful experiences from other projects

incl. the Scaling Up Adaptation project and ZRBF consortia projects demonstrate genuinely interested private sector partners and mutually beneficial partnerships for smallholder farmers and private sector alike. By entering into formal or semi-formal partnerships with smallholder organizations for production, together with technical assistance agencies and others, entrepreneurs are able to mitigate uncertainty in the supply of produce (volumes and quality) and augment the possibilities of significant returns on investments in production or post-harvest handling. The collaboration of government agencies and NGOs in these partnerships will reduce risk to the entrepreneurs and smallholders by providing training; technical assistance; market scoping/analysis; strengthening of market linkages; climate, weather and agricultural advisories; access to relevant research; and linkages to credit sources. In essence, the Innovation Platforms are designed to reduce risk to all parties involved, who stand to benefit from improved communication, collaboration, and consensus-building around climate-resilient value chain development. The value-chain sub-assessment in the Feasibility Study indicates that markets for the selected crops and livestock are sufficiently robust to absorb increased production and that, as a result, private sector companies and entrepreneurs are willing to engage in partnerships with smallholder organizations and others to strengthen market linkages and value chains. The probability of this risk occurring is medium.

Selected Risk Factor 7

Description	Risk category	Level of impact	Probability of risk occurring
Increase in community conflict and Gender Based Violence (GBV) due to challenging community gender norms and targeting women as equal beneficiaries of project interventions.	Social and environmental	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

In designing project activities, gender equity was a primary concern with the aim of strengthening opportunities for women in agricultural production and market linkages by providing them with additional skills and the required enabling factors. The norms and beliefs of community members in regard to “appropriate work for women” as well as exposure to GBV, will be addressed through ongoing consultations, community sensitization activities and equal participation in training, planning and other activities. A solid, gender-sensitive grievance mechanism will be established, which will allow beneficiary women to report any incidences of social conflict arising from their involvement in project activities. Each Innovation Platform will be constituted so that women and men are equitably represented, and the national Resilience Building Platform will have an explicit gender focal point to ensure that analysis of lessons and project experience, as well as discussions of potential policy reforms, are undertaken with a gender lens. Positive gender equity effects have been brought about in other projects, and this project expects to draw on these effective gender equality and gender empowerment methodologies – e.g. OXFAM implemented GEF/UNDP Scaling Up Adaptation and the GALS methodology in the FAO LFSP program. The probability of this risk occurring is medium. To mitigate against violence against women, the project will incorporate men and women dialogues on GBV. The FFS present appropriate platforms to establish fora for awareness and dialogue on GBV among targeted beneficiaries.

Selected Risk Factor 8

Description	Risk category	Level of impact	Probability of risk occurring
Lack of community ownership and buy-in to irrigation scheme revitalization	Social and environmental	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

The social support for irrigation scheme revitalization was assessed during project preparation. Given the underlying value of water availability and security to rural livelihoods, smallholders recognize the vital necessity of revitalization of their communal irrigation schemes. As the schemes represent a public good, communities have organized Irrigation Management Committees (IMCS) to operate and maintain their systems, including scheduling of irrigation and upgrading of field level equipment. While the IMCs have often suffered from organizational weaknesses that have impaired their abilities to adequately manage, resources, resolve conflicts, or plan for the future, this project will strengthen IMCs through participatory development of IMC constitutions delineating roles and responsibilities of participating smallholders;

training in organizational management and planning; linking IMCs to government agencies and NGOs, as well as to each other across catchments; and assistance in establishing and implementing Operations and Maintenance Funds. The project draws on effective IMC training methodologies from CRIDF and ZRBF partners and experiences from EU, FAO and IFAD. These measures reduce the probability of the risk to low.

Selected Risk Factor 9

Description	Risk category	Level of impact	Probability of risk occurring
Seasonal crop price fluctuations are a potential threat to smallholder adoption of market-dependent climate-resilient crops, as a fall in prices at an inopportune time could result in significant economic losses, thereby jeopardizing continued investment in resilience-enhancing inputs and technologies. Continuous assessment of crop prices is required to ensure that farmers will be protected from economic losses due to negative price fluctuations.	Social and environmental	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

This risk will be mitigated by including monitoring and analysis of crop price fluctuations as part of regular Innovation Platform discussions in tandem with training in farming as a business for AGRITEX staff and farmers. The Innovation Platforms will draw on the ZRBF and MLAWRR/ Dept of Economics and Markets systems for monitoring crop price fluctuations to support profit planning. These measures maintain the probability of the risk at medium.

Selected Risk Factor 10

Description	Risk category	Level of impact	Probability of risk occurring
Women are restricted from participating fully in agricultural production, market linkages and value chain development, although they represent the majority of smallholder farmers. Women are playing increasingly important roles in agriculture and rural livelihoods, however, due to local norms and beliefs around appropriate work for women, they are often relegated to specific areas of work identified as “women’s work”, and they do not enjoy the same access to resources as men do.	Social and Environmental	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

Restrictions on women’s participation in agriculture will be explicitly addressed by this project. Lack of knowledge and technical skills in agriculture will be addressed through training designed for women beneficiaries, and training will be designed in a gender responsive manner, including use of flexible times and the use of female trainers. Male household members will also receive awareness raising as to the economic and social benefits of women’s empowerment, and male “gender champions” will be identified and trained accordingly. Women will be explicitly represented on the Innovation Platforms (IP), and, where specific value chains for crops and animals deemed to be “women’s work” (e.g. goats, sesame) are focussed on, they will receive priority attention. Innovation Platform coordinators and public sector institutional representatives will target women’s production groups for potential partnerships with private sector entities, including buyers, processors, exporters, etc. Women smallholders will receive training in Farmer Field Schools in negotiation skills, financial management and access to markets. The project will collect gender-disaggregated data on the effectiveness of interventions and apply lessons learned from the project and other interventions in the target districts to refine interventions. Continuous stakeholder consultations with women will ensure that beneficiary concerns and perspectives are incorporated over subsequent years of the project. These measures keep the risk at Medium.

H.1. Logic Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level

Paradigm shift objective

Increased climate-resilient sustainable development	The project shifts the prevailing paradigm away from a focus on short-term, sectoral, production-oriented responses towards an integrated approach, in which all actors in specific climate-resilient value chains - producers, input providers, technical assistance agents, financial intermediaries, buyers and others – coordinate to overcome barriers to production and market access for climate-resilient crops, thus providing the incentive to maintain climate-resilient agricultural practices and cropping systems. Crop-specific strategies and partnerships between private and/or public entities will enable and sustain climate-resilient smallholder production from increased access to water for agriculture through climate-resilient irrigation systems and water resource management; scaled up climate-resilient agricultural production and diversification; and improved access to weather, climate and hydrological information for climate-resilient agriculture.
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Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	

Fund-level impacts

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Mid-term (if applicable)	Final	Assumptions
	Total number of direct and indirect beneficiaries	Social Impact Assessments ¹¹⁷ , Independent monitoring and evaluation reports; Progress / completion reports submitted by	<i>Direct</i> 0 males 0 females 0 total beneficiaries <i>Indirect</i> 0 males 0 females	<i>Direct</i> 108,724 males 108,724 females 217,448 total beneficiaries <i>Indirect</i> 351,700 males 351,700 females	<i>Direct</i> 271,810 males 271,810 females 543,620 total beneficiaries <i>Indirect</i> 879,250 males 879,250 females	The demographic composition and socioeconomic conditions remain largely consistent throughout the course of the project; the demand

¹¹⁷ The Social Impact Assessment will be linked to the Impact Evaluation that is already budgeted for in the project. The impact evaluation includes a baseline survey (year 1) and two follow-up surveys (years 3 and end of project).

<i>GCF core indicators (Adaptation)</i>		contractors for irrigation connectivity.	0 total beneficiaries	703,400 total beneficiaries	1,758,500 total beneficiaries	for freshwater and assistance for climate resilient agricultural practices remain more or less the same throughout the course of the project
	Number of beneficiaries relative to total population		0% of total population for the three provinces	9.6% of total population of the three provinces	24% of the total population of the three provinces	
<i>A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions</i>	A1.2 Number of males and females benefiting from the adoption of diversified climate resilient livelihood options (incl. fisheries, agriculture, tourism etc.)	Social Impact Assessments. Independent monitoring and evaluation reports; extension officers monitoring reports.	Male: 0 Female: 0	12,500 males 12,500 females 25,000 total	40,900 males 40,900 females 81,800 total (75,900 on rain-fed; 5,900 on irrigated land) ¹¹⁸	Capacity building activities will lead to behavioural change and implementation of CRA practices A minimal rate of adoption of 60% of CRA practices by farmers participating in the FFSs is feasible. Adoption of CRA practices by a farmer will benefit all family members of the farmer household. Enabling environments are created for strengthening of markets and value chains
<i>A2.0 Increased resilience of health and well-being and food and water security</i>	A2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses	Social Impact assessment District level data collected by Agritex, DOI; the survey administered to beneficiary farmers	Male: 0 Female: 0	1,250 males 1,250 females 2,500 total	2,850 males 2,850 females 5,900 total	Construction of climate proof and revitalized irrigation schemes leads to availability of reliable and safe water supply Access to climate proofed and revitalized irrigation schemes by a farm household benefits all family members.

¹¹⁸ The adoption rate of CRA practices for farmers' participation in the FFSs is estimated at 60%. In addition, the adoption of CRA practices by a farmer is anticipated to benefit all family members of the farmer household.



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H.1.2. Outcomes, Outputs, Activities and Inputs at Project level						
Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project outcomes	Outcomes that contribute to Fund-level impacts					
A6.0 Increased generation and use of climate information in decision-making	A6.2 Use of climate information products/services in decision-making in climate-sensitive sectors	Scorecard administered to assess the capacity of the MSD, AGRITEX, and ZINWA staff to develop inclusive climate advisories ¹¹⁹	TBD at project inception	155 AGRITEX staff score at least 75% on two out of the four criteria	155 AGRITEX staff in targeted districts score at least 75% across all four criteria	Hardware and software packages needed to generate forecasts and information products are available and adaptable on a timely basis.
	% of direct beneficiaries consistently using climate information/product and services in farming decisions	Survey administered to beneficiary farmers. Independent monitoring and evaluation reports; extension officers monitoring reports.	0	40% of GCF direct beneficiaries	80% of direct GCF beneficiaries	External research organizations/ NGOs with adequate technical capacities maintain their commitments to work at the district level. The information material would be available in such a form and language that they can be easily used by vulnerable communities.
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	A7.1 Use by vulnerable households, communities, business and public-sector services of Fund supported tools, instruments, strategies and activities to respond to climate	Scorecard administered to assess the uptake of CRA practices amongst smallholder farmers trained through the FFS ¹²⁰	Male: 0 Female: 0	30% of GCF direct beneficiary farmers (approx. 32,617 HHs; information collected through sampling) score at least 75%	60% of GCF direct beneficiary farmers (approx. 65,234 HHs; information collected through sampling) score at least 75%	Capacity building activities of smallholder farmers will lead to behaviour change and implementation of CRA practices. Markets and value chains are not disrupted by economic or other factors external to the project

¹¹⁹ The following criteria will be used: (be confirmed during the inception phase)

1. Localized weather, climate and hydrological model forecasts generated regularly
2. Use of water resource models and translation of forecasts into impacts
3. Develop information products incorporate indigenous knowledge and
4. Dissemination of advisories in an inclusive and gender responsive manner

¹²⁰ The following criteria will be used (to be confirmed during the inception phase):

1. Subscription and Active use of climate information products for crop/water management
2. Active use of climate-resilient crop varieties, crop-livestock systems, as well as water-efficient technologies
3. Active adoption for CRA practices promoted through the FFS curriculum.

	change and variability			across all four criteria	across all four criteria.	There is continued commitment and uptake of the information by targeted communities in the project. Sufficient measures are taken to ensure inclusion of most vulnerable communities among the beneficiaries of the interventions.
		District level data; Independent monitoring and evaluation reports;	TBD at project inception	TBD	On average, at least 25% increase in production for both GCF beneficiary farmers	No other social, economic or production factors negatively influence productivity.

Project/Programme Performance Indicators

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term	Final	
Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management	No. of hectares under climate-proofed irrigation	Satellite and GIS images from the impact assessment AGRITEX field reports DOI reports	11,066 ha under irrigation out of potential 25,285 ha in Southern Catchments / 15 districts of the three provinces	1,500 additional ha under climate-proofed irrigation	1,786 additional ha under climate-proofed irrigation	Capacities of Irrigation Management Committees (IMCs) for operations and maintenance will be unaffected by external events.
	Number of rain-fed hectares exhibiting water harvesting and climate-resilient water management measures	A survey administered to Output 1 beneficiaries ¹²¹	0	30,000 ha	75,900 ha	

4. Participation in O&M fund, community open learning days, and participatory planning.

¹²¹ The following criteria will be used (criteria to be confirmed during the inception phase):

1. Accessibility of water during the cropping season
2. Adequacy (availability) of water for cropping purposes
3. Application of water saving measures

<p>Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets</p>	<p>Average level of production increases (%) per hectare in newly irrigated hectares (tons/ha)</p>	<p>Provincial level data; Independent monitoring and evaluation reports; Agritex field reports AGRITEX FFS follow-up surveys of lead farmers</p>	<p>0 (baseline yields for newly irrigated schemes vary by crop, and are subject to change since the last update, but will use the following as starting points, to be confirmed at inception: 1. Maize: 0.1 tons/ha 2. Beans: 1 t/ha 3. Groundnuts: 0.5 t/ha</p>	<p>At least 0% (or non-declining) decrease ¹²²in productivity for GCF beneficiary farmers</p>	<p>At least 25% increase in productivity for GCF beneficiary farmers</p>	<p>Capacity building activities of smallholder farmers will lead to behavior change and uptake of CRA practices. Application of climate-resilient agricultural practices/cropping systems by farmers will result in increased yields after year 2; women smallholder farmers will be motivated to participate in FFS; market incentives to grow high-value crops will be strong enough to motivate farmers to plant them.</p>
	<p>Number of smallholder farmers implementing climate-resilient agricultural practices/cropping systems</p>	<p>Scorecard administered to assess the uptake of CRA practices amongst GCF direct beneficiary farmers; indirect beneficiary farmers¹²³)</p>	<p>Male: 0 Female: 0</p>	<p>30% of beneficiary farmers practicing CRA on rain-fed and irrigated land score at least 75% across all four criteria</p>	<p>60% of beneficiary farmers practicing CRA on rain-fed and irrigated land score at least 75% across all four criteria</p>	<p>Markets and value chains are not disrupted by economic or other factors external to the project</p>
<p>Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture</p>	<p>Numbers of operational monitoring stations in key catchments and VIS systems.</p>	<p>MSD, AGRITEX and ZiNWA field reports Training records</p>	<p>47 operational Manual Synoptic Stations and 17 part-time Manual Synoptic Stations in key catchments.</p>	<p>Additional 12 AWS, 10 low cost weather stations, additional 10 hydro installed</p>	<p>Additional 12 AWS, 10 low cost weather stations, additional 10 hydro fully functional and maintained</p>	<p>Telecom networks maintain coverage and quality, accessible to smallholders No negative economic or other factors affect availability of key equipment</p>

¹²² With no interventions, it is expected that climate change/variability will lead to yield declines below the baseline (see feasibility study Section 1.7). Climate change adaptation will initially lead to at least a stabilization of yields in the first half of the project across the different crops.

¹²³The following criteria will be used (the criteria to be confirmed during the inception phase):

1. Subscription and Active use of climate information products for crop/water management
2. Active use of climate-resilient crop varieties, crop-livestock systems, as well as water-efficient technologies
3. Active adoption of CRA practices promoted through the FFS curriculum.
4. Participation in O&M fund, community open learning days, and participatory planning.

	Number of smallholders receiving new advisories and warnings developed for both agriculture and water management and disseminated through media, including SMS and radio.	Archives of advisories and warnings	No smallholder farmers receiving regular tailored weather information from MET	180,000 people (36,000 rural households) in 15 districts have access to weather information 90,000 males 90,000 females (50 % women)	543,620 people (108,724 rural households) in 15 districts have access to weather information 271,810 males 271,810 females	
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Activities

Activity	Description	Sub-Activities	Deliverables
1.1: Climate proofing irrigation infrastructure for enhanced water security in the face of climate change	<p>This activity will provide sustained direct access to water for 5,900 smallholder households, of which 50% are female-headed (29,500 people) through investments in climate-proofing and revitalizing 21 climate-vulnerable irrigation schemes in 15 Districts of the three southern provinces through upgrading of water provision equipment and infrastructure, together with more effective operations and management (O&M). Existing irrigation infrastructure and equipment will be climate-proofed (see Irrigation Sub-assessment for technical details), and Irrigation Management Committees' (IMCs) capacities will be built through training in climate-resilient O&M of irrigation systems as well as the planning and management of scheme-specific O&M Funds for financial and operational viability of the schemes.</p> <p>Climate-proofing investment will be site-specific and will involve a variety of measures, including appropriate design and siting of equipment and infrastructure based on climate risk, hydrological and other assessments, as well as bioengineering and other techniques to protect irrigation investments from climate impacts, such as extreme rainfall and flash floods, and making water use more efficient in the event of drought (see Chapter 3, section 3.3.1 of the Feasibility Study).</p> <p>To achieve long-term sustainability of the communal irrigation schemes, IMCs will receive comprehensive training in technical, financial and managerial aspects of water management, as well as establish and strengthen O&M Funds through development of strategic capitalization plans.</p> <p>The O&M Plan is described in detail in Annex XIII of this proposal. The IMC is trained to carry out basic O&M, resorting to specialized expertise for problems that exceed their capacities. Costs of expert troubleshooting and spare parts or materials will be covered by O&M funds capitalized by the farmers themselves with modest annual contributions derived from the sale of enhanced CRA yields. DOI will monitor and provide on-demand technical support to IMCs in regard to O&M, teaching basic on-site troubleshooting and management of the systems.</p> <p>O&M training will consist of two regional two-day workshops on: a) climate-adapted operations and maintenance of irrigation systems, b) project planning and monitoring methods c) organizational</p>	<p>1.1.1 Climate-proofing and revitalizing existing irrigation infrastructure and equipment in 21 irrigation schemes (see Irrigation Sub-Assessment for detailed description)</p> <p>1.1.2 Training of 21 Irrigation Management Committees (IMCs) in climate-adapted O&M and monitoring, and establishment of O&M funds</p> <p>1.1.3 Field visits and technical advisory support by DOI to IMCs to support climate-resilient O&M and operationalization of the O&M funds based on detailed O&M plan</p> <p>1.1.4 Learning and knowledge exchange workshops across IMCs to improve coordination and scaling up of climate resilient irrigation systems (9 provincial district level peer meetings)</p>	<ul style="list-style-type: none"> - 6 New irrigation schemes climate-proofed and 15 existing irrigation schemes revitalized. (21 irrigation schemes in total) - 21 IMCs trained in climate-adapted O&M and monitoring through 21 workshops - 6 provincial DOI and AGRITEX staff and 52 district level AGRITEX staff trained on O&M through 12 workshops - O&M fund operationalized - 9 IMC peer learning workshops organized - 1 Women's IMC leadership empowerment programme conducted.

	<p>management and administration, conflict resolution, and establishment and fiscal management of O&M Funds.</p> <p>The project also invests in linking IMCs across the three provinces to facilitate exchange visits, dissemination of climate adaptation knowledge and best practice, and achieve scale economies in training and coordination for market, water resource planning at Catchment and Sub-Catchment levels and other activities.</p>		
<p>1.2: Field-based training and technology investments for farmers on rain-fed for climate-resilient water management</p>	<p>This activity will decrease the climate vulnerability of smallholders on rain-fed lands by training them in Farmer Field Schools and on-farm to adopt and implement land use practices that harvest rainwater, use water efficiently and conserve soil moisture. After completion of FFS training, participating farmers will implement measures on their own plots and extend their knowledge and skills to approximately 10 additional farmers each, under the supervision of AGRITEX extension workers.</p> <p>The project invests in building the capacities of smallholder farmers, particularly women, to manage rainwater and soil moisture efficiently to reduce or potentially eliminate water stress from climate change-induced dry spells of limited duration. Through hands-on training lead farmers will develop the skills necessary to adopt and apply climate-resilient water resource management techniques and practices aimed at maximizing water availability on rain-fed farmland. These techniques and practices may include contour bunds; terraces; cover crops; gabions; gully plugs; zai pits; mulches; conservation tillage; agroforestry; rainwater harvesting; and/or others.</p> <p>Lead farmers in Farmer Field Schools will build their awareness and understanding of the hydrological cycle, the role of organic matter in retaining soil moisture, etc.</p> <p>Lead farmers will apply their new knowledge and skills to implementation of these techniques and practices on their own plots as well as working directly with an additional 69,000 beneficiary farmers to do the same on their plots. GCF funds will support procurement of materials, tools and other inputs for lead farmer plots. Farmers are expected to contribute 30-50% of the cost.</p> <p>To support scale-up and replication, AGRITEX staff will support and supervise each lead farmer in training additional farmers. Farmer-to-farmer exchange and learning is facilitated through field visits and on-site technical support.</p>	<p>1.2.1 Field-based training of 6,900 lead rain-fed farmers in 230 Farmer Field Schools in rainwater harvesting, soil moisture management techniques and water efficiency practices (six sessions over two years for each FFS of 30 lead farmers each)</p> <p>1.2.2 Procurement and installation by farmers of technologies to implement climate-resilient water-resource management in rainfed farmlands</p> <p>1.2.3 Participatory workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient water resource management (Two open community learning days per FFS, under AGRITEX supervision)</p>	<ul style="list-style-type: none"> - 6,900 lead rain-fed farmers trained through 1,380 Farmer-Field-Schools sessions in rainwater harvesting, soil moisture management techniques and water efficiency practices - 230 Farmer-Field-Schools organized for dryland farmers i.e Small-grain and livestock, and sesame. (six sessions over two years for each FFS of 30 lead farmers each)6,900 farmers provided with technologies to implement climate-resilient water-resource management in rainfed farmlands. - 251 participatory workshops in the form of 2 open learning days organized (One workshop per FFS). - Audio visual and communication materials developed for to promote learning
<p>2.1: Establish transformative multi-stakeholder innovation platforms for diversified climate resilient agriculture and markets</p>	<p>This activity supports up-scaling of climate smart agricultural production by empowering smallholders to coordinate their production and access to market linkages through Innovation Platforms (IPs) comprised of the public and private stakeholders associated with specific, climate-resilient crop and livestock value chains. These stakeholders include the key actors and entities involved in the production and marketing of these crops: farmers, input suppliers, credit providers, buyers, processors, technical assistance agencies, and research institutions, as well as representatives of key donors, such as ZRBF.</p> <p>Five multi-stakeholder Innovation Platforms will be formed across 15 Districts. Each Innovation Platform will be coordinated and</p>	<p>2.1.1 Technical assistance, trainings and meetings to establish, operationalize, and coordinate five multi-stakeholder Innovation Platforms (through quarterly meetings over four years) across 15 districts and one national-level Platform (through bi-annual meetings over four years) for upscaling diversified climate resilient</p>	<ul style="list-style-type: none"> - 9 trainings in facilitation of CIPs for DR&SS and AGRITEX staff organized - 5 commodity innovation platforms operationalized - 1 National level platform operationalized for upscaling diversified climate resilient production and access to markets

<p>facilitated by assigned AGRITEX and DR&SS staff, with the assistance of key institutions and other entities (NGOs, private sector, international research organizations). IPs will meet quarterly during the product cycle based on an agreed plan for strengthening the respective value chain and market linkages and catalyzing market access.</p> <p>The constituents of each Innovation Platform together analyze the strengths and weaknesses, opportunities and threats associated with current production and market linkages of a specific crop identified in the Value Chain Sub-Assessment of the Feasibility Study as a starting point.</p> <p>Based on the crop-specific SWOT analysis, each Innovation Platform will be supported to develop an agreed strategy and plan to strengthen smallholder production and market linkages for the selected crop. The objectives, outcomes and outputs of each Innovation Platform strategy will aim at ensuring climate-resilient agricultural production of a specific climate-resilient crop (identified during project preparation, based on climate vulnerability, agro-ecological, social and economic criteria) and enabling the market incentives and multi-stakeholder partnerships to sustain it.</p> <p>Each Innovation Platform will broker practical partnerships between actors on the multi-stakeholder Innovation Platforms to address concrete obstacles to smallholder production and access to markets for climate-resilient crops. Partnerships are expected to address issues of adequate and timely supply of inputs, credit availability, post-harvest processing requirements, technical assistance to smallholders, and/or contractual agreements, as identified by each Innovation Platform strategy. ZRBF consortia partners will be invited to participate in Innovation Platform deliberations or contracted to lead them in partnership with DR&SS and AGRITEX.</p> <p>Access to finance by smallholders will be facilitated as a function of crop-specific production strategies and partnership development. As financing requirements become clear for production and marketing of CRA products, Innovation Platform partners will identify and engage financial intermediaries from the public and/or private sector. This engagement may take the form of contract farming, micro-credit, bank financing or other. Technical assistance will be provided to farmer production groups on-demand in the form of legal, financial, business or other expertise. Financial intermediaries interested in engaging with producers' groups may also receive TA so they fully comprehend the potential risks, benefits and other aspects of investing in CRA.</p> <p>Innovation Platform strategies will frame the basic "curriculum" of Farmer Field Schools i.e. the specific skills, practices and techniques that need to be acquired by smallholders for climate-resilient production of the selected crop. Given that farmer plots are usually very small, and production at scale is required for market access, the project will work with cooperatives and other producers' groups. These groups will be able to access technical expertise not only for agricultural production issues but also for legal, financial and business management aspects.</p> <p>The value chain sub-assessment in the Feasibility Study identified specific crops (including livestock) with high potential for stronger,</p>	<p>production and access to markets</p> <p>2.1.2 Develop crop-specific production and market strategies for use by all relevant value chain actors for climate-resilient production and market access (two-day strategy development workshops per platform per year over 4 years and at least five plans)</p> <p>2.1.3 Technical assistance (including legal support services to farmer organizations) to facilitate and formalize public-private partnerships across value-chain actors to upscale climate-resilient agricultural markets</p> <p>2.1.4 Technical assistance and business planning and management training to smallholder farmers, particularly women and financial intermediaries to enable access to finance for sustained scaling up climate-resilient agriculture</p>	<ul style="list-style-type: none"> - Two-day strategy development workshops organized per platform per year over four years - Contract farming agreements with smallholder producer groups formalized through legal support services procured - Three streams of women's leadership programme including economic leadership programme, Gender equity programme and Empowerment programmes organized.
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	<p>more effective market linkages. These can be found in the Value Chain Sub-Assessment of the Feasibility Study, Annex IIc.</p>		
<p>2.2: Investments in inputs, technologies and field-based training to scale up the implementation of climate-resilient agricultural production in the face of increasing climate hazards (rain-fed and irrigated farms)</p>	<p>This activity will support government extension services – using a participatory methodology – to adapt and widely disseminate demand-driven, climate-resilient agricultural practices (based on packages developed during project design) for rain-fed and irrigated farms in southern Zimbabwe. Smallholder farmers, particularly women, will join 251 Farmer Field Schools to adapt recommended packages of climate-resilient practices and technologies to their production of greater and more sustainable yields of staples and high-value crops, as an important contribution to food security in the face of increasing climate hazards.</p> <p>As such, this activity invests in training of trainers for Farmer Field Schools, as well as the participation of farmers in the development, testing and adaptation of CRA packages on centralized FFS plots and in farmers’ fields, together with dissemination of knowledge and experience to other farmers post FFS.</p> <p>AGRITEX, with the support of DR&SS, ICRISAT, CIMMYT and other partners, have led the development of climate-resilient agricultural practices during project design and will supervise their participatory field testing and adaptation to different smallholder agro-ecological and economic conditions through Farmer Field Schools located in each of 15 districts and 137 wards. Lead farmers identified during two seasons of FFS activities will disseminate lessons and best practice to their peers with the support of AGRITEX, NGOs and, where applicable, private entrepreneurs.</p> <p>CRA packages identified through consultations during proposal preparation are confirmed/adapted/ refined through analysis of farming systems and agro-ecological principles in FFS under actual smallholder conditions. CRA packages may include practices such as crop diversification, soil conservation, use of climate-resilient crop varieties, appropriate tillage techniques, incorporation of trees and shrubs into cropping systems, multiple cropping/ polycultures, integrated crop-livestock systems, as well as water-efficient practices (to be supported under Output 1) and others.</p> <p>Lead farmers will implement CRA practices and cropping systems on their own plots (avg plot size on dryland = 0.5 ha; 3450 total has) either individually or collectively as centralized locations in their respective villages for farmer-to-farmer learning. The costs of inputs and technologies to implement CRA practices on these plots will be split equally between farmers and the FFS who will procure required inputs.</p> <p>The knowledge and experience gained during FFS are codified and disseminated post FFS to smallholders in the community and district through exchange visits, easy-to-access information circulars, and other means, organized by AGRITEX. Lead farmers will work with AGRITEX staff to plan systematic outreach to other smallholders and their incorporation into extended practitioner groups of 10 farmers each, resulting in an overall number of lead farmers and beneficiary farmers of 75,900 smallholder households, equal to 379,500 people on dryland – and a total of 5,900 households and 29,500 people on irrigated land.</p>	<p>2.2.1 Training of Trainers (155 national, provincial, district and ward level AGRITEX staff), particularly women, to conduct Farmer Field Schools in 15 target Districts of southern Zimbabwe</p> <p>2.2.2 Organization and operationalization of 251 Farmer Field Schools for promotion of climate-resilient agriculture in the 15 Districts</p> <p>2.2.3 Procurement of inputs and technologies (e.g. seeds, tools, fertilizers) to implement CRA packages on 6,900 lead farmer plots</p> <p>2.2.4 Workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient agricultural practices and cropping systems (One community open day per FFS. Under AGRITEX supervision, each lead farmer engages additional 10 farmers each through workshops and on-site assistance)</p>	<ul style="list-style-type: none"> - 155 national, provincial, district and ward level AGRITEX staff trained through i) Training-of-Trainers (ToT) and Annual review meetings at national and provincial level; ii) District and Ward level trainings on CRA best practices; and women’s financial leadership and gender equality. - Baseline assessments conducted to determine priority and baseline investments and best practices for key value chains - 251 Farmer-Field-Schools organized for Small-grain and livestock, and sesame over the entire project period. - CRA packages for first and second seasons with matching contributions provided to 6,900 lead farmers. - 251 community open days organized to facilitate farmer-to-farmer learning.

<p>2.3: Enhance institutional coordination and knowledge management capacities for climate-resilient agricultural production in the face of increasing climate hazards</p>	<p>This activity will support the improved coordination and strategic, systematic knowledge management and sharing of knowledge among key government departments, namely AGRITEX and DR&SS in collaboration with Department of Livestock and Veterinary Services, Department of Irrigation and Department of Economics and Markets. This activity will facilitate improved data generation, collection systems and knowledge sharing protocols for effective collaboration across departments. It will also support evidence-based learning and codification of best practices/lessons to enable future upscaling/out-scaling of climate-resilient agricultural livelihoods and markets.</p> <p>AGRITEX will work closely with the support of DR&SS as the research department of MLACWRR, to guide the systematic collection, compilation and sharing of data (through enhanced ICT and GIS platforms) in close collaboration with the other MLACWRR departments, namely the Department of Economics and Markets and AGRITEX, Department of Livestock and Veterinary Services and Department of Irrigation.</p> <p>The focus will be on ensuring that the lessons learned, and best practices identified through FFS and Innovation Platforms are scaled up and shared across departments at the national level in a systematic, clear and evidence-based format that facilitates decision making and out-scaling of practices.</p>	<p>2.3.1 Upgrade ICT/GIS data collection/sharing platforms and protocols for knowledge management on climate resilient agricultural systems and livelihoods across knowledge centers in participating agricultural colleges and research centers</p> <p>2.3.2 Generation, codification and exchange of knowledge across agricultural colleges and research centers for climate-resilient agriculture</p> <p>2.3.3 Impact evaluation and codification of best practices/lessons for systemic, evidence-based learning to scale-up resilient agricultural livelihoods</p>	<ul style="list-style-type: none"> - ICT systems upgrades, GIS data collection, sharing platforms and protocols completed - Communication and audiovisual materials developed to promote learning - 10 International and 10 regional level exchange programmes for knowledge sharing and learning purposes undertaken - Establishment knowledge hubs/centers across three agricultural colleges and existing DR&SS research centers to facilitate activities for experience sharing across 15 districts - Baseline assessment study and evaluations conducted; - 10 evidence-based publication on CRA best practices and recommendations published
<p>3.1: Installation and operationalization of weather/climate and hydrological observation networks</p>	<p>This activity will support the installation, operation and maintenance of monitoring equipment in key catchments encompassing the 15 districts and VIS systems. Capacity building activities will be focused on staff specifically involved relevant to hydromet and forecast services. Field staff will be trained to operate and maintain this equipment. The MSD will receive training on developing weather and seasonal forecasting capabilities.</p>	<p>3.1.1: Install 12 automatic weather stations to cover key agricultural zones and 10 automatic low-cost rainfall/weather stations to improve rainfall monitoring in the three catchments</p> <p>3.1.2: Install 10 water level/gauging stations at strategic points in the three catchments</p> <p>3.1.3: Upgrade systems and institutional capacities for hydro-meteorological data transmission and processing to enable localized weather, climate and hydrological model forecast generation</p> <p>3.1.4: Train MSD, ZiNWA, DR&SS/AGRITEX officials, community observers (low-cost stations) in collecting data, operating and maintaining equipment</p>	<ul style="list-style-type: none"> - 12 automatic weather stations installed - 10 automatic low-cost rainfall/weather stations installed - 10 water level/gauging stations installed - 259 MSD/ZiNWA staff trained in i) the O&M of the infrastructure; ii) the interpretation and dissemination of the data acquired; and iii) Downscaling of weather and seasonal forecasts, as well as the use of satellite observations will be enhanced. (One training each for MSD, ZINWA and community observers from the three catchments for two years) - Software package installation including training at MSD completed to help develop tailored forecasts for water resources and agriculture based on observations and forecasts - Satellite debiasing code, procedures and training to provide satellite rainfall estimates in real time completed

<p>3.2: Develop, disseminate and build institutional capacities (MSD and AGRITEX) on tailored climate and weather information products</p>	<p>This activity will establish and operate a system for development of new advisories and warnings for both agriculture and water management and dissemination through media, including SMS and radio.</p> <p>Advisories for agriculture and water management for smallholder farmers will be developed through coordinated institutional working groups at the national level. A separate development process will be undertaken to ensure data is communicated in useful forms. Different media will be used for dissemination to maximize the potential reach to all sectors of society, particularly women.</p>	<p>3.2.1: Develop information products, incorporating indigenous knowledge, that strengthen existing national satellite/observation-based weather, 10-day and seasonal forecasts and advisories targeted to smallholder farmers</p> <p>3.2.2 Train national level ZINWA staff (partnering with UoZ) in the use of water resource models (2 trainings in WEAP and Pitman models) as well as ingesting input data from weather/climate observations and forecasts</p> <p>3.2.3 Develop regular hydrological forecasts, incorporating daily updates of hydromet observations and forecasts</p> <p>3.2.4: Disseminate climate information through mobile phones, community radio, community meetings and local posters and bulletins (costs of SMS messaging, design and formatting advisories, community radio programmes, 20 community meetings)</p>	<ul style="list-style-type: none"> - Contractual agreements between two interagency groups established for i) Agromet advisories for dryland farming (AGRITEX, MSD and DR&SS); and ii) water resource and irrigation scheduling advisories for water managers and IMCs (ZinWA, MSD, DOI) - Agromet advisories; and ii) water resource and irrigation scheduling advisories - 4 ICT packages (equipment and data analysis software for training 5 persons per institution (25 in total) and 1 ICT Server and storage equipment installed - Two trainings on the use of water resource models conducted (WEAP and/or Pitman models) - Computer code and procedures at ZinWA operationalized, including data feeds with MSD servers to receive real time rainfall observations + data feeds from AWL hydrological stations. operationalize assimilation of observations and forward projections using water resource models and weather and seasonal forecasts from MSD . - Information and broadcasting service providers used for dissemination of advisories through SMS and community radio programmes established - Designs and local translation of advisories and related training materials available. - 20 community meetings organized to disseminate climate information
<p>3.3: Capacity building for farmers and local institutional staff on effective use of climate and weather information</p>	<p>This activity will support beneficiaries, IMCs and CCs to understand and utilize climate/weather/ hydrological information products for managing climate-related risks. It will also assess the market for climate information services as well as engaging with the private sector, and developing DR&SS/AGRITEX offices as knowledge centers.</p> <p>The capacities of local level institutions (Dol, ZINWA, CCs and IMCs) and service providers to understand, modify/develop and utilize weather, climate and hydrological advisories will be developed to better support IMCs and smallholders.</p>	<p>3.3.1: Training of local level Dol, ZINWA and CC staff in data analysis and production of information products (based on observed and forecast water levels and weather/climate forecasts) for water resource management</p>	<ul style="list-style-type: none"> - 3 trainings for Dol, ZINWA and CC staff in 3 catchments organized - Flood risk maps developed at UoZ and Guidelines for flood risk to support climate resilient irrigation infrastructure developed and available - 7530 lead farmers and 171 district and local level intermediaries

<p><i>and products for resilient water management and agricultural planning</i></p>	<p>Climate knowledge centers will be created at existing DR&SS and AGRITEX offices.</p>	<p>3.3.2: Participatory training of farmers and district and local level intermediaries – including Agriculture Extension, MSD and IMC staff - in interpretation and use of climate and weather information products for crop/water management</p> <p>3.3.3 Set up communication and database systems to facilitate climate information management (equipment and communication materials) at three agricultural training colleges - Masvingo, Makoholi, and Esigodin (printing and distribution materials, translation into local languages, communication costs)</p>	<p>trained through participatory methods.</p> <ul style="list-style-type: none"> - Printing and distribution of print materials completed (advisories, climate education) at DR&SS and Agritex offices in 15 districts - Communication and database systems (equipment, software, transmission and delivery facilities -emails, internet, cellphones - for sending and receiving agricultural forecasts) available at training colleges, Agritex offices and DR&SS
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H.2. Arrangements for Monitoring, Reporting and Evaluation

286. Project-level monitoring and evaluation will be undertaken in compliance with the [UNDP POPP](#) and the [UNDP Evaluation Policy](#). The primary responsibility for day-to-day project monitoring and implementation rests with the Project Manager. The Project Manager will develop annual work plans to ensure the efficient implementation of the project. The Project Manager will inform the Project Board and the UNDP Country Office of any delays or difficulties during implementation, including the implementation of the Monitoring & Evaluation (M&E) plan, so that the appropriate support and corrective measures can be adopted. The Project Manager will also ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results.

287. The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The UNDP Country Office is responsible for complying with UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). Additional M&E, implementation quality assurance, and troubleshooting support will be provided by the UNDP Regional Technical Advisor as needed. The project target groups and stakeholders including the NDA Focal Point will be involved as much as possible in project-level M&E.

288. A project inception workshop will be held after the UNDP project document is signed by all relevant parties to: a) re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation; b) discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms; c) review the results framework, re-assess baselines as needed, and discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E plan; d) review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; e) plan and schedule Project Board meetings and finalize the first year annual work plan. The Project Manager will prepare the inception report no later than one month after the inception workshop. The final inception report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board.

289. A project implementation report will be prepared for each year of project implementation. The Project Manager, the UNDP Country Office, and the UNDP Regional Technical Advisor will provide objective input to the annual PIR. The Project Manager will ensure that the indicators included in the project results framework are monitored annually well in advance of the PIR submission deadline and will objectively report progress in the Development Objective tab of the PIR. The annual PIR will be shared with the Project Board and other stakeholders. The UNDP Country Office will coordinate the input of the NDA Focal Point and other stakeholders to the PIR. The quality rating of the previous year's PIR will be used to inform the preparation of the next PIR. The final project PIR, along with the terminal evaluation report and corresponding management response, will serve as the final project report package. Semi-annual reporting will be undertaken in accordance with UNDP guidelines for quarterly reports that are produced by the project manager.

290. An independent mid-term review process will be undertaken and the findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the final MTR report will follow the standard templates and guidance available on the [UNDP Evaluation Resource Center](#). The final MTR report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board. The final MTR report will be available in English. An independent terminal evaluation (TE) will take place no later than three months prior to operational closure of the project. The terms of reference, the review process and the final TE report will follow the standard templates and guidance available on the [UNDP Evaluation Resource Center](#). The final TE report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board. The TE report will be available in English. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the management response to the public UNDP Evaluation Resource Center (ERC) (www.erc.undp.org). The

MTR and TE will be carried out by an independent evaluator. The evaluation report prepared by the independent evaluator is then quality assessed and rated by the UNDP Independent Evaluation Office.

291. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations. A detailed M&E budget, monitoring plan and evaluation plan will be included in the UNDP project document.

292. A key tool for MRV for the project is the field reports and gender-sensitive impact surveys that will be conducted (by PMU, Gender Officer, and AGRITEX field level extension officers) throughout the project to monitor progress of implementation and progress towards the expected outputs and outcomes. To monitor and verify the irrigation systems revitalization and adoption of climate-resilient agriculture packages, field inspection of infrastructure sites will be conducted by AGRITEX and Department of Irrigation (DOI) through district offices. Installations are captured in the community irrigation system database of DOI that will be reviewed during the mid-term and final evaluations to report on progress. AGRITEX databases on farm households and cropping intensities will also be reviewed for progress on reach of agricultural practices and improved productivities. For data and information on livestock, the Department of Livestock Production and Development (DLPD) and the Department of Veterinary Services will be involved. Household surveys will also be conducted through AGRITEX and DLPD/DVS to monitor the progress and capture the impact of the project. These will include sections with questions dedicated to understanding the social and economic co-benefits such as trends in time use, household income and expenditures. Finally, the development and diffusion of advisories, early warnings, and forecasts will be monitored through field surveys conducted by MSD, AGRITEX and DLPD/DVS (for communities, end-user farmers and non-farmers, extension services, etc.).

293. While the Zimbabwe CO, through its ongoing presence in the country, will continue to engage with the GoZ, there is no provision for human and financial resources to undertake formal reporting post-completion of the project. Information, where available, will be communicated to the GCF Secretariat as feasible.

I. Supporting Documents for Funding Proposal

- NDA No-objection Letter **Annex I**
- Feasibility Study **Annex II**
- Financial Analysis **Annex III (a)**
- Financial Analysis (excel) **Annex III (b)**
- Confirmation letter or letter of commitment for co-financing commitment **Annex IV**
- Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) **Annex V**
- Social and Environmental Screening Template (SESP) **Annex VI (a)**
- Environmental and Social Management Framework (ESMF) **Annex VI (b)**
- Environmental and Social Report Disclosure **Annex VI (c)**
- Appraisal Meeting Report **Annex VII**
- Evaluation Report of the baseline project
- Map indicating the location of the project/programme **Annex IX**
- Timetable of project implementation **Annex X**
- Project/Programme Confirmation **Annex XI**

Additional Information

- Economic Analysis **Annex XII (a)**
- Economic Analysis (excel) **Annex XII (b)**
- Procurement Plan **Annex XIII (a)**
- Operations & Maintenance (O&M) Plan **Annex XIII (b1-b3)**
- Gender Assessment and Action Plan **Annex XIII (c)**
- Stakeholder consultation **Annex XIII (d-1)**
- Stakeholder Engagement Plan **Annex XIII (d-2)**
- Detailed budget and work Plan **Annex XIII (e)**
- HACT assessment **Annex XIII (f)**
- Responses to GCF comments on Concept Note **Annex XIV (a)**
- Responses to GCF comments on Funding Proposal **Annex XIV (b)**
- UNDP Endorsement Letter **Annex XV**

No-objection letter issued by the national designated authority(ies) or focal point(s)

All communications should be addressed to
"The Secretary for Environment, Water and
Climate"

Private Bag 7753
Causeway, Harare
Zimbabwe

Telephone: 701681/3, 701691/2, Fax: 252673

Your Ref.

20 August, 2018

The Executive Director
Green Climate Fund ("GCF")



ZIMBABWE

MINISTRY OF ENVIRONMENT, WATER &
CLIMATE
Kaguvi Building
Corner 4th Street/Central Avenue
Harare
Zimbabwe

Re: Letter of No Objection for Funding proposal for the GCF by the United Nations Development Programme (UNDP) entitled 'Building climate resilience of vulnerable agricultural livelihoods in southern Zimbabwe'.

We refer to the programme and proposal on Building climate resilience of vulnerable agricultural livelihoods in southern Zimbabwe as included in the funding proposal submitted by the United Nations Development Programme (UNDP) to us on 17 August 2018.

The undersigned is the duly authorized representative of the Ministry of Environment, Water and Climate Change, the National Designated Authority/focal point of Zimbabwe.

Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the programme as included in the funding proposal.

By communicating our no-objection, it is implied that:

- (a) The government of Zimbabwe has no-objection to the programme as included in the funding proposal;
- (b) The programme as included in the funding proposal is in conformity with Zimbabwe's national priorities, strategies and plans;
- (c) In accordance with the GCF's environmental and social safeguards, the programme as included in the funding proposal is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no-objection to the project as included in the funding proposal has been duly followed.

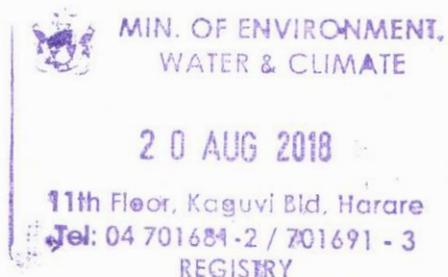
We also confirm that our no-objection applies to all projects or activities to be implemented within the scope of the programme.

We acknowledge that this letter will be made publicly available on the GCF website.

Kind regards,

Name: **Washington Zhakata**

Title: **GCF National Focal Point and Director - Climate Change Management Department**



Environmental and social safeguards report form pursuant to para. 17 of the IDP

Basic project or programme information	
Project or programme title	Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe
Existence of subproject(s) to be identified after GCF Board approval	No ¹
Sector (public or private)	Public
Accredited entity	United Nations Development Programme (UNDP)
Environmental and social safeguards (ESS) category	Category B
Location – specific location(s) of project or target country or location(s) of programme	Zimbabwe, with a Focus on Manicaland, Masvingo and Matebeleland South Provinces
Environmental and Social Impact Assessment (ESIA) (if applicable)	
Date of disclosure on accredited entity's website	Friday, February 7, 2020
Language(s) of disclosure	English
Explanation on language	English is the official working language in Zimbabwe, and stakeholders will be able to understand the and provide any feedback in English
Link to disclosure	https://www.zw.undp.org/content/dam/zimbabwe/docs/Environment%20and%20Energy/Building%20Climate%20Resilience%20of%20Vulnerable%20Agricultural%20Livelihoods%20in%20Southern%20Zimbabwe.pdf
Other link(s)	
Remarks	
Environmental and Social Management Plan (ESMP) (if applicable)	

¹ There are no unidentified sub-projects. Within the ESMF, there is a screening process to cover elements of implementation such as activities, TAs, and other sub-components, the term sub-project has been used to collectively describe these elements.

Date of disclosure on accredited entity's website	Saturday, February 1, 2020
Language(s) of disclosure	English
Explanation on language	English is the official working language in Zimbabwe, and stakeholders will be able to understand the and provide any feedback in English
Link to disclosure	https://www.zw.undp.org/content/dam/zimbabwe/docs/Environment%20and%20Energy/Building%20Climate%20Resilience%20of%20Vulnerable%20Agricultural%20Livelihoods%20in%20Southern%20Zimbabwe.pdf
Other link(s)	
Remarks	
Environmental and Social Management System (ESMS) (if applicable)	
Date of disclosure on accredited entity's website	Saturday, February 1, 2020
Language(s) of disclosure	English
Explanation on language	English is the official working language in Zimbabwe, and stakeholders will be able to understand the and provide any feedback in English
Link to disclosure	https://www.zw.undp.org/content/dam/zimbabwe/docs/Environment%20and%20Energy/Building%20Climate%20Resilience%20of%20Vulnerable%20Agricultural%20Livelihoods%20in%20Southern%20Zimbabwe.pdf
Other link(s)	[_]
Remarks	Link to the ESMF was also sent to stakeholders
Any other relevant ESS reports, e.g. Resettlement Action Plan (RAP), Resettlement Policy Framework (RPF), Indigenous Peoples Plan (IPP), IPP Framework (if applicable)	
Description of report/disclosure on accredited entity's website	Saturday, February 1, 2020
Language(s) of disclosure	English
Explanation on language	English is the official working language in Zimbabwe, and stakeholders will be able to understand the and provide any feedback in English
Link to disclosure	https://www.zw.undp.org/content/dam/zimbabwe/docs/Environment%20and%20Energy/UNDP_ZW_SESP_FP-UNDP-021018-5853-Annex%20VI%20a_.pdf
Other link(s)	
Remarks	The Social and Environmental Safeguards Procedure (SESP) is a UNDP document that is used for identifying social and environmental risks and mitigation measures. It does not replace or conflict with GCF ESS requirements and policies.
Disclosure in locations convenient to affected peoples (stakeholders)	
Date	Sunday, February 10, 2019

Place	Copies of the ESMF (which also contains the Stakeholder Engagement Plan as an annex) are being distributed to the districts.
Date of Board meeting in which the FP is intended to be considered	
Date of accredited entity's Board meeting	N/A
Date of GCF's Board meeting	Tuesday, March 10, 2020

Note: This form was prepared by the accredited entity stated above.

Secretariat’s assessment of FP127

Proposal name:	Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe
Accredited entity:	United Nations Development Programme (UNDP)
Country:	Zimbabwe
Project/programme size:	Small

I. Overall assessment of the Secretariat

1. The funding proposal is presented to the Board for consideration with the following remarks:

Strengths	Points of caution
Integrated approach to address climate change, involving climate-resilient agriculture, efficient water supply and management and climate advisories, which meets the various needs of smallholder farmers and strengthens the agricultural value chain	
High climate impact potential with a large number of beneficiaries and with mitigation co-benefits	
Solid operation and maintenance plan with a financial commitment from the Government of Zimbabwe and beneficiary communities for hydro-meteorological infrastructures	

2. The Board may wish to consider approving this funding proposal with the terms and conditions listed in the respective term sheet and addendum IX, titled “List of proposed conditions and recommendations”.

II. Summary of the Secretariat’s assessment

2.1 Project background

3. Southern Zimbabwe has experienced increasing temperatures since the 1950s with a decline in total annual precipitation and an increase in mid-season dry spells coupled with extreme weather events in the form of droughts and floods. These changes in climate have reduced water availability and increased soil aridity, resulting in declining agricultural yields and impacting the livelihoods of smallholder farmers in this region.

4. The project proposes to address these observed and projected climate impacts and build the resilience of smallholder farmers in three semi-arid agroecological regions of southern Zimbabwe. The project will be implemented for seven years, with a requested GCF grant of USD

26.6 million, co-financing from the Government of Zimbabwe of USD 14.2 million and co-financing from the United Nations Development Programme (UNDP) of USD 1.2 million.

5. The project will directly benefit around 543,620 people in 15 vulnerable districts of southern Zimbabwe from revitalized and climate-proofed irrigation schemes and increased water security, climate-resilient agricultural practices, capacity-building through farmer field schools (FFS) and climate information. An additional 1,758,500 people across the 15 districts will indirectly benefit through enhanced climate information and climate-resilient agricultural advisories and institutional capacity development.
6. The project is structured into three outputs:
 - (a) Increased access to water for agriculture through climate-resilient irrigation systems and water resource management;
 - (b) Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices and markets; and
 - (c) Improved access to weather, climate and hydrological information for climate-resilient agriculture (CRA).

2.2 Component-by-component analysis

Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management (total cost: USD 19.4 million; GCF cost: USD 13.0 million, or 67 per cent)

7. Output 1 will climate-proof 21 existing community-level irrigation schemes and apply field-level water harvesting for rainfed lands to increase water efficiency and agricultural productivity. At the same time, farmers will be trained through 230 FFS on resilient soil and water management techniques. Overall, this output will ensure reliable access to water by farmers and build their capacity to manage increasing climate risks through proven adaptation techniques in agriculture.
8. The output will not simply rehabilitate the irrigation infrastructures, but will also climate-proof them, so that they can withstand current and future climate impacts. This approach has been adopted from the Climate Resilient Infrastructure Development Facility, funded by the Department for International Development (DFID) of the United Kingdom of Great Britain and Northern Ireland, in the country. The proposed climate-proofing techniques – river or watercourse bank reinforcement, bioengineering, gabions, rip-rap/geotextiles and others – are assessed as adequate and have proven records of withstanding extreme weather events and floods.
9. The irrigation schemes will be supplied by existing dammed water and river flows. This will involve river-bed sand abstraction. Water will flow by gravity, solar pumping or a combination of the two. The feasibility study confirms that no net negative water balance will result from the proposed interventions. In addition, during the Secretariat’s review stage, the accredited entity (AE) was advised to phase out the use of fossil fuels in water pumping. As a result, irrigation areas of more than 30 ha will use a solar-powered pumping system up to 30 ha totalling 630 ha, which is a shift away from conventional diesel-powered and grid connection. An ex ante carbon balance analysis has been carried out for the overall project to ensure that there is no increase in greenhouse gas emissions and that mitigation co-benefits are generated.
10. The proposal presents a sound operation and maintenance (O&M) and financial budget of the assets and infrastructure to be established, which demonstrates a strong commitment on the part of the Government of Zimbabwe and the communities. The cost estimation for O&M during and after the project has been provided, as well as the expected financial contributions

from the government and communities. This commitment should be monitored to ensure that the established assets are adequately maintained.

Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices and markets (total cost: USD 22.8 million; GCF cost: USD 9.8 million, or 43 per cent)

11. With output 1 ensuring reliable access to water resources by smallholder farmers, output 2 focuses on delivering CRA to these farmers. The output will provide CRA packages to 6,900 lead farmers, train the farmers through 251 FFS and establish multi-stakeholder climate innovation platforms in each target district to provide technical assistance and capacity-building to stakeholders involved in the agricultural value chain, including farmers, suppliers, processors and credit providers.

12. Proposed inputs and technologies for CRA – drought-tolerant varieties, crop rotation, appropriate tillage techniques, soil conservation, targeted fertilization, agroforestry and post-harvest storage and management – are well-known measures recognized for their adaptation benefits in the African context.

13. The CRA packages are expected to incentivize local farmers to adopt resilient techniques. In terms of beneficiaries, the packages will directly benefit 6,900 lead farmers, who represent a small proportion of the total direct beneficiaries of this project. Given that the package cannot be extended to the entire direct beneficiaries, the proponent should develop a concrete replication and scaling up strategy to reach more beneficiaries in order to transform the agricultural system.

14. The proposed multi-stakeholder climate innovation platforms will enable dialogues and knowledge exchange among various stakeholders involved in agricultural value chains. While this can be a good initial step to bring in stakeholders, it is important for the project to draw concrete action plans and strategies, through the platforms, to catalyse private sector financing for innovative and sustainable value chain development.

Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture (total cost: USD 6.0 million; GCF cost: USD 5.2 million, or 87 per cent)

15. The output will establish 12 automatic weather stations, 10 automatic rainfall stations and 10 hydrological gauging stations at proposed irrigation sites that are not currently covered by the existing weather station network, which will be part of the national hydro-meteorological system. It will deliver institutional capacity-building for relevant national and local staff to develop, disseminate and use the forecasts and advisories.

16. The feasibility study highlights the current gaps in the number of weather and hydrological stations, as well as the limited forecasting capabilities of the hydro-meteorological staff. It also notes that previous efforts and projects were too limited in scale to reach full observational networks, as they focused on smaller regions. It is expected that the installations will be owned by the Meteorological Service Department under the Ministry of Lands, Agriculture, Climate, Water and Rural Resettlement (MLACWRR), and that all the climate/weather information services will be centrally coordinated at the national level.

Output 4: Project management (total cost: USD 2.5 million; GCF cost: USD 1.4 million, or 56 per cent)

17. The last component is the project management cost for the implementation of the project. The GCF portion of the project management cost is around 4.7 per cent of the total requested GCF funding, and is compliant with the GCF policy on fees.

III. Assessment of performance against investment criteria

3.1 Impact potential

Scale: High

18. The proposal aims to reach a sizeable proportion of the population, with 543,620 beneficiaries directly benefiting from the climate-proofed irrigation schemes, climate-resilient agricultural practices, water and soil management techniques and capacity-building through FFS, and climate information. In addition, 1,758,500 people will indirectly benefit by receiving agro-climate advisories and technical assistance from the Department of Agricultural, Technical and Extension Services and Meteorological Service Department whose institutional capacity will be strengthened through GCF-funded training and capacity-building activities. The total number of beneficiaries represent 14 per cent of the total population of Zimbabwe, which is assessed as significant.

19. The project will climate proof 21 existing community-level irrigation schemes and introduce field-level water harvesting techniques as part of climate-resilient water management.

20. Targeting of the project areas was done in a rigorous manner, through mapping of climate hazards and vulnerability under the Zimbabwe Resilience Building Fund and substantive consultations with farmers and relevant stakeholders. The AE should ensure that within the target districts, the selection of direct beneficiaries adheres to pre-defined criteria which take into account climate vulnerability. The weather and agricultural advisories, FFS and institutional capacity-building are expected to result in increased awareness of climate risks and a reduction in climate impacts on farming activities.

21. The project will support the initial phasing out from diesel-powered irrigation to solar-powered pumping systems, which will promote low greenhouse gas emissions and sustainable development.

22. Climatic evidence and justification are provided in an adequate manner in the proposal. Zimbabwe has been experiencing hotter and fewer cold days, with daily minimum and maximum temperatures rising by 2.6 °C and 2 °C, respectively, over the last century. Total rainfall has declined by 5 per cent since the beginning of the twentieth century, and has exhibited considerable spatial and temporal variability. Increasing temperatures and the reduction in rainfall are expected to increase soil aridity, followed by the intensification of droughts and floods during intense rainfalls. Altogether, these impacts will decrease water availability for both crops and livestock and also affect the quantity and quality of agricultural production in the country.

3.2 Paradigm shift potential

Scale: Medium–High

23. The project will catalyse an initial paradigm shift by supporting smallholder farmers in shifting from their conventional agriculture, which aggravates soil erosion and is highly dependent on maize production, which is extremely sensitive to water stress, to a climate-resilient agricultural system with diversified crop varieties, combined with various resilient techniques. The shift of the agricultural system to one with a more reliable supply of water is acknowledged as positive. The project will also benefit from the government co-financing, which will be used to shift the government's existing agricultural input scheme to one that adopts climate-resilient seeds for the project's indirect beneficiaries. Sustainability and scaling up of this shift will depend on further investment after project completion.

24. The project also has good potential for scaling up and replication in the other regions of the country through further financing. Project beneficiaries represent about 24 per cent of the

population in the 15 target districts, and this can be further scaled up in other districts. However, the proposal could have presented a more detailed plan and quantified estimation on the replication potential of the proposed interventions.

25. The proposal provides good potential for knowledge-sharing and learning through the introduction of the multi-stakeholder climate innovation platforms and various capacity-building activities through FFS. It is expected to contribute to the creation of an enabling environment for access to credit and market development through the climate innovation platforms, but the scope and extent of the actual market stimulation depends on the participation of the private sector in agricultural value chains.

26. The proposal provides a solid post-project O&M plan with an estimated budget. A significant part of the cost is expected to be covered by beneficiary communities, but such a commitment has not yet materialized. The AE should ensure that the established infrastructure and assets are properly operated and maintained after project completion by enabling full government and community ownership of the assets.

3.3 Sustainable development potential

Scale: High

27. The proposal provides sound justification for its potential to generate positive environmental, social and economic externalities. The proposed CRA packages include generally well-recognized practices that have positive environmental impacts, such as crop rotation and agroforestry. No harmful environmental impacts are associated with the selected seeds in the CRA packages, although the processing of the commodities should be carefully monitored to avoid negative environmental externalities.

28. The proposed water supply and CRA packages will generate a significant increase in farmers' income and the economic co-benefits are assessed as substantial. The potential for social benefits is also assessed as high; diversified agricultural production with climate information and better water management will directly benefit society in the long term in that it will be better prepared and equipped for current and future climate change impacts.

29. Gender considerations have been included in the project design with the aim of mainstreaming a women-centred approach in agricultural development. The proposal notes that gender-equal participation will be achieved in all project activities. A detailed gender assessment and action plan was developed and submitted as an annex.

3.4 Needs of the recipient

Scale: High

30. The vulnerability of the country and the target beneficiaries and their adaptation needs are well explained throughout the proposal, which conveys the scale and intensity of the country's exposure to climate risks. The impacts of climate change, particularly droughts, on agricultural production and livelihoods are clearly described. The vulnerability of smallholder farmers, including women, is acknowledged and their high dependence on rain-fed agriculture, which is greatly affected by rainfall variability and increasing temperatures, is noted.

31. Although Zimbabwe is not a least developed country, the financial resource constraints of its government are acknowledged. Zimbabwe's public debt is 45 per cent of its gross domestic product, of which 70 per cent is in arrears (overdue payments). The International Monetary Fund classifies the country's status as "external debt distress".

32. The proposal explains the needs of the recipient based on the degree of economic dependence on the agriculture sector. The proposal also argues that the main departments involved in climate resilience – Meteorological Service Department, Zimbabwe National Water Authority and the Department of Agricultural, Technical and Extension Services – have

insufficient funding to invest in the necessary hydrological and weather monitoring infrastructure. While these statements are acknowledged, the justification could have been strengthened by providing a wider investment strategy. This includes the financial estimation of the cost of implementing climate change adaptation measures in agriculture at the national level, and the associated shortfalls in the national budget. Such an exercise would have provided a clear road map or pathway for climate resilience building in the sector from a financial perspective, and would clarify the level of contribution from GCF.

3.5 Country ownership

Scale: High

33. The proposal demonstrates that the proposed project contributes to the country's nationally determined contribution and its various national development and climate change visions. It may have been more compelling if the proposal had delineated in a more concise manner how and to what extent the project will contribute to Zimbabwe's resilience building in the agriculture sector in the nationally determined contribution.

34. As the executing entity (EE), MLACWRR is the main coordinating body in the country for climate change initiatives, and is partnered with various international funds and donors. The overall risk for financial management capacity is assessed as low under the harmonized approach to cash transfers (HACT) framework. However, the proposal does not specify its experience and track record of managing and executing investments of a similar size. The AE should carefully monitor the use of GCF proceeds and project execution with MLACWRR during project implementation.

35. The project was designed based on rigorous consultations with relevant stakeholders, including the GCF national designated authority. A stakeholder engagement plan was submitted as an annex to the funding proposal.

3.6 Efficiency and effectiveness

Scale: High

36. The proposed structure is assessed to be adequate and reasonable, considering the country's level of indebtedness (44 percent of the total Gross Domestic Product), as well as the level of poverty of the target beneficiaries who are identified as poor smallholder farmers.

37. The proposal demonstrates high cost-effectiveness with costing of project activities similar to the benchmarks in Zimbabwe and other regions of Southern Africa. The net present value (NPV) from the economic model is USD 44.7 million with economic internal rate of return of 33 percent, with 10 percent discount rate. The benefits in the calculation include economic valuation of the irrigation on 1,786 hectares, farmer field schools and early warning systems. The results are quite optimistic, given the 100 percent increase of revenues from agricultural production from year 3 which remains constant until the end of the project.

38. The proposal also demonstrates high cost-effectiveness with the financial model as well. The project is expected to generate FNPV of USD 162 million which is extremely high, and the financial internal rate of return of 22.4 per cent, for outputs 1 and 2. Such high FNPV is based on the expected increase in agricultural income for 25 years. Despite the high FNPV, the proposal justifies the full grant funding from the GCF by presenting the counterfactual scenario which the current micro-loans carry very high interest rates that farmers are not affordable to take, and the government has limited budget to support the farmers without GCF funding. Therefore, request for grants is deemed to be appropriate.

IV. Assessment of consistency with GCF safeguards and policies

4.1 Environmental and social safeguards

39. The AE has undertaken a social and environmental screening to identify and address any potential social and environmental risks and impacts that could arise from project activities and has classified the overall social and environmental risk category as moderate (which is equivalent to category B as per the GCF Environmental and Social Policy). The project includes activities which are likely to have some short-term, small-scale environmental and social impacts during implementation but are expected to have considerable long-term environmental benefits.

40. The AE has developed an environmental and social management framework (ESMF) for the project. The ESMF incorporates a legal and institutional framework that covers environmental and social issues, as well as the legislation, policies and regulations as regards the environmental impact assessment process in Zimbabwe. The ESMF also presents the key environmental and social indicators, including on climate, ecology, surface and groundwater, noise and vibration, erosion, drainage and sediment control, waste management, air quality, and archaeological and cultural heritage. It also provides guidance on the management of social issues and in cases of emergencies.

41. The ESMF is prepared on the assumption that the interventions will not require the displacement of people; that none of the interventions will be conducted in protected areas or sensitive/critical locations; that there will be appropriate erosion and sediment control procedures that will be undertaken during all stages of the subprojects; and that there will be no release of pollution and/or chemicals as a result of the implementation of the subprojects. The project also indicates that no land acquisition or resettlement will occur as part of the project. Moreover, the project is not expected to undertake activities in areas declared as cultural heritage.

42. The ESMF identified key potential project risks and impacts and outlined possible management measures. It also identified the performance criteria, the responsible entities and the monitoring and reporting protocol. The project's environmental and social impacts are mainly due to construction activities and to the installation of equipment, such as barrages, river gauging stations, pumps and tanks. The project also includes climate proofing of community-level irrigation schemes, including a water delivery and storage infrastructure and more efficient crop irrigation equipment. This involves approaches such as river or watercourse bank reinforcement, bioengineering, gabions, rip-rap/geotextiles, structure anchoring, use of sealants, siting electrical, mechanical and other equipment above flood levels, and diversions and rerouting of existing water channels. The water-efficient irrigation technologies also include supporting solar power installations for water pumping.

43. The ESMF provides for social inclusion and consultation, and the incorporation of sediment and erosion control strategies, as well as considering health and safety for workers and the community. The ESMF indicates that environmental procedures and site activity-specific work plans will be provided, including incident reporting as well as periodic environmental inspection audits. Nonconformances with corrective actions are planned to be identified. Emergency management measures that comply with the occupational, health and safety requirements and regulations will also need to be incorporated into the ESMF. The ESMF is planned to be reviewed periodically and includes budget provision for its implementation, training for staff of delivery organizations and continuing update.

44. The ESMF also provides for the institutional arrangements for its implementation, including the general management structure and responsibilities and project delivery and administration during project implementation and operation, as well as guidance on public

consultation and environmental and social disclosure. During the conduct of the feasibility study the project engaged the targeted communities, whose inputs have been incorporated into the proposed interventions. Civil society organizations, non-governmental organizations and private sector players have also been engaged. A stakeholder engagement plan has been developed to allow for discussions with various stakeholders at the national and provincial level during project inception. Informal stakeholder engagements are also planned.

45. The project will be implemented by MLACWRR and will be delivered on the ground by the Climate Change Management Department and other organizations. In addition, collaboration with local government, existing non-governmental organizations and local communities is expected. A Field Officer will be responsible for daily environmental inspections of the project/construction site and a Project Management Unit is proposed to be established.

46. The ESMF identified the communities of Tshwa (Tyua, Cuaa) San and Doma (Wadoma, Vadema) as groups to whom the GCF Indigenous Peoples Policy could be applied. It stated, however, that the project activities will not be implemented in the areas where these communities reside. Given that the objective of the project is to strengthen the resilience of agricultural livelihoods of vulnerable communities, particularly women, in southern Zimbabwe to increasing climate risks and impacts, the project identifies entry points for the engagement of farming communities, including promoting their indigenous knowledge in the development of climate and weather information products.

47. The AE included provisions for a two-tiered grievance redress mechanism, with the Community Project Implementation Committee as the first tier and the Provincial Grievance Redress Committee as the second. The mechanism includes eligibility requirements to lodge grievances in good faith and achieve mutually acceptable resolutions for all parties. The project will also maintain a complaint register and grievances can be made either verbally (in person or by telephone to the field staff) or in writing. In addition to the project-level and national grievance redress mechanisms, complainants also have the option to access the UNDP Accountability Mechanism, which has both compliance and grievance functions. The ESMF is planned to be updated from time to time by the project management unit in consultation with the UNDP staff and the government.

4.2 Gender policy

48. The AE has provided a gender assessment and a project-level gender action plan, thus complying with the requirements of the GCF Gender Policy and Gender Action Plan.

49. The gender assessment is based on a desk review and stakeholder consultations. The desk review provides information on the enabling environment that exists to pursue gender equality and women's empowerment interventions in Zimbabwe. The assessment indicates that Zimbabwe is a signatory to the Convention on the Elimination of All Forms of Discrimination against Women and the Southern African Development Community. It also provides information on progress made within the country with regard to the existence of favourable gender policies and responsive strategies. It indicates that the Zimbabwe National Gender Policy (2013–2017) recognizes the need to improve the mainstreaming of gender in policy frameworks in environment and natural resources management to meet the objective of increasing the gender responsiveness of environment and natural resource management strategies and of climate change adaptation and mitigation initiatives; it further discusses the country's constitution, which supports the achievement of gender balance in economic development endeavours and the equal participation of women in politics and decision-making. In 2014, four government ministries (the Ministry of Agriculture, Mechanization and Irrigation Development, the Ministry of Local Government, Public Works and National Housing, the Ministry of Higher and Tertiary Education and the Ministry of Women Affairs, Gender and Community Development), developed gender-responsive budgets in line with gender responsive budget principles.

50. The assessment indicates that women are more vulnerable to climate change impacts in the country and in the project sites; moreover, women-headed households are more vulnerable and face higher levels of poverty (72 per cent) than other households (58 per cent). Women face challenges in accessing formal employment owing to customary laws that perpetuate the perception that they are not capable. Furthermore, the existing patriarchal system presents barriers to women in getting access to assets, which hinders them from putting up such assets for collateral to access loans and credit from formal financial institutions. It is also difficult for women to access and own land, which is an important resource. About 70 per cent of agricultural labour is provided by women, who make up 70 per cent of the rural population and 80 per cent in farming areas; despite playing a key role in the agriculture sector, women have much less access to land compared with men in both communal and resettlement areas. More women than men are poor, and are more dependent on natural resources that are vulnerable to climate change. Women's disadvantaged position in society and their unequal access to property rights and information, and their designated social and economic roles render them more susceptible to climate change impacts. Recurring droughts and low rainfall affect the availability of water and fuelwood, which forces women to travel long distances to collect these resources; women's access to irrigation schemes is limited as are their land rights; and women participate in decision-making structures within irrigation structures but the contribution of women to strategic decision-making is limited. Ownership of livestock is significant for women; however, they are likely to have the decision-making power to own and market smaller animals but not larger livestock such as cattle, which generate higher income. Despite these realities, the assessment indicates that women should not be seen as just victims of climate change but as being crucial to promoting and leading climate change adaptation efforts.

51. The stakeholder engagement with communities highlighted similar issues that are consistent with the desk review in terms of concerns in the areas of gender and land rights, gender and mechanization, governance of irrigation schemes, weak marketing arrangements, the need for support for both women and men in value addition and the need for farmers, both women and men, to be educated on climate smart agriculture.

52. The assessment also drew lessons from existing projects implemented in the country in the areas of addressing women's leadership challenges, improving access for women to irrigation assets, introducing women to improved agronomic practices, developing the capacities of women through FFS and involving women and men in social dialogue to address women's empowerment and gender-based violence issues – the latter being one of the biggest challenges in the country with 47 per cent of women and 35 of girls having experienced either sexual or physical violence at some point. The project, by targeting and providing equal opportunities, will aim to address the underlying causes of gender inequality. It will facilitate equal access to skills, knowledge, training and opportunities to take up decision-making positions and access to finance. The interventions, particularly those to be conducted through the FFS, will help to reduce time constraints through improvements in water security and the adoption of climate smart technologies. The reduction in time constraints will be monitored and reported through the conduct of time use surveys during the implementation of the project.

53. The project's grievance mechanism will be gender-sensitive to allow both men and women to freely report any grievances or incidences of societal conflict arising from their involvement in the project activities, paying particular attention to grievances arising from changing societal norms that may be brought about by the project. Violence against women as a potential challenge will be mitigated by engaging men and women in dialogues on gender-based violence. The FFS present appropriate platforms to establish forums for awareness-raising and dialogue on gender-based violence among targeted beneficiaries.

54. Sex-disaggregated targets has been included in both the project-level gender action plan and the funding proposal. The gender action plan articulates various activities that are in line with the findings of the assessment, with corresponding indicators and targets for all activities

and the baselines for most of the activities (which are mostly set at 0), and are aligned to timelines, budgets and responsibilities. The responsibility for these activities is given to various institutions such as the Ministry of Women Affairs, Gender and Community Development. In addition however, a gender specialist (working part-time at 40 per cent) will provide capacity support to the development of annual plans and a detailed monitoring and evaluation plan and implementation support to the project team to ensure that beneficiaries are appropriately targeted, activity implementation is continuously tracked and progress reported and that the intended gender equality outcomes are achieved for each intervention. It is, however, recommended that the AE look into the sufficiency of the allocation of only 40 per cent of the gender expert's time, given the magnitude and sensitivity of the work at hand.

4.3 Risks

4.3.1. Overall programme assessment (medium risk)

55. GCF is requested to provide a grant of USD 29.4 million to strengthen the resilience of agricultural livelihoods for the vulnerable communities. The project will provide smallholder farmers with improved access to water resources and enable them to adopt climate-resilient agricultural practices and utilize climate information. The Government of Zimbabwe is providing co-financing by way of a grant of USD 14 million and in-kind contribution of USD 5.7 million. The AE is also providing a grant of USD 1.2 million.

4.3.2. Accredited entity/executing entity capability to execute the current programme (medium risk)

56. The AE, UNDP, has been working closely with the Government of Zimbabwe for the last four decades. UNDP is currently managing five programmes with the government with an annual average delivery of USD 70 million. This project is built on UNDP Zimbabwe's experience in implementing climate change adaptation projects, including the Zimbabwe Resilience Building Fund, financed by the European Union, DFID, the Swedish International Development Cooperation Agency and UNDP.

57. The EE, MLACWRR, has coordinated a number of climate change projects in partnership with the AE as well as other international agencies. The institutional capacity assessment by the AE indicates that the overall risk rating of the EE is low. In addition, a 'direct modality' is being utilized for this project whereby no payments are routed through the EE.

4.3.3. Programme-specific execution risks (medium risk)

58. Macroeconomic situation in the country: as stated in the funding proposal, the country has experienced a prolonged period of hyperinflation and the financial sector is characterized by low liquidity and non-performing loans. In addition, the government recently adopted the Zimbabwean dollar as the sole legal tender, but inflation of the local currency reached over 300 per cent in October 2019. According to the AE this may lower the estimated financial/economic benefits from the project's proposed investment.

59. Logistical and operational challenges of construction in relatively remote areas – The AE has identified risk related to the implementation of project. The project will be implemented in 137 wards in 15 Districts of southern Zimbabwe. The project will invest in revitalization and climate-proofing of 21 community-level irrigation schemes. Thus, the project activities will be geographically spread out. The AE plans to mitigate the logistical risks by building on the sub-assessments, studies and consultations during project preparation, and intensive planning beginning at project inception.

60. Power source of the irrigation infrastructure: the project will support irrigation schemes with solar power up to 30 ha per scheme. According to the feasibility study, for a scheme with more than 30 ha and within 3 km from a reliable grid power source, a grid connection would be recommended. It is required that the AE and EE take into consideration availability of steady power supply while finalizing the irrigation schemes.

61. Farmers' ability to pay for O&M funds: smallholder farmers are required to contribute to the O&M funds and a minimum amount has been identified based on the consultation with the farmers. However, according to the feasibility study, even when capital expenditure was treated as sunk costs and the cost of water was subsidized, farmers still failed to pay O&M costs. The AE clarified that the project would have a scheme constitution spelling out member commitments towards the O&M fund. All members of the community who benefit from the scheme contribute to it on a monthly basis, and/or have their commitments deducted from revenues (as stated in the scheme constitution). The AE expects this to provide enough funds to cover the cost for repairment over time.

62. Economic and financial analysis: the cost and benefit analysis provided by the AE results in the economic internal rate of return of 19 per cent over a 25-year period. A sensitivity analysis with three different scenarios, cost increasing by 20 per cent, benefits decreasing by 20 per cent and both at the same time has been also carried out. In all cases, the project remains economically feasible and the economic internal rate of return remains above the minimum threshold. The financial analysis provided yields a financial internal rate of return of 20.1 per cent based on the incremental agricultural revenue.

4.3.4. GCF portfolio concentration risk (low risk)

63. In the case of approval, the impact of this proposal on the GCF portfolio risk remains non-material and within the risk appetite in terms of concentration level, results area or single proposal.

4.3.5. Compliance (medium risk)

64. The AE has submitted a HACT assessment as part of the supporting documentation for the project. That HACT report identifies a number of weaknesses within the internal control systems of the Ministry of Agriculture. In response to and in recognition of those weaknesses, the AE will be managing a significant part of the finances and resources itself, or with trusted counterparties, so as to avoid those weak areas. The AE will be applying its own internal controls and policies to the project, which have previously been deemed acceptable by the GCF accreditation process. Based on this information from the AE, Compliance is satisfied that the AE has demonstrated sufficient awareness of the risks and vulnerabilities within the project and has programmed alternative means of applying sufficient internal controls, including anti-money-laundering and countering the financing of terrorism and other integrity and accountability measures, to substantially act as a mitigant against those risks. Accordingly, Compliance assigns a medium risk to this project based on the information provided.

Summary risk assessment		Rationale
Overall programme	Medium	
Accredited entity/executing entity capability	Medium	
Project-specific execution	Medium	
GCF portfolio concentration	Low	

Compliance	Medium	
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4.4 Fiduciary

65. The project will be implemented under the UNDP National Implementation Modality (NIM), in accordance with the Standard Basic Assistance Agreement between UNDP and the Government of Zimbabwe, the Country Programme Document and the policies and procedures outlined in the UNDP Programme and Operations Policies and Procedures. The executing entity is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including the NIM guidelines).

66. The EE for this project is MLACWRR, which, through the Climate Change Management Department, is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions and achieving project outcomes, and for the effective use of UNDP resources. UNDP, in agreement with the Government of Zimbabwe, will provide implementation support (support to NIM) as agreed in the letter of agreement to be signed between MLACWRR (on behalf of the Government of Zimbabwe).

67. UNDP has ascertained the national capacities of the EE by undertaking an evaluation of capacity following the Framework for Cash Transfers (part of HACT). This has been completed for MLACWRR, and a implementing partners Capacity Assessment Tool has been completed for the EE.

68. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the accreditation master agreement (AMA) and project confirmation to be agreed with GCF. This may include, but is not limited to, monitoring missions, spot checks, facilitation and participation in project board meetings, quarterly progress and annual implementation reviews, and audits at the project level or at the EE level on the resources received from UNDP.

69. The project will be audited in accordance with UNDP policies and procedures on audits, informed by and together with any specific requirements agreed in the AMA currently being negotiated with GCF. According to the current audit policies, UNDP will be appointing the auditors. UNDP scheduled audits are performed during the programme cycle as per UNDP assurance/audit plans, on the basis of the risk rating of the EE and the UNDP guidelines. A scheduled audit is used to determine whether the funds transferred to the EE were used for the appropriate purpose and in accordance with the work plan. A scheduled audit can consist of a financial audit or an internal control audit.

4.5 Results monitoring and reporting

70. This project is cleared by the Office of Portfolio Management for forwarding to the independent Technical Advisory Panel on the condition that either:

- (a) A covenant is to be included in the funded activity agreement that the baselines/targets/Means of Verifications (MoVs) need to be defined and further developed in a revised logical framework based on the comments embedded in the logical framework; or
- (b) A covenant is to be included in the funded activity agreement for a revised logical framework with updated/further developed baselines/targets/MOVs to be submitted after first disbursement (if they need disbursement to conduct the baseline studies).

71. Overall, the logical framework has improved substantially. However, there are a couple of gaps that need to be filled. The comments were provided earlier and have been provided again.

72. If these comments as inserted in the funding proposal are addressed, then the above-mentioned condition can be removed.

4.6 Legal assessment

73. The Accreditation Master Agreement was signed with the Accredited Entity on 5 August 2016, and it became effective on 23 November 2016.

74. The Accredited Entity has provided a certificate confirming that it has obtained all internal approvals and it has the capacity and authority to implement the project.

75. The proposed project will be implemented in the Republic of Zimbabwe, country in which GCF is not provided with privileges and immunities. This means that, amongst other things, GCF is not protected against litigation or expropriation in this country, and the risks need to be further assessed.

76. The Heads of the Independent Redress Mechanism and Independent Integrity Unit have both expressed that it would not be legally feasible to undertake their redress activities and/or investigations, as appropriate, in countries where the GCF is not provided with relevant privileges and immunities. Therefore, it is recommended that disbursements by the GCF are made only after the GCF has obtained satisfactory protection against litigation and expropriation in the country, or has been provided with appropriate privileges and immunities.

77. In order to mitigate risk, it is recommended that any approval by the Board is made subject to the following conditions:

- (a) Signature of the funded activity agreement in a form and substance satisfactory to the Secretariat within 180 days from the date of Board approval; and
- (b) Completion of legal due diligence to the satisfaction of the Secretariat.

Independent Technical Advisory Panel's assessment of FP127

Proposal name:	Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe
Accredited entity:	United Nations Development Programme (UNDP)
Project/programme size:	Small

I. Assessment of the independent Technical Advisory Panel¹

1.1 Impact potential *Scale: High*

1.1.1. Adaptation impact

1. The project targets the rural population of the Save, Runde and Mzingwane catchment areas of the Zimbabwean southern provinces of Manicaland, Masvingo and Matabeleland South, respectively, which is mostly dependent on subsistence agriculture. The main climate risks affecting agricultural production are drought and flooding events.
2. The proposal aims at counteracting these effects by enhancing the climate resilience of agricultural livelihoods through three main components: (1) climate proofing of irrigation infrastructure and enhanced water resource management; (2) promotion of climate-resilient agriculture (CRA) and development of markets and value chains; and (3) improvement of hydrometeorological and weather information generation and use.
3. Component 1 comprises the revitalization and climate proofing of 16 existing irrigation schemes and the construction of five new ones. Methods for climate proofing would include river bank reinforcement, bioengineering techniques, gabions, geotextiles, structure anchoring, use of sealants, siting electrical and mechanical equipment above flood levels, and diversions and rerouting of existing water channels. These activities, which would cover an irrigated area of approximately 1,800 ha, are expected to benefit 5,900 smallholder farmers, representing almost 30,000 people². A total of 630 ha of the irrigated area covered by the project would be provided with solar power equipment for pumping.
4. In order to promote long-term sustainability and enhance institutional capacities, each Irrigation Management Committee (IMC)³ would be trained in organizational management, conflict resolution, climate-adapted operation and maintenance (O&M) and the monitoring, establishment and fiscal management of O&M funds and strategic capitalization plans.
5. The proposal states that GCF resources would be used for the climate-proofing aspects of the irrigation schemes, with the Government of Zimbabwe paying for the typical baseline costs. In this regard, climate-related costs were estimated to be as high as 78 per cent of the total costs.⁴ Questioned about the reason for including abstraction works as climate-related

¹ Assessment based on the funding proposal with date of submission 4 December 2019 and its annexes.

² Funding proposal assumes 5 people per household. See FP, paragraph 152.

³ Each Irrigation Management Committee (IMC) is responsible for the management of an irrigation scheme, including operation and maintenance and funds management.

⁴ See Annex II - Feasibility Study, appendix 23, table A29.

costs (which represent 36 per cent of the total costs of the irrigation scheme), the proponent answered:

- (a) Since the nature and scale of investment in the abstraction works enables continuous water availability, including during dry periods (as it involves activities such as drilling in riverbeds as in the case of the example used in the FS), this can be reasonably seen as measures required due to climate change/variability, which leads to frequent drying of rivers. In light of this, given the array of investments that need to be made in the irrigation schemes, there has been an attempt in table A29 to define what could be financed through GCF to address climate change and what could be co-financed by the government to address baseline issues. Therefore, while it is true that abstraction works are not 100% climate proofing, it has been deemed reasonable to treat this investment as largely addressing climate change.
6. Component 1 also targets rain-fed farmlands by providing field training to 6,900 lead farmers in rainwater harvesting, soil moisture management and water efficiency techniques by running learning workshops and on-site assistance activities to promote farmer-to-farmer knowledge transfer, and through investment in technologies for the demonstration of climate-resilient water resources management techniques in farmer field schools. Training would be provided through 230 such schools.
7. In conjunction with this capacity-building activity, component 2 would use the farmer field schools to design, adapt and implement CRA packages on rain-fed and irrigated farms. Capacity-building activities would be based on the training of trainers method. The project would train 155 staff of the Department of Agricultural, Technical and Extension Services (AGRITEX), who would then train lead farmers (6,900 for rain-fed land and 630 for irrigated land), who would in turn train other farmers, reaching an expected total of approximately 74,000 farmers. Assuming five people per household, it is estimated that approximately 410,000 people would be direct beneficiaries of these activities.
8. The training of 155 national-, provincial-, district- and ward-level AGRITEX staff under activity 2.2.1 of component 2 would help to significantly strengthen the technical capacities of this governmental agency.
9. Activity 2.2 of component 2 includes the procurement of inputs and technologies to implement CRA packages on 6,900 lead farmer plots and demonstration plots on the 230 farmer field schools.⁵ The project would allocate USD 1,000 for each 0.5 ha demonstration plot, one for each farmer field school, and an average of USD 150 to each lead farmer for the procurement of seeds, fertilizers, manure and water. Lead farmers would be required to contribute with matching investments, and, for this reason, the selection criteria would be based on, among other aspects, their level of human and financial resources.⁶
10. In combination with farmer field schools, component 2 would establish and operationalize five multi-stakeholder innovation platforms. These platforms would facilitate interaction between, inter alia, farmers, input suppliers, produce buyers, water governance authorities, government service providers, financial institutions and non-governmental organization technical assistance providers, and would mainly serve as a CRA knowledge base and to foster linkages between value chain actors, allowing for market development.
11. Component 3 is exclusively focused on improving climate information availability and use. Activity 3.1 of component 3 involves enhancing the hydrometeorological observation networks by installing 12 automatic weather stations, 10 automatic rainfall stations and 10 hydrological gauging stations at irrigation sites not currently covered by the existing network.

⁵ Funding proposal, page 32.

⁶ Annex XIII_e - Budget Details, Atlas Budget Account Code 72300.

12. The lack of institutional and technical capacities, as identified in the proposal, would be addressed through activities 3.2 and 3.3, which include training national-level Zimbabwe National Water Authority staff in the use of water resource models and training local-level Department of Irrigation and Zimbabwe National Water Authority staff in data collection, analysis, modelling and forecasting, and the development of information products for water resource management.
13. The proposal estimates that timely climate and weather information and advisories for climate risk management would directly benefit approximately 540,000 people who depend on agricultural livelihoods.
14. Strengthened institutional capacities, including improved climate, weather and agricultural information availability, is expected to indirectly benefit approximately 1.5 million food-insecure smallholder farmers across the three targeted provinces.

1.2 Paradigm shift potential

Scale: High

1.2.1. Potential for knowledge and learning

15. Activity 2.3 of component 2 is focused on the generation and sharing of knowledge, lessons learned, and best practices identified through farmer field schools and innovation platforms. The project would upgrade data collection and sharing platforms and support knowledge generation, codification, and exchange between participating agricultural colleges and research centres.
16. The general monitoring and evaluation plan is adequately described in the proposal. At the local level, the means of verification of project progress include AGRITEX field reports and surveys of lead farmers, Department of Irrigation (DoI) surveys of beneficiaries of the irrigation schemes and surveys of CRA beneficiaries using scorecards.

1.2.2. Contribution to the creation of an enabling environment

17. The project includes several elements to enable long-term sustainability, the most important being the cross-cutting capacity-building activities present in all three project components, with targets ranging from farmers to institutional staff at the local and national level. These capacity building activities would cover O&M of irrigation schemes, development of efficient water management techniques, CRA production, business development and organizational and financial management for CRA and irrigation schemes, and generation and use of climate information for risk-informed agricultural planning.
18. Another contribution to sustainability beyond project lifespan comes from the activities related to the identification and development of new markets and linkages between value chain actors, which would promote the participation of the private sector, enabling the provision of additional financial resources for the production and commercialization of CRA produce. Multi-stakeholder innovation platforms would serve as a nexus to promote partnerships across value chain actors and generate and disseminate knowledge of CRA.
19. The capital expenditure (CapEx) of irrigation schemes includes O&M expenditures (OpEx) for the first year, in order to allow farmers to learn the new farming systems and acquire financial capability. The ability of farmers to cope with OpEx has been proved in the demonstration schemes implemented by the Climate-Resilient Infrastructure Development Facility pilot project, funded by the United Kingdom of Great Britain and Northern Ireland, such as the Kufandada scheme in Bikita⁷ described in the proposal.⁸ In response to the comments of

⁷ The independent TAP Comments: 26 December 2019. AE response to comment 7.

⁸ Annex II - Feasibility Study, page 67.

the independent Technical Advisory Panel (TAP), the proponent noted that “in the event of failure due to unforeseen circumstances, the government is committed to cover any costs or shortfalls to ensure the success of the schemes”.⁹

1.2.3. **Contribution to the regulatory framework and policies**

20. Although the project does not include activities directly related to advancing the regulatory framework, the capacity-building activities aimed at public institutions would serve to enable the mainstreaming of CRA practices and climate change considerations into national and local agriculture policies and development plans.

1.2.4. **Scalability and replicability**

21. The strong focus on capacity-building and knowledge management, structured through training of trainers, lead farmers, farmer field schools and innovation platforms, gives the project a high upscaling potential within the targeted wards and high replication potential in other wards.

22. Given that neighbouring African countries face similar climate change effects and present comparable socioeconomic situations and institutional and knowledge barriers, the present proposal would have high replication potential in the region.

1.3 Sustainable development potential

Scale: High

1.3.1. **Environmental co-benefits**

23. The implementation of CRA practices, water resource management and bioengineering methods as described in the project would bring important environmental co-benefits, including enhanced biodiversity, reduced soil erosion and consequent river siltation, improved infiltration of rainwater, improved water quality and availability, and, in general, enhanced ecosystem services.

24. The installation of solar power equipment to provide energy for pumping in part of the irrigation schemes would help to reduce carbon emissions. However, this reduction would be insignificant.¹⁰

1.3.2. **Social co-benefits**

25. The greatest social co-benefit resides in the increased food security and consequent improvement in the health of the population that would result from higher yields and diversified production once CRA practices are applied. This would also reduce public health expenses.

1.3.3. **Economic co-benefits**

26. By increasing the agricultural production capacity of local farmers and developing existing and new markets and value chains, the project would generate additional income for the benefited households, and potentially create new jobs and enterprises.

27. The economic analysis estimates the benefits from investments in irrigation schemes as the profit coming from winter crops, which are virtually impossible to produce without

⁹ The independent TAP Comments during call: 15 January 2020 .

¹⁰ Annual average of 2,700 tons of carbon dioxide. See Funding Proposal, page 52.

irrigation owing to insufficient precipitation during the dry winter season.¹¹ The calculations use the average profit from tomatoes and sugar beans, assuming that half of the irrigated surface would be cultivated with tomatoes and half with sugar beans.¹² The selection of these two crops for the analysis resides in their suitability for irrigation, high yield, high returns and shorter cropping cycles.¹³ Tomato is the most profitable crop, with estimated profits of approximately USD 8,500/ha/season, but it is also the most expensive in terms of investment. Given that the project budget includes only basic agricultural investments for lead farmers (a one-off payment of USD 150 each,¹⁴ mostly for experimentation), and given the extremely limited financial resources of small-scale farmers in Zimbabwe,¹⁵ it was not clear how the targeted farmers would be able to cultivate half of the irrigated surface with tomato when it is a crop that requires an investment of approximately USD 6,500/ha.¹⁶ Consulted by the independent TAP on this matter, the proponent explained that the financial cost is actually USD 5,200/ha, and that in the context of a poor farmer also benefiting from other project activities, this cost could be significantly reduced. For example, 20 per cent of the cost represents labour, which in this context would be carried out by the farmer at no cost; fertilizers and pest control could be partially covered by other ongoing government projects; transport and packaging costs could be reduced or transferred by engaging other value chain actors through the innovation platforms; farmers would most probably use manual tools and not a tractor, as assumed in the estimation of USD 5,200/ha. Each farmer has, on average, 0.3 ha.¹⁷ All this considered, the investment would be in the range of USD 650 per household. Still, given that the project does not include concrete financial aid, but only financial capacity-building and linkages with financial intermediaries, the project would probably fall short of enabling the required access to finance such investments. The assumption of a tomato crop on half of the irrigated land seems to be an optimistic estimate. If, as expected, the surface planted with tomato is smaller, the economic co-benefits would also be smaller than estimated in the proposal. However, this would not affect the economic viability of this component. As expressed in the O&M plan,¹⁸ experiences of the Climate-Resilient Infrastructure Development Facility have shown that farmers with climate-resilient irrigation can earn between USD 600 and USD 1,700 per parcel of 0.2 ha.

28. The value chain selection process identifies commodities for which value chains would be developed by the project, starting with 15 products.¹⁹ Tomato was included in the list, but was not selected because of its “bulkiness, perishability and lack of well-defined formal market”,²⁰ thus contradicting the economic analysis and reducing further the probability of achieving 50 per cent of the irrigated surface (approximately 900 ha) planted with tomato.

1.3.4. Gender-sensitive development impact

29. Women constitute 70 per cent of the rural population and are responsible for 70 per cent of food production in Zimbabwe.

30. The gender assessment and action plan recognizes that Zimbabwean societies are strongly patriarchal, which prevents women from accumulating assets and productive

¹¹ Annex II - Feasibility Study, page 43.

¹² Annex XII - Economic analysis.

¹³ The independent TAP Comments: 26 December 2019. AE response to comment 2.

¹⁴ Annex XIII_e - Budget Details, Atlas Budget Account Code 72300.

¹⁵ Poverty affects approximately 70 per cent of the population of southern Zimbabwe. See Annex II - Feasibility study.

¹⁶ The investment refers to the variable costs. It does not include investment in the irrigation infrastructure, which is covered by the project. See Annex XII_a - Economic analysis, section C, table on pages 5 and 6.

¹⁷ Annex II - Feasibility study, page 121. Sum of total irrigable area/sum of direct beneficiary households = 1,786/5,899 = 0.3 ha/household.

¹⁸ Annex XIII_b1 – Operations and Maintenance Plan, page 15.

¹⁹ The independent TAP Comments: 26 December 2019. AE response to comment 2.

²⁰ Zimbabwe GCF Proposal Preparation – Agricultural Value Chain Identification and Analysis (D10), page 25, table 2.

resources, limiting their ability to access formal financial services.²¹ Financial aid would be limited to capacity-building and linkage activities and would probably be insufficient to overcome this barrier.

31. Other gender inequalities are adequately identified and addressed through recommendations in the gender assessment and gender action plan, which are specified for key areas project design and implementation, stakeholder engagement, and monitoring and evaluation. Gender equality investments with estimated costs are described in the feasibility study.²²

1.4 Needs of the recipient

Scale: High

1.4.1. Vulnerability of the country, vulnerable groups and gender aspects

32. Hazard maps developed by the Zimbabwe Resilience Building Fund show that southern Zimbabwe is highly prone to extreme climate events, and it presents high relative rates of crop pests and livestock diseases.²³

33. Southern Zimbabwe is facing changes in temperature and rainfall. Daily minimum and maximum and mean temperatures are rising, and projections estimate increases of up to 4 °C by 2100. Rainfall patterns have been showing increased variability, and climate models predict shorter rainfall seasons, more frequent and intense heavy rainfall events, decreases in low-intensity rainfall events and an increase in the proportion of low rainfall years. Mean annual precipitation is expected to fall by up to 16 per cent by 2050.²⁴ These changes represent increased risk of droughts, mid-season dry spells and flooding events.

34. Zimbabwe is presently facing its worst hunger crisis in a decade, with half of the population food-insecure.²⁵

1.4.2. Economic and social development

35. The area targeted by the project is home to 3.9 million people, and 45 per cent of the national rural population. It is one of the poorest regions of the country, with poverty reaching approximately 70 per cent. During the El Niño induced droughts of 2016, the provinces of Matabeleland South and Masvingo were among the three provinces with the highest proportion of food-insecure households, at 44 per cent and 50 per cent, respectively.

36. During the period 2011–2015 Zimbabwe suffered a severe decline in its economic growth, decreasing from 11.9 per cent in 2011 to 1.5 per cent in 2015. The agriculture sector played a major part in this decline, since it contributes up to 19 per cent of the gross national product and is greatly affected by rain patterns and flooding events.²⁶

37. The financial sector is underdeveloped, characterized by low liquidity and non-performing loans. In particular, the rural population has very limited access to financial services.

²¹ Annex XIII_c - Gender assessment action plan.

²² Annex II - Feasibility study, page 131.

²³ Funding proposal, page 10.

²⁴ Funding proposal, pages 10 and 11.

²⁵ See <<https://news.un.org/en/story/2019/12/1052621>>.

²⁶ Funding proposal, page 61.

1.4.3. **Absence of alternative sources of financing**

38. The financial resources of the Government of Zimbabwe are limited and insufficient to invest in climate resilience and improved livelihoods. The International Monetary Fund describes Zimbabwe as being in a state of “external debt distress” as at 2017.²⁷

1.4.4. **Need for strengthening institutions and implementation capacity**

39. The proposal recognizes that current institutional capacities and technical knowledge are insufficient to carry out the required conversion to CRA. This barrier is adequately addressed throughout the three components of the proposal through capacity-building activities.

1.5 Country ownership

Scale: High

1.5.1. **Alignment with national climate strategy and policies**

40. The adaptation of the agriculture sector to climate change is stated as a national priority in Zimbabwe’s nationally determined contribution. The project is also fully aligned with the National Climate Change Response Strategy, the National Climate Policy, the National Renewable Energy Policy, the Environmental Management Act, the National Adaptation Plan and the Zimbabwe Agricultural Investment Plan (2013–2018).

1.5.2. **Capacity of accredited entities or executing entities to deliver**

41. The United Nations Development Programme (UNDP) has experience in climate-related programmes. UNDP has worked with the Government of Zimbabwe during the last four decades in various programmes and projects in the areas of disaster risk management, climate change, poverty reduction, governance and environmental management with technical and capacity-building support.

42. UNDP carried out a capacity assessment for the Ministry of Lands, Agriculture, Climate, Water and Rural Resettlement, which would act as executing entity, in order to identify managerial and operational capacity and weaknesses in the areas of programme management, organizational structure and staff, accounting policies and procedures, fixed assets and inventory, financial reporting and monitoring and procurement; the overall risk rating was assessed as low. The executing entity has implemented several climate change projects in the country through partnerships with UNDP, the World Bank, the European Union, the United Nations Children’s Fund and the United Nations Environment Programme.

1.5.3. **Engagement with civil society organizations and other relevant stakeholders**

43. The design phase of the project included consultations with the Ministry of Lands, Agriculture, Climate, Water and Rural Resettlement, particularly AGRITEX and the Department of Irrigation, the Department of Research and Specialist Services, the Meteorological Services Department, local governments, non-governmental organizations and farmers of the three targeted provinces. Consultation are described in the stakeholder consultations, annex XIII.

²⁷ Funding proposal, para. 131.

1.6 Efficiency and effectiveness

Scale: High

1.6.1. Financial adequacy

44. In general, the proposed financial structure seems adequate to achieve project objectives. However, the cost estimation process for the revitalization of existing irrigation schemes and construction of new ones is described only in general terms. The cost estimation is based on costs of a representative scheme per band to calculate an average cost per band.²⁸ Yet while the four representative bands have per hectare costs of USD 8,200 to 9,800, the table presenting the 21 schemes shows per hectare costs ranging from USD 2,150 to USD 14,250.²⁹ It is not clear how the per band costing was then applied to estimate the cost of each individual scheme. For example, the Bindamombe scheme (R16), which would cover 34 ha, presents a cost for the irrigation scheme (excluding solar costs) of USD 277,500, and the Nyahombe scheme (R8), which would cover 200 ha, presents exactly the same cost. It is not possible to assess the adequacy of the budget allocation for this activity without a more detailed description of each scheme.

45. The capacity-building scheme consisting of training of trainers, where AGRITEX staff would train lead farmers in farmer field schools, who would then train neighbouring farmers in their communities, ensures a cost-efficient method for upscaling the implementation of CRA practices.

46. Given the public service nature of project activities, and the limited resources of the beneficiaries, it can be assured that the project would not crowd out private investments. On the contrary, one of the objectives of developing the innovation platforms is to crowd in private investments.

1.6.2. Financial viability

47. Additional income generated from winter crops represents 96 per cent of total project income, as estimated in the economic and financial analyses. As explained in paragraph 27 of this assessment, without concrete financial aid included in the project budget, it is unlikely that the project would achieve the implementation of tomato farming on 50 per cent of the irrigated land from year 2, as assumed on the economic and financial analyses. Therefore, the calculated net annual benefits are likely to be smaller than estimated in the proposal, particularly during the first years of project implementation. For this reason, the internal rate of return and net present value calculated in the proposal are not considered to be a realistic representation of the most likely scenario.

1.6.3. Best practices

48. The project plans to integrate modern, climate-resilient agro-ecological practices with traditional knowledge. Building on the portfolio of CRA packages designed during project preparation, a participatory research methodology would be used to receive the input of local farmers for the identification and prioritization of climate-related issues and solutions.

²⁸ Annex II - Feasibility study, page 119; and Annex II_a - Green Climate Fund: Climate Resilient Irrigation in Southern Zimbabwe - Mzingwane, Runde and Save River Basins, section 3.6.

²⁹ Annex II - Feasibility study, table on pages 120 and 121.

49. The design of both irrigation and CRA components took into account key lessons learned in previous projects, and are described in detail in each specific feasibility study.³⁰

50. However, concerning irrigation, the proposal did not include a detailed description of the 21 irrigation schemes, and the provided descriptions are too general and vague to enable assessment of technical soundness. In response to the questions of the independent TAP regarding water availability, the proponent stated that “in the design each scheme is either supplied from an existing dam, a large perennial river or boreholes to be drilled. Any low flow season or drought impacts are managed through release of water from the dams on the sites where the river hydrology deems this necessary. Only one site (Fuve) has allowed for the provision of a new small dam / weir”. The proponent also submitted a water demands and water resources analysis for the Save basin.

51. The solar power equipment would not use batteries. Instead, as pumps would provide variable flow, proportional to solar radiation, the storage tanks would act as balancing tanks to achieve constant pressure.³¹

52. Regarding climate-resilient crops, the value chain feasibility study argues that cassava was not selected owing to the lack of a developed market demand. CRA packages also fail to include cassava. Soils in the target region, which are mainly sand to silty loams that drain well,³² and tropical climate moderated by altitude provide ideal conditions for this low-input crop, which has already been tagged as a drought insurance crop.³³ Cassava is a staple food in many African countries, and is one of the most drought-tolerant crops in the world, capable of growing in poor soils.³⁴ Also, it can be left in the ground for several months after maturity,³⁵ to be harvested only when needed, thereby serving as a reserve food when other crops fail. For these reasons, which give cassava an unparalleled potential for enhancing food security, it is strongly recommended that the project include this crop as part of CRA packages. The lack of a developed market demand could be addressed by taking advantage of the communication and capacity-building activities included in the project.

II. Overall remarks from the independent Technical Advisory Panel

53. The independent TAP recommends this funding proposal for approval.

³⁰ Annex II_a - Green Climate Fund: Climate Resilient Irrigation in Southern Zimbabwe - Mzingwane, Runde and Save River Basins, page 50; and Annex II_c - Climate-smart agriculture packages - UNDP GCF adaptation project proposal preparation for Zimbabwe, page 68.

³¹ The independent TAP Comments: 26 December 2019. AE response to comment 5.

³² Annex II_a - Green Climate Fund: Climate Resilient Irrigation in Southern Zimbabwe - Mzingwane, Runde and Save River Basins, page 55.

³³ Barratt et al. 2006. Cassava as drought insurance: food security implications of cassava trials in Central Zambia. *Agrekon*. 45(1).

³⁴ See *Cassava's Drought Tolerance Aids Warming World*. Available at <<https://croplife.org/news/cassavas-drought-tolerance-aids-warming-world/>>.

³⁵ Depending on the variety and the climate, it can remain in the ground after maturity for between 12 and 24 months.

Response from the accredited entity to the independent Technical Advisory Panel's assessment (FP127)

Proposal name: Building Climate Resilience of Vulnerable Agricultural Livelihoods in Southern Zimbabwe

Accredited entity: United Nations Development Programme (UNDP)

Impact potential
<i>We note and agree with the independent TAP's assessment and rating of the project with respect to its impact potential.</i>
Paradigm shift potential
<i>We note and agree with the independent TAP's assessment and rating of the project with respect to its paradigm shift potential.</i>
Sustainable development potential
<i>The overall high rating is noted. The independent TAP points to the sensitivity of the economic co-benefits and the gender-sensitive development impact to the limited financial aid. It is the intention of the project design to minimize dependence on aid, but to use limited aid to unlock the potential created by capacity building and value chains. The success of ongoing initiatives against which this project is modeled demonstrates that even with this limited financial aid, the project interventions will result in overall positive impact. During implementation, the project will pay attention to facilitating access to sustainable finance.</i>
Needs of the recipient
<i>We note and agree with the independent TAP's assessment of the project on addressing the needs of the recipient both at the national and community levels.</i>
Country ownership
<i>The independent TAP's assessment of the project against the "country ownership" criterion is consistent with the process followed in its origination, development and implementation arrangements. This will be maintained during implementation to ensure it continues being owned by the country at all levels.</i>

Efficiency and effectiveness

The overall assessment against this criterion and the high rating is noted, as well as the concern with the magnitude of the project's financial viability of the project is noted. However, even after adjusting financial variables, the NPV and IRR remain favorable, while higher financial aid may undermine the sustainability of the project by creating dependency.

The costing of climate proofing irrigation schemes is based on a maximum of the 30ha per scheme irrespective of size. For example, Bindamombe and Nyahode schemes have the same cost because the analyses take only the first 30 ha from each scheme.

Overall remarks from the independent Technical Advisory Panel:

We thank the independent TAP for recommending the project for funding.

The comprehensive assessment of the project is well appreciated, as well as the ratings on each of the criteria. During implementation, we will continue working with the Executing Entity and other stakeholders to strengthen the areas that have been highlighted in this assessment.



Annex XIII: Gender Assessment and Action Plan

Building Climate Resilience of vulnerable agricultural livelihoods in Mzingwane, Runde and Save river basins in southern Zimbabwe

I Introduction

The proposed project supports the Government of Zimbabwe to strengthen the climate resilience of vulnerable agricultural livelihoods in the Mzingwane, Runde and Save river basins in southern Zimbabwe.¹ The direct beneficiaries will be 543,620 people in vulnerable Agro-Ecological Regions IV and V of the provinces of Manicaland, Masvingo and Matebeleland South in southern Zimbabwe, who will benefit from climate smart agricultural packages, strengthening of market linkages; climate proofed irrigation infrastructure and rehabilitation, and improved access to risk and financial mechanisms in Zimbabwe. It is expected that the total rural population of 543,620 in targeted wards will directly benefit from improved climate information systems and weather information. In addition, it is expected that the total rural population across the 15 districts - 1,758,200 people will be benefiting indirectly from climate information, weather and agricultural advisories as well as from the learnings from this project.

This gender assessment aims to provide an overview of the gender situation in Zimbabwe, with a specific focus on building Climate Resilience of vulnerable agricultural livelihoods in Mzingwane, Runde and Save river basins in southern Zimbabwe, identifying gender issues that are relevant to the project, and examining potential gender mainstreaming opportunities. The assessment informs a detailed costed action plan which is annexed to this report. The assessment is based on available data from studies conducted by the Government of Zimbabwe, donor agencies, and multilateral development banks, including the following:

- A desktop review of relevant national policy documents, including Zimbabwe National Gender Policy (NGP), (2013-2017); Zimbabwe Comprehensive Agriculture Policy Framework (2015-2035); Zimbabwe's National Climate Change Response Strategy (2015); National Environmental Policy and Strategies (2009) and others;
- National level consultative interviews with strategic stakeholders that include Ministry of Agriculture Irrigation department, AGRITEX, the National Gender Machinery, the Gender Commission, UN agencies, the private sector and development partners;
- Field visits to selected Irrigation Schemes and dry land farming areas and stakeholder consultations, especially with female farmers;
- Lessons learned and recommendations from past studies and assessments on gender in Zimbabwe, undertaken by the Government of Zimbabwe, UN agencies, development partners, civil society organisations, and multilateral development banks; and past and ongoing projects have also been reviewed to identify lessons and best practice.
- Conducting stakeholder consultations and engaging women affected by the project and incorporating all points raised;
- Reviewing and incorporating findings from other sub assessments conducted for this proposal including the feasibility studies for CSA, agriculture value chain analysis; inclusive risk and financial analysis which are based on consultations with stakeholders and also provide some relevant insights; and

¹ Government of Zimbabwe and UNDP (2016) Technical Pre-Feasibility Study: Building Climate Resilience of Vulnerable Agricultural livelihoods in Mzingwane, Runde and Save river basins in southern Zimbabwe.



- Integrating gender considerations into the project indicators, targets and activities, identifying women as leaders and decision-makers.



II Gender equality and social inclusion in Zimbabwe

Building climate resilience of smallholder agriculture in Zimbabwe's river basins requires women as key players, given that they form 70% of the rural population and also contribute towards 70% of food production.² This proposed project will provide an opportunity for women to lead and contribute to addressing the issues of food security, livelihoods and water management.

The Zimbabwe National Gender Policy (NGP) (2013-2017) recognises the limited gender considerations in policy frameworks on the management and protection of environment and natural resources. The Policy outlines new mechanisms for climate change mitigation and environmental management that incorporates gender-sensitive perspectives. The Gender and Environment Theme of the NGP's objective is to increase gender responsiveness of environment and natural resources management strategies and of climate change adaptation and mitigation initiatives.³ In 2013, the Government formulated and put in place a five-year economic blueprint called the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) with a vision, "Towards an Empowered Society and the Growing Economy." The blueprint has four clusters, namely Food Security and Nutrition, Social Services and Poverty Eradication, Infrastructure and Utilities, and Value Addition and Beneficiation, with climate resilience measures cutting across all the aforementioned sectors.⁴ The Food Security and Nutrition Cluster aims to strengthen the climate and disaster management policy, promote conservation agriculture, rehabilitate irrigation infrastructure, promote drought-resistant, high yielding and heat tolerant varieties and promote bio fuels and renewable energy.⁵

The Rio Convention (1992) noted that without gender equality, key areas of poverty reduction, environmental sustainability and long term economic development would not be attained. Due to their different experience of poverty, men and women also have differentiated knowledge of natural resources, yet their contributions are unequally recognised. Ensuring climate resilience especially in smallholder farmers' agricultural systems requires explicit and full recognition of the different roles of men and women in effecting such changes.

Vulnerability of women to climate change is higher than that of their male counterparts in Sub Saharan Africa, particularly in Zimbabwe as it is orchestrated by and related to the intersection of biophysical, socio-economic and political factors. Historical and social gender division of labour, differences in levels of education, wealth, reliance on natural resources, health status, and access to productive resources as well as access to and participation in decision making lead to high gender-driven variations and intensify vulnerability of women. The project envisages that, if barriers to climate change resilience - lack of technical and financial capacity to invest in climate resilient agriculture production and to participate in climate resilient value chains, limited awareness, limited access to use of climate information as well as weak of institutional coordination - are eliminated, rural smallholder farmers, particularly women, can become resilient to climate change effects in Zimbabwe's drought-prone southern regions. Improved resilience will be manifested through enhanced food production and climate-proofed income generation capacity, strengthened capacity of farmers to plan and implement climate-resilient agricultural production practices, as well as adaptive management of climate risks in a sustainable manner.⁶

² Oxfam in Zimbabwe (2016) A Future Without Poverty, We can make it: Zimbabwe Women Call for Land Rights now. <http://oxfaminzimbabwe.org/index.php/2016/10/16/zim-women-call-for-land-rights-now/>

³ Government of Zimbabwe (2013). National Gender Policy (2013-2017)

⁴ Government of Zimbabwe and UNDP (2016). Technical Pre-Feasibility Study. Building Climate Resilience of Unreliable agricultural livelihoods in Mzingwane, Runde and Save river basins in Southern Zimbabwe.

⁵ Ibid

⁶ Theory of Change for the Green Climate Fund Concept Note- Zimbabwe



There is potential for communities to take the initiative and act on adapting to climate change, such that both men and women equitably play critical roles in reducing their vulnerabilities and build their resilience to potential new risks. In the past, communities utilised Indigenous Knowledge Systems (IKS) to cope with climate variability and extreme weather conditions, but climate change has come with new risks that fall outside the previous experiences of communities. Notably, in 2015/16 season, Zimbabwe was hit by the El Niño effect (one of the strongest in 35 years) which affected about 4 million people, 30% of whom are in Southern Zimbabwe, impacting negatively on nutrition, health, education and water sectors and agro-based income generation activities for rural households.⁷

The project will be implemented in southern Zimbabwe covering three river basins: The Save, Umzingwane and Runde within the three provinces of Manicaland, Masvingo and Matabeleland South. Targeted districts for this study in each province are in Manicaland province (Buhera, Chimanimani and Chipinge Districts), Masvingo Province (Bikita, Zaka, Chivi, Mwenezi, Chiredzi and Masvingo) and Matabeleland South Province (Beit Bridge, Mangwe, Matobo, Gwanda, Umzingwane and Insiza districts). The districts were selected based on the level of vulnerability to climate variability and climate change. Of the four million people affected by the 2015/16 El Niño season, 30% were from Southern Zimbabwe.⁸ The high incidence of poverty in these selected districts renders inhabitants susceptible and little able to cope with the impacts of climate change.

Gender Inequality Indexes

Through the years, several indices have been developed to quantify the concept of gender inequality. This section will provide an overview of the following indexes, as a measure to gender inequality in Zimbabwe:

- Gender Inequality Index (GII)
- Gender Development Index (GDI)
- Global Gender Gap Index (GGGI)
- Social Institutions and Gender Index (SIGI)

Gender Inequality Index (GII) reflects gender-based inequalities based on three dimensions; (i) Reproductive Health, (ii) Empowerment and (iii) Economic Activity. Reproductive health is measured by maternal mortality and adolescence birth rates. Empowerment reflects the share of parliamentary seats held by females and attainment in secondary and higher education by sex, while economic activity is measured by labour market participation rates for women and men. The GII represents a loss in human development due to inequalities between male and female achievements in the abovementioned GII dimensions. Zimbabwe has a GII of 0.504 (2014) and ranks 112 out of 155 countries assessed.⁹

Gender Development Index

The Gender Development Index (GDI) is a relatively new measure introduced in 2014 by the Human Development Report Office (HDRO) that measures gender inequalities in achievement in three basic dimensions of human development, namely health (measured by female and male life expectancy at birth), education (measured by female and male expected years of schooling for children and mean years for adults aged 25 years and older) and command over economic resources (measured by female and male

⁷ Government of Zimbabwe and UNDP (2016). Ibid

⁸ Ibid

⁹ UNDP Human Development Reports (2015/2016) International Human Development Indicators (Zimbabwe Country Profile).

estimated GNI per capita).¹⁰ In miniature, the GDI considers the gender gaps in human development between men and women. The higher the GDI value, the better performance for a country showing fewer differences between males and females in development while smaller values towards zero indicate poor GDI performance. The Zimbabwe GDI value in is 0.922 (2014), ranking 155 out of 188 nations, which is higher in comparison to the Sub Saharan Africa GDI value of 0.872 (2014). However, at global level, the country falls into the Low category against Very High, High and Medium Human Development categories.¹¹ Further analysis shows that Zimbabwe's performance on GDR is greatly affected by its poor performances on one of the GDI variables Command over Economic Resources (measured by female and male estimated GNI per capita).¹² Table 1 shows how Zimbabwe compares with other GDI categorised nations.

Table 1: Selected Countries GDI Economic Command on GNI per Capita

GDI Category	Country	Rank out of 188	Female GNI per Capita (USD)	Males GNI per Capita (USD)
Very High Human Development	Norway	1	57.140	72.825
High Human Development	Russia Federation	50	17.269	28.287
Medium Human Development	Botswana	106	15.179	18.096
	South Africa	116	8.713	15.737
Low Human Development	Zimbabwe	155	1.387	1.850

The statistics reflect a very low Command over Economic resources which contributes to lower male and female estimated GNI per capita. However, Zimbabwe's performance on other GDI components (Life Expectancy, expected years of Schooling) is comparatively good.

Global Gender Gap Index

The Global Gender Gap Index (GGGI) of the World Economic Forum examines the gap between men and women in four categories: economic participation and opportunity, educational attainment, health and survival; and political empowerment.¹³ Out of 144 countries, Zimbabwe's rank, based on GGGI in 2016, is given below¹⁴: Table 2 presents ratings for the Global Gender Gap.

Table 2: Global Gender Gap Report: Rating of Zimbabwe by Components on the 2016

Description	Score	Rank (Out of 145 Nations)
Economic participation and opportunity	0.714	45
Educational attainment	0.973	96
Health and survival	0.980	1
Political empowerment	0.175	69
Gender Gap Index 2014	0.710	56

¹⁰ UNDP (2015). Human Development Report 2015: Work for Human Development- Briefing note for countries on the 2015 Human Development Report (ZIMBABWE)

¹¹ UNDP (2015). Human Development Report 2015. Work for Human Development Programme: New York

¹² Ibid

¹³World Economic Forum. The Global Gender Gap Report 2014 Country Profiles.

http://www3.weforum.org/docs/GGGR14/GGGR_CountryProfiles.pdf

¹⁴<http://reports.weforum.org/global-gender-gap-report-2014/economies/-economy=LKA>

* Inequality = 0.00; Equality = 1.00. Source: The Global Gender Gap Report 2014

Social Institutions and Gender Index (SIGI)

The Organization for Economic Cooperation and Development (OECD) developed the Social Institutions and Gender Index (SIGI) in 2009, a composite index that scores countries (i.e., 0 to 1) on 14 indicators grouped into five sub-indices: discriminatory family code, restricted physical integrity, son bias, restricted resources and assets, and restricted civil liberties to measure the discrimination against women in social institutions across 160 countries. SIGI country ratings are divided into four categories: Very Low, Medium, High and Very High. Countries in the SIGI Very Low Category indicate good performance in progressing towards gender equality. The smaller the nation's SIGI value, the higher its performance towards gender equality. The 2014 SIGI value for Zimbabwe is 0.1392 and is categorised in the Medium SIGI Category.

Poverty

Zimbabwe is a low-income country, with an estimated 72% of the population living in chronic poverty.¹⁵ Women lack access to equitable education, especially at tertiary level, in relation to their male counterparts, whilst they also remain marginalized in terms of access to productive resources and in labour force participation. These and other factors contribute to higher poverty headcount for women, in comparison to men.

Poverty is higher in women-headed households (72%), in comparison to male-headed households (58%).¹⁶ The determinants that validate the ability to ease out of poverty are not gender favourable in Zimbabwe, as women remain marginalised in both social and economic spheres. Women's access to education remains low at tertiary level, which is a key to their empowerment and poverty reduction. In regard to estimated earned annual income (US \$ PPP), the figure for women (US\$ 1,460) remains well below that for men (US\$ 2,133), with Zimbabwe ranking 34 out of 144 nations globally with a value score of 0.685, slightly above the global average of 0.502.¹⁷ In Zimbabwe, status of head of household is intertwined with the issue of gender and poverty¹⁸, thus in Zimbabwe, 68% of female-headed households live under the Total Consumption Poverty Line.¹⁹ Table 4 shows the poverty status of women in terms of the Special Human Needs in welfare areas such as Health and Nutrition, Food Security and Agriculture, Water, Hygiene and Sanitation and Protection. Women have a greater share than their male counterparts in terms of the following needs; Health & Nutrition (54%), Food Security & Agriculture (52%), Water, Health & Sanitation (52%) and Protection (90%), all denoting how they form a large portion of the impoverished in Zimbabwe.

Table 3: Women and the areas where they are in Need

Area of Need	Health & Nutrition	Food Security & Agriculture	Water, Hygiene & Sanitation	Protection
Population in Need (millions)	1.8 million	2.83 million	1.88 million	0.26 million
% of Women	54%	52%	52%	90%

Source: Adapted from World Economic Forum (2016). *The Global Gender Gap Report 2016: Insight Report*.

¹⁵ UN (2016). Zimbabwe Humanitarian Needs Overview 2016. www.unocha.org/zimbabwe

¹⁶ Government of Zimbabwe (2012). Combined Report of the Republic of Zimbabwe in Terms of CEDAW.

¹⁷ World Economic Forum (2016) Ibid

¹⁸ Tawodzera, G; Riley, L and Crush, J (2016). The Return of Food: Poverty and Urban food Security in Zimbabwe after Crisis. Urban Food Security Series No. 22. Africa Food Security Urban Network (AFSUN)

¹⁹ Government of Zimbabwe (2013). National Gender Policy (2013-2017).

The Government of Zimbabwe is working towards poverty eradication, especially for women who bear the brunt and is a signatory to various conventions and protocols aiming to achieve poverty reduction. The Beijing Declaration and Platform for Action of 1995 have 'Women and Poverty' as one of its strategic objectives, calling on state parties to eradicate women's poverty.²⁰ At the national level, the 2013 Constitution of Zimbabwe in Section 17 calls for 'Gender Balance' especially in economic development with the National Gender Policy (2013-2017) echoing the same sentiments.

Health and waterborne disease

Zimbabwe has prioritized women-related health issues, and access to health through various initiatives, policies and strategies. Notable interventions include the following:

- resuscitation of primary health care facilities in rural areas and low income urban areas,
- the introduction of Anti-Retroviral Therapy (ART);
- the Prevention of Mother to Child Transmission (PMTCT) programme;
- the Visual Inspection with Acetic Acid (VIAC) Programme for cervical cancer 2013-2017, and a supportive health policy framework.²¹

Given the role women play in health service provision at all levels, most of the policies are pro-women and children. The top ten causes of death in Zimbabwe are: HIV and AIDS (26.8%); lower respiratory infections (8.3%), pre-term birth complications (4.6%); diarrhoeal diseases (4.6%); birth asphyxia and birth trauma (3.9%); stroke (3.4%); tuberculosis (2.8%); neonatal sepsis and infections (2.1%); ischaemic heart disease (2.0%) and congenital anomalies (1.7%).²² Moreover, Zimbabwe has one of the highest maternal, mortality rates in the world at 470/100,000 live births in 2013.²³ The statistics on maternal mortality rates indicate great improvement compared to earlier years (680/100 000 live births in 2000).²⁴ The infant mortality rate (probability of dying before the first birthday) was 55 deaths per 1000 in 2014 compared to 75 deaths per 1000 in 2009. In 2014, 11.2% of children were underweight, 27.6% were stunted, and 3.6% were overweight.²⁵ Zimbabwe has a life expectancy of 52 (females) and 48 (males) stipulating a female to male ratio of 1.08, ranking first out of 144 nations.²⁶ The Zimbabwe Government's Beijing + 20 Review Report 2016, notes that the economic challenges facing the country have affected women's access to quality health despite a supportive policy environment.

Increased climate change and rainfall variability is likely to result in floods, which would lead to the distribution of waterborne diseases such as cholera, typhoid, guinea worm, dysentery, diarrhoea and malaria due to reduced water quality, and excessive temperatures. Women and children bear the brunt of climate change owing to the traditional set up of Zimbabwean society which designates the roles of provision of food, water, cooking and fuel to women and children. The impact of climate variability will also imply more work and greater hardships for women and children who will have to walk longer distances to fetch water.²⁷

²⁰ Beijing Declaration and Platform for Action 1995

²¹ National Health Strategy for Zimbabwe 1997-2007, 2009-2013 and 2014-2016, the Zimbabwe National HIV Strategic Plan (ZNASP) 2011-2015; National Adolescence Sexual and Reproductive Health (ASRH) Strategy 2010-2015; National Strategic Plan on PMTCT 2010-2015.

²² World Health Organisation (2015) Zimbabwe WHO statistical profile.

²³ Zimbabwe Government Beijing + 20 Review Report (2015)

²⁴ World Bank Group (2016) From World Development Indicators: The Little Data Book on Gender. Washington DC

²⁵ Zimbabwe Statistical Agency (ZIMSTAT) 2014 Multiple Indicator Cluster Survey (MICS), Key Findings Report

²⁶ World Economic Forum (2016) The Global Gender Report: Insight Report. Geneva

²⁷ Brazier, A (2015) Climate Change in Zimbabwe: Facts for Planners and Decision Makers. Publisher – Konrad Adenauer- Stiftuns. Harare and Government of Zimbabwe (no Date) Climate Change impacts on Human Health.

Zimbabwe occasionally suffers from water-related diseases. One notable example is the cholera outbreak of 2008 that claimed more than 4,200 lives.²⁸ The malaria hazard for Zimbabwe, based on the bioclimatic models for the years 1992, 1996 and 2000 reveal a strong link between recorded malaria incidence and temperature, as well as rainfall. Other similar studies conducted in Chiredzi for the period 1990 to 2014 also confirmed the relationship between malaria distribution and excessive rainfall.

Education

In 1980, soon after gaining independence, Zimbabwe adopted a policy of free primary education for all by abolishing school fees, leading to an exponential increase of enrolments.²⁹ The country is on course to achieving gender parity in primary and secondary education while lagging behind in the tertiary sectors. Factors affecting participation in education by sex include: cost of school supplies, early marriages, cultural practices like initiation practices requiring girls to be out of school for extended periods, security concerns and other cultural beliefs. At higher levels such as tertiary education, women remain marginalised in terms of attendance, thereby constraining opportunities for their empowerment.

Zimbabwe is ranked 96 out of 144 countries, with a score of 0.973, well above the global score average of 0.955, with a near gender parity female to male ratio of 0.97 in the Global Gender Gap rankings of 2016.³⁰ Table 5 shows gender enrolment, gender literacy levels and Global Gender Gap ranking of Zimbabwe in 2016. The rankings denote gender parity in primary and secondary education enrolment, which ranks the country first out of 144 countries. Enrolment at tertiary level education, on the other hand, negatively affects the country's ranking globally.

Table 4: Zimbabwe Gender Education Status on the Global Gender Gap of 2016

Measuring Component	Rank out of 144 Nations	Score	Global Score Average	Female (F)	Male (M)	F/M Ratio
Literacy Rate	93	0.963	0.897	85	89	0.96
Enrolment in Primary Education	1	1.000	0.980	86	85	1.01
Enrolment in Secondary Education	1	1.000	0.970	44	44	1.01
Enrolment in Tertiary Education	106	0.838	0.930	5	6	0.84

Source: Adapted from the World Economic Forum (2016). The Global Gender Gap Report 2016: Insight Report

In view of the difficulties faced by women and girls in accessing tertiary education, the University of Zimbabwe (UZ) in 1995 introduced an Affirmative Action (AA) Policy for girls as an Intervention Strategy to ease the situation of gender imbalance at tertiary education levels.³¹ To date, all tertiary institutions have embraced the AA Policy initiative. Zimbabwe legislators used affirmative action measures to increase the number of females in tertiary institutions, stressing that gender parity for teaching professionals is critical for ensuring girls' stay in schools.³² The country launched the National Action Plan of Zimbabwe in 2006, a 2004 review of the Educational Act, which made the Act gender-responsive in terms of gender equality in

²⁸ Akesson, Y; Wingqvist, G.O; Ek, G and Cesar, E (2016) Environmental and Climate Change Policy Brief. Zimbabwe.

²⁹ Dube, T (2015). Gender Disparities in Educational Enrolment and Attainment in Sub-Saharan Africa. Department of Development Studies, Lupane State University, Bulawayo in "Journal of Educational and Social Research MCSER Publishing, Rome Italy Vol 5 No. 3

³⁰ World Economic Forum (2016) Ibid

³¹ Dube, T (2015)

³² Made, P.A; Dube, S and Glenwright, D (2015) Ibid



education, and Education for All Towards 2015.³³ The Basic Education Assistance Module (BEAM), a social safety net for assisting vulnerable children's access to education's guiding principles, is that 50% of assisted students should be girls.

Political Participation and Decision Making

Zimbabwe is a signatory to the Southern African Development Community (SADC) Protocol on Gender and Development of 2008, which calls for equal representation of men and women in politics. The country is also a signatory to the Convention on the Elimination of all forms Discrimination against Women and the Beijing Platform for Action which call for the realization of equality between women and men through women's equal access to, and equal opportunities in political and public life and improving their status in those domains respectively.³⁴ The Constitution of Zimbabwe also makes provisions for a 50/50 participation in politics and decision making.

Women make up more than one third of Zimbabwe's Parliament with 124 women having been sworn in as Members of parliament in 2013. Following the 2008 General elections, women's representation in Parliament more than doubled from 17% to 35% in the 2013 elections. This increase in women's participation in Parliament was mainly due to the explicit 2013 constitutional provisions {Section 124- (1) (b)}, which provided for an additional 60 women members, six from each of the 10 provinces, elected under a Party List System of proportional representation. Furthermore, section 17 {(b) (i) of the 2013 Constitution calls for both males and females to be equally represented in all Institutions and Agencies at every level. Zimbabwe is now one of more than 30 countries globally that have used a special electoral quarter system to increase women's representation in parliament to at least 30%, which is considered the minimum for collective action.³⁵

In spite of this progress, women's representation in local government, both urban and rural, decreased from 19% in previous elections to 16% following the 2013 general elections. It is argued that this was due to absence of special measures in the new constitution for women at this level. In addition, elections at local government level used the First-Past-The-Post (FPT) system which does not favour the representation of women candidates because it allows the candidate with a majority of votes to take all. This is in contrast to the Proportional Representation (PR) which recognizes the ratios of voters by all candidates (Used in the Parliamentary and Senate Representation).³⁶

Gender and Employment

In Zimbabwe, customary law promotes the perception of women's inferiority and creates a psychological basis for their discrimination in employment.³⁷ Traditional and social practices and attitudes contribute largely to discrimination against women in employment.³⁸ More women than men continue to be marginalised in employment.³⁹

³³ Ibid

³⁴ Zungura, M and Nyemba, E. Z. (2013) "The implications of the quarter system in promoting gender equality in Zimbabwean politics" in *International journal of Humanities and Social Science*, Volume 3, Number 2.

³⁵ Ndlovu, S. and Mutale, S.B (2013) "Emerging Trends in Women's Participation in Africa" in *American International Journal of Contemporary Research*, Volume 3 Number 11.

³⁶ Gender Links (2015) Zimbabwe: Local Government Helps promote gender equality. Genderlinks.org.za/news/Zimbabwe-local-government-helps-promote-gender-equality-2

³⁷ Madhuku, L (2001). Gender Equality in Employment: The Legal Framework in the Case of Zimbabwe. International Labour Organisation. South Africa Multidisciplinary Advisory Team (ILO/SAMAT). Harare.

³⁸ Ibid

³⁹ Made, P.A; Dube, S and Glenwright, D (2015) Ibid

Women continue to be marginalised in the employment arena and in economic participation more than their male counterparts. Overall, the Global Gender Gap Report of 2016 ranks Zimbabwe 45 out of 144 global nations with a score value of 0.714 in Economic Participation and Opportunity, well above the average global score value of 0.586 in the sector.⁴⁰ Table 5 shows how Zimbabwe ranks (out of 144 Nations) globally in the components of Economic Participation and Opportunity in the Global Gender Gap of 2016.

Table 5: Gender Ranking and Scores in Economic Participation and Opportunity

Component	Rank	Score	Global Average Score	Female	Males	Female/Male Ratio
Labour Force Participation	38	0.891	0.665	78	88	0.89
Wage for Similar Work	36	0.715	0.622	-	-	0.72
Estimated earned Income (US\$ PPP)	34	0.685	0.502	1,460	2,133	0.69
Legislators, Snr Officials and Managers	76	0.411	0.358	29	71	0.41
Professional and Technical Workers	86	0.844	0.862	46	54	0.84

Source: Adapted from World Economic Forum (2016). The Global Gender Gap Report 2016: Insight Report

While the country is competitive in labour force participation, there are notable gender gaps in the areas of female participation in top management, professional and technical jobs. Men dominate in permanent and formal employment in Zimbabwe, with 21.1% of males and only 9.9% of females involved in the labour force. Women dominate the informal sector (53%) relative to men (31%), with a favourable female to male ratio of 1.71, whilst in part-time employment women comprise 65% and men 47%, with a favourable female to male ratio of 1.37.⁴¹ The ability of Zimbabwean women to rise to positions of leadership remains low at 17%. Moreover, women comprise 54% of unskilled workers in the economy, while men make up 59% of professional workers.⁴²

Zimbabwe as a government has crafted numerous policies and strategies to help the cause of gender equity in economic participation and opportunities. Post 2004, the Government of Zimbabwe pursued a number of gender responsive economic policies and programmes. Zimbabwe has ratified 26 International Labour Conventions (ILO) since 1998 and most are in force, including the following, con. 100 – equal remuneration; con. 111 – no discrimination in employment; con. 29 – no forced labour; con. 105 – abolition of forced compulsory labour and con. 182 – prohibition and elimination of the worst forms of child labour^{43 44}. The SADC Protocol on Gender and Development of 2008, recommends state parties to amend and enact policies for gender equal access to employment, including equal pay for equal work, eradication of occupational segregation and maternity and paternity benefits. Zimbabwe’s Labour Act (Chapter 20:07) and the Public Service Regulation prohibits discrimination on the basis of gender at all stages of employment, recruitment selection, working conditions, training and promotion.⁴⁵ The affirmative action mentioned in the Zimbabwe Constitution of 2013 (section 65) makes provision for gender equality in

⁴⁰ World Economic Forum (2016) Ibid

⁴¹ Ibid

⁴² Made, P.A; Dube, S and Glenwright, D (2015) Ibid

⁴³ International Labour Organisations (2016). Ratification for Zimbabwe.

http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103183

⁴⁴ Tarusenga, U.D (2012). Trade Union Actions for Achieving Decent Work for Migrants at Tom Mboya Labour College, Kisumu, Kenya. Zimbabwe Country Report: ZCTU.

⁴⁵ Made, P.A; Dube, S and Glenwright, D (2015) Ibid



employment as a right.⁴⁶ The BBWEEF, launched in 2012, calls for the mainstreaming of women's economic empowerment and participation in the four Key Economic sectors of mining, agriculture, manufacturing and tourism.⁴⁷ Moreover, in 2014, for the first time, four Government Ministries (the Ministry of Agriculture, Mechanisation and Irrigation Development, Ministry of Local, Public Works and National Housing, Ministry of Higher and Tertiary Education, and the Ministry of Women Affairs, Gender and Community Development), developed gender responsive budgets in line with GRB principles.⁴⁸

Access to resources

The patriarchal nature of Zimbabwean societies prevents women from having formal financial options and from accumulating assets and productive resources. This limits women's ability to offer assets as collateral, and hence they suffer from limited access to financial credit and loans.⁴⁹ Women continue to be treated as legal minors in some communities, constraining their ability to make independent decisions or contractual arrangements.⁵⁰ Women's access to, and ownership of property and other productive resources remains very low, and this has continued despite legal frameworks put forward to date. In rural areas, women's access to land, which is a critical productive resource in Zimbabwe, is entirely determined by men, as it is governed by the patriarchal system.⁵¹

The ownership of land and other productive resources is a key indicator of women's empowerment in Zimbabwe. About 70% of agricultural labour is provided by women who make up 70% of the rural population and 80% of those in farming areas.⁵² Despite playing a key role in the agricultural sector, women do not have equal access to land (which is a critical productive asset), as their male counterparts do, in both communal and resettlement areas. Women own 18% of A1 land resettlements and 12% under A2 resettlements. A recent survey showed that 40% of female landholders, compared to only 4.1% male landholders, are susceptible to land disputes, implying that in those situations where women own their own land, it is often under dispute.⁵³ Furthermore, statistics on the ownership of properties show that more than 6 out of 10 women do not own a house (63%). The lack of access to assets in turn inhibits women in accessing loans and credit facilities which are pivotal to their economic development.

The Government of Zimbabwe has taken action to bridge these gaps, triggering considerable improvement in the area of commissioning and ensuring gender responsive access to productive resources established through the Treasury, the Women's Fund and Gender Responsive Budgeting (GRB). There has been significant development and implementation of women's savings and lending schemes by various development agencies and government institutions. The UNDP/GEF Scaling Up Adaptation project for example demonstrates the successes from village savings and lending schemes particularly enabling women to access finance to capitalise productive livelihoods initiatives. Other projects that provide lessons are mentioned in section 1.4. of the inclusive risk and financial analysis. The Small Enterprise Development Corporation (SEDCO) has specific financial loans and management training for women with a target to provide at least 30% of its products and services to women entrepreneurs, having funded women's projects since 1984.⁵⁴ There is still a gap where financial intermediaries still demand collateral in the form of titled assets which most women do not have. As observed in the inclusive risk and financial analysis, there is need

⁴⁶ Government of Zimbabwe (2013). Constitution of Zimbabwe Amendment No. 20

⁴⁷ Ibid

⁴⁸ Made, P.A; Dube, S and Glenwright, D (2015). Ibid

⁴⁹ Made, A.P; Dube, S and Glenwright, D (2015). Zimbabwe 2015 SADC Gender Barometer 2015.

⁵⁰ Ibid

⁵¹ Oxfam in Zimbabwe (2016). A Future Without Poverty, We can make it: Zimbabwe Women Call for Land Rights now. <http://oxfaminzimbabwe.org/index.php/2016/10/16/zim-women-call-for-land-rights-now/>

⁵² Oxfam in Zimbabwe (2016) Ibid

⁵³ Ibid

⁵⁴ Ibid

to sensitise the formal intermediaries on inclusive credit and loan schemes particularly for the benefit of women smallholder farmers. The Government of Zimbabwe's institutions and Ministries have made significant progress in correcting gender imbalances in the areas of access to productive resources. However, there still is a need to develop land reform policies that ensure women's access to land.⁵⁵

Gender Based Violence (GBV)

In Zimbabwe, the issue of Gender Based Violence (GBV), often labelled as a 'pandemic' by Gender Experts is rooted in the historically unequal power relations between men and women.⁵⁶ The history of violence against women is tied to the history of women being viewed as property and their subservient status to men. Types of GBV include: sexual threats, exploitation, humiliation, assaults, molestation, domestic violence, incest, involuntary prostitution, torture, and rape. Female genital mutilation and other harmful traditional practices, including early marriage, which substantially increases maternal morbidity and mortality, are forms of GBV that cannot be overlooked.

Zimbabwe is a signatory to landmark international and regional gender protocols and conventions, which emphasise and commit nations to establish measures to combat GBV. The CEDAW, commits state parties to prevent and protect women against GBV, including against domestic violence. Article 20 of the SADC Gender Protocol on Gender and Development commits state parties to combat and address GBV through legislation and government programmes.⁵⁷ In line with international protocols and conventions, the 2013 Constitution contains in Section 52, the right to be free from all forms of public and private violence and the right to personal security. Section 53 of the Zimbabwe Constitution includes the right to be free from torture and degrading treatment including GBV, whilst Section 25 of the same constitution (Protection of the Family), commits the government to adopt measures to prevent domestic violence.⁵⁸

In Zimbabwe, 47% of women and 35% of girls under 18 have experienced either sexual or physical violence at some point in time.⁵⁹ Notably, 7% of women in Zimbabwe reported experiencing non-marital rape in their life time whilst there are numerous cases of Intimate Partner Violence (IPV).⁶⁰ The issue of early marriage is common in Zimbabwe, with women aged 15-19 years comprising 26% of the marriages whilst overall, the mean age of female marriage stands at 21, which is far below that of their male counterparts at 26.⁶¹ This shows a gender gap in terms of human development, as women are deprived of their developmental time through early marriages. Table 7 shows the score values of Zimbabwe in the 2015 Global Gender Gap Report.

Table 6: Zimbabwe Global Gender Gap Ratings

Scale (0 to 1 score): Where 0 represents best score and 1 a worst score on gender gap

Gender Gap Analysis Issue	Score (Value)	Rating Summary
Parental Authority in marriage	1	This (value 1) shows that the country is dominated by men in the area of parental authority in marriage, with women marginalised

⁵⁵ Rudo Gaidzanwa, *Women and Land in Zimbabwe* (2011)

⁵⁶ Mashiri, L and Mawire, P.R (2013). "Conceptualisation of Gender Based Violence (GBV) in Zimbabwe" in *International Journal of Humanities and Social Science*, Vol 3, No. 15.

⁵⁷ Ibid

⁵⁸ Ibid

⁵⁹ Katembo, A (2015). Reducing Cases of GBV in Mashonaland Central Province: Zimbabwe, A dissertation submitted in fulfilment of the requirement of the Degree of Masters in Management Sciences (Peace Building). Durban University of Science and Technology.

⁶⁰ Made, P.A; Dube, S and Glenwright, D (2015) Ibid

⁶¹ World Economic Forum (2015), *The Global Gender Gap Report 2015: An Insight Report*.

Parental Authority after divorce	0	Women have parental authority outside marriage, equal to their male counterparts.
Female Genital Mutilation	0	There are no issues on Female Genital Mutilation (FGM)
Existence of Legislation for GBV	0.3	Although not fully on board, the country has crafted legislation for GBV, thus having a 0.3 score which is closer to 0 (best score).

Source: Adapted from World Economic Forum (2015), *The Global Gender Gap Report 2015: An Insight Report*

The National Gender Based Violence Strategy (2010-2015) aimed at reducing GBV in Zimbabwe by 20% by 2015.⁶² Zimbabwe has enacted laws and policies to eradicate GBV, which includes inter alia, the Domestic Violence Act 2006 (Chapter 5:6), Criminal Codification and Reform Act (Chapter 9:23), the National Gender Based Violence Strategy (2010-2015), Zimbabwe National HIV and AIDS Strategic Plan II (2011-2015) and the Zimbabwe Agenda for Accelerated Country Action Plan for Women, Girls, Gender Equality and HIV.⁶³ The country has to date adopted the 365 Days of Action Campaign Initiatives to keep GBV in public discourse every year, which includes traditional, religious and community leaders as major actors in addressing GBV at local and community levels. The Ministry of Women Affairs and their Gender and Community Development's women and empowerment programmes are mostly in tandem enabling women to reduce their vulnerability to GBV. The national gender machinery leads the 4Ps (Prevention, Protection, Participation and Programmes) Campaign to GBV which is informed by the Africa UNite to End Violence Against Women Campaign.⁶⁴

Several extensive studies were conducted to acquire comprehensive knowledge on the extent and prevalence of GBV in the country. These are the 2010-11 Zimbabwe Demographic Health Survey (ZDHS), the National Baseline Survey on Life Experiences of Adolescents (2011) and the Largest Baseline Study on VAW Baseline conducted in 2012. GBV monthly statistics are also provided by the Victims Friendly Unit of the Police based on reported cases, although marred by widespread underreporting.⁶⁵

The government set up an Inter-Ministerial Cabinet Committee on Rape and GBV and developed a National action plan on rape, as well as Standard Operating Procedures for Safe Shelters (2012) in line with the provisions of the Beijing Platform for Action relating to the provision of shelters for the survivors of gender based violence.⁶⁶ Zimbabwe has also come up with a Multi Stakeholder Approach to the Management of Child Sexual Abuse.⁶⁷ This response has also created the Victim Friendly courts, which protect vulnerable witnesses in sexual abuse cases.⁶⁸

IV Mechanisms to address gender inequality in Zimbabwe - legal and administrative framework

The Government of Zimbabwe 2013 Constitution is hailed for a very strong gender equality position. Gender equality is systematically integrated in key areas of the Constitution and Section 17 provides more focused highlights of gender equality. The Constitution Preamble "[R]eaffirms commitment to upholding and defending fundamental human rights and freedoms." Gender Equality (g) is one of the Founding Values

⁶² Ibid

⁶³ Made, P.A; Dube, S and Glenwright, D (2015) Ibid

⁶⁴ Ibid

⁶⁵ Ibid

⁶⁶ The Zimbabwe Government (2015). The Beijing +20 Report

⁶⁷ Ibid

⁶⁸ Ibid



and Principles of the Constitution. Under the same section (i) (iii) the Constitution recognises the rights of women, the elderly, youth and children.

Section 17 is dedicated to Gender Equality and outlines the following:

(1) The State must promote full gender balance in Zimbabwean society, and in particular:

(a) the State must promote the full participation of women in all spheres of Zimbabwean society on the basis of equality with men:

(b) the State must take all measures, including legislative measures, needed to ensure that:

(i) both genders are equally represented in all institutions and agencies of government at every level; and;

(ii) women constitute at least half the membership of all commissions and other elective and appointed governmental bodies established by or under this Constitution or any Act of Parliament.

(c) The State and all institutions and agencies of Government at every level must take practical measures to ensure that women have access to resources, including land, on the basis of equality with men.

(2) The State must take positive measures to rectify gender discrimination and imbalances resulting from past practices and policies.

Section 56 “Equality and Non-discrimination” highlights that all persons are equal before the law, and women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural, and social spheres. The section highlights non-discrimination on grounds of race, colour, tribe, place of birth, ethnic or social origin, language, custom, sex and gender, marital status, age, pregnancy etc.⁶⁹

The Ministry of Women’s Affairs - Gender and Community Development (MWAGCD), also known as the National Gender Machinery and the Zimbabwe Gender Commission (ZGC), was established in accordance with the Zimbabwe Gender Commission Act (Chapter 10:31), and acts as the key institution responsible for working towards gender equality and women’s empowerment.⁷⁰

Sector (Agriculture and Irrigation) Related Policy Frameworks:

Key Policies/Strategies	Gender Equality Provisions
National Gender Policy (2013)	Gender, Environment and Climate Change: i. Ensure national level strategies for climate-induced disaster management and risk reduction, and coping mechanisms are gender responsive.
Zimbabwe Comprehensive Agriculture Policy Framework (2015-2035)	Agriculture policy Thrust # 4: The implementation of the policy will ensure gender is well mainstreamed in all agricultural activities and environmental management is promoted to ensure sustainability of biodiversity and natural resources.

⁶⁹ Government of Zimbabwe (2013) Constitution of Zimbabwe Amendment (No. 20) Act 2013.

⁷⁰ Government of Zimbabwe (2015) The Zimbabwe Gender Commission Act (Chapter 10:31). Gazetted 12th February 2016

<p>Zimbabwe’s National Climate Change Response Strategy (2015).</p>	<p>Gender, People Living with HIV and AIDS, and other Vulnerable Groups:</p> <ul style="list-style-type: none"> i. Mainstream climate change in policies for the vulnerable groups with their active participation ii. Strengthen the adaptive capacity of the vulnerable groups iii. Enhance provision of early warning system on droughts, floods and disease outbreak to vulnerable groups and ensure a coordinated approach in providing them with emergency services.
<p>National Environmental Policy and Strategies (2009)</p>	<p>Guiding principle 24: <i>Vulnerable groups within society need special provisions that guarantee equitable access to natural resources.</i></p> <ul style="list-style-type: none"> i. Promote measures to ensure equitable access by vulnerable groups to environmental resources and livelihood opportunities ii. Mainstream gender within environmental policy, planning and management initiatives by mobilising men and women in programmes aimed at achieving equitable and sustainable use of resources.

V Gender issues in response to threats of water scarcity to agricultural livelihoods of vulnerable smallholders

In Zimbabwe, more women than men are poor and live in rural areas where livelihoods are intimately linked with the exploitation of natural resources that are extremely vulnerable to climate change. Gender differences in property rights, access to information, and cultural, social and economic roles make women more susceptible to climate change effects. Recurring drought and low rainfall patterns negatively impact water supplies and fuel wood accessibility, which increases the distances women need to go to secure such resources. Women remain marginalised in terms of adaptation strategies to climate change, especially Female and Child Headed households lacking access to irrigation systems.⁷¹ Climate variability exacerbates incidences of tropical diseases such as malaria, typhoid and cholera, which impact women more due to limited access to medical services and their reproductive role, including caring for the sick. Zimbabwe has a history of climate variability, which is associated with a number of health problems, with women being the most affected as care givers.

The Torkwe Murkosi Dam bursting caused by unusually heavy rains and excessive flooding led to the displacement of households to the Chingwizi Camp. About 2,514 Households (HHs), who were upstream, were rated high risk while 8,000 HHs downstream were rated medium risk.⁷² The same flood is reported to have contributed to health challenges. About 64.4% of children living in the camp were reported to have illnesses, namely, diarrhoea (37.5%), cough (44.9%) and fever (11.7%). Severe acute malnutrition was found to be above the national average of 0.6%. Environmental conditions in the camp were noted to be the cause of deterioration of nutritional status. It has been noted that in order to create transformational change, women should be seen not just as climate change victims or adaptation beneficiaries but as being crucial to promote and lead climate change adaptation efforts. The adaptive measures are to be practiced by women as part of their daily lives (through climate-smart agriculture in the face of increasing risk) and through disaster recovery and preparation. By integrating these skills into project design and

⁷¹ Government of Zimbabwe (2015) Zimbabwe’s National Climate Change Response Strategy

⁷² Murima, B (2014) Flood Update.



implementation, and by providing a platform for women's empowerment, women are enabled to increase their influence, decision making and leadership from household to community and national levels.

The key gender issues likely to be affected by climate variability in the three main areas of irrigation, dry land farming and livestock production, have been summarized below:

Gender and Irrigation

- **Land Rights:** In the old irrigation schemes, women have limited land rights and only access land through their spouses or male relatives. This is in contrast to the newly designed irrigation schemes where women have almost equal access (40-50% ownership) to land through quarter systems, gender sensitive irrigation constitutions and by-laws. Hence, the project will work towards gender equality in irrigation schemes.
 - **Participation in Decision Making:** In the majority of cases, there is gender parity in the membership of irrigation governance structures such as the Irrigation Management Committees. However, contribution by women to strategic decisions making in these committees is questionable (confirmed by sentiments from a woman farmer from Zaka district) and still needs to be addressed. Nonetheless, indications from the assessment are that irrigation Management Committees chaired by female leaders are reported to perform better than those chaired by males. The proposed project builds on this by supporting female leadership development programmes and achieving gender equality in decision making processes.
 - **Gender Responsiveness of Irrigation Design:** By and large, older irrigation schemes have gender responsive technology using surface irrigation (which uses gradient for water flow and less lifting of heavy pipes, sprinkler or buckets use). Drip irrigation provides an option for gender responsive irrigation technology (use of minimal labour, however, expensive in initial establishment and maintenance)
- **NGO Supported Irrigation Schemes:** The majority of NGO supported schemes, whose support base are mainly women smallholder farmers, are reported to have inadequate irrigation planning design often characterised by water shortage and relatively high labour-intensive ferrying of water using bucket systems. Through Component 1, this project is addressing such issues by climate-proofing irrigation infrastructure and trainings Irrigation Management Committees (IMCs) on efficient water usage. The project will facilitate exchange visits on best practices for maximizing water availability on rain fed farmland.

Gender and Dryland Farming

- **Land Ownership:** Land in dry land farming is largely owned by men as it is based on customary tenure that has bias towards ownership by men. Stakeholder consultations indicated that only an estimated 12% of women have customary land rights on communal lands. On irrigation schemes, traditionally plots were held in the name of the household head (often men). When he passes on, the eldest son inherits the plot although the widowed mother still continues to work the plot. Access to irrigation plots by unmarried adult girl children is not guaranteed. Recently, as pointed earlier, the constitutions of irrigation schemes have favourably evolved as provisions are slowly recognising widowed women as plot owners. This project will conduct gender analysis and will build on progressive developments on women's access to irrigation plots to integrate gender-specific considerations in irrigation constitutions.

Gender and Livestock production

- **Livestock Ownership:** A survey conducted in five districts of Zimbabwe (Chimanimani, Mangwe, Gokwe, Mazoe and Goromonzi) showed that ownership of cattle is higher among males (54.3%) than females (46%). Despite having a significant ownership of livestock, women have limited decision-making power over cattle but have more control over goats and chicken rearing.
- **Livestock Marketing:** Cattle, goats and chickens are marketable commodities although the smaller livestock often fetch very low prizes as they are commonly traded informally between households whereas cattle are sold in more formal rural markets and sometimes through organised supply chains. Men dominate livestock markets, with women mostly involved in marketing of smaller livestock. Female farmers acquire fewer livestock-productive assets than their male counterparts.⁷³

A gender distribution of livestock ownership across the five districts surveyed is summarized in Table 7 below.

Table 7: Livestock Ownership by Sex in the 5 Survey Districts

Type of Livestock	Percentage of Who Own	
	Male %	Female %
Beef Cattle	54.3%	46%
Dairy Cattle	1.5%	1.4%
Goats	48.6%	45.8%
Chickens	5.5%	4.9%
Indigenous Chickens	65.6%	63.4%

Source: Adapted from Matondi, P.B; Chiweshe, B and Mutopo, P (2013). Agriculture Gender Assessment Report. Ministry of Agriculture, Mechanisation and Irrigation Development. FAO

VI Lessons and Best Practices from Other Projects

Relevant positive gender equity effects have been brought about in other projects. This project expects to draw on these for effective gender equality and gender empowerment methodologies. OXFAM's GEF/UNDP Scaling Up Adaptation, FAO LFSP, and the ENSURE programs demonstrate a number of best practice and lessons.

Women in leadership: The OXFAM Scaling UP adaptation project has demonstrated the benefits of including women in leadership particularly in irrigation management and Climate Smart Villages, the introduction of an element of irrigation maintenance fund and village savings and lending schemes (VSALS) that enhance women smallholder farmers access to finance and productive assets. VSALS and other village based models for bringing together smallholder farmers into groups, particularly women, has facilitated easier linkages to formal financial intermediaries.

The gender action learning systems (GALS) approach that positions women as the drivers of change for revitalisation of irrigation assets has been successfully implemented in FAO and IFAD projects. Activities have made farming more resilient to climate change by emphasizing the development of rainwater harvesting infrastructure and improved drainage and irrigation systems, as well as the introduction of improved seed and agronomic practices, through Farmer Field Schools.

⁷³Matondi, P.B; Chiweshe, B and Mutopo, P (2013). Agriculture Gender Assessment Report. Ministry of Agriculture, Mechanisation and Irrigation Development. FAO



Women Capacity building through Farmer Field Schools: Lessons learnt from the Scaling Up Adaptation project shows that FFS's have been highly successful as a collaborative learning space for women lead farmers as well as an inspiration to their communities. As part of consultations with key stakeholders in agriculture, it was suggested that a combination of Farmer Field Schools and Innovation Platforms would be effective to provide a sustainable impact in terms of promoting and upscaling adoption of climate-smart technologies particularly by women.

Involving both men and women in social dialogue ensures success in addressing gender disparities:

The ENSURE project has had success in addressing gender disparities through a process of social analysis and action which uses deep continuous dialogue that engages both men and women to level the playing field. ENSURE engaged (as opposed to confronting) men. They appointed male gender champions who utilised men's fora to address gender issues identified by the community during a process of social analysis. The project will take advantage of FFS to deploy such approaches for enhanced dialogue on gender equality and GBV.

VII Gender analysis and Recommendations

The gender analysis undertaken at the onset and design of this project acts as an entry point for gender mainstreaming throughout implementation. Stakeholder consultations took place in Harare and Zaka (Fuve Panganayi irrigation scheme), involving agriculture-related Government Ministries and Departments, the National Gender Machinery and the Zimbabwe Gender Commission, civil society, and male and female farmers in the selected field sites. Results from the consultations are detailed in the Stakeholder engagement section below, and in the Stakeholder Engagement Report and Stakeholder Action Plan annex included in full as an additional annex as part of the proposal.

The gender analysis, through stakeholder engagement and consultation, enabled:

- Assessment of gender-related impacts of climate change and variability for irrigation, dry land farming and livestock production for the project areas;
- Identification of lessons and good practice for mainstreaming gender to inform design project interventions
- Engagement, development and input into the design of the proposed project;
- Demonstration of the need for gender-disaggregated data and indicators to establish a baseline in which to measure improvements and identify areas of focus; and
- Establishment of recommendations to incorporate into the Gender Action Plan and Budget.

The recommendations below seek to address the specific issues and difficulties that women face in responding to immediate threat of water scarcity to vulnerable agricultural livelihoods and to building climate resilience in Mzingwane, Runde and Save River Basins in Southern Zimbabwe. Key areas of the recommendations include: Project Design and Implementation, Stakeholder Engagement and Monitoring & Evaluation.

(i) Project design

The project design and implementation will take into consideration the following gender interventions:

- Achieve increased % of women's membership in Irrigation Management Committees (IMCs) and building capacities of female farmers through leadership training programs;
- Promote women's decision-making skills by allocating a % of women in change of smallholder



- contribution for Operations and Maintenance Fund;
- Facilitate women-to women farmers workshops and hands-on training on managing rainwater and soil moisture efficiency;
 - Women and men trained in CSA through FFS and adopting and implementing best practices;
 - Women and men participating in, and facilitating innovation platforms to build the climate-resilience and productivity of various value chains (ex. Sesame and horticulture);
 - Assess and integrate women's roles in selected value chains integrated as part of crop-specific strategies and plans;
 - **Women and men trained in financial management, and marketing and business development, with a focus on existing women-producers groups and savings and loans groups; seek to expand opportunities for group collateral.**
 - Assess and integrate gender-specific considerations in farming systems and agro-ecological principles, and CSA packages, measured by the % of women farmers adopting CSA packages;
 - Facilitate women and male-led exchange visits on best CSA practices, and documenting gender considerations in CSA best practices and learning methodologies to promote knowledge sharing;
 - Integrate gender considerations in the development of new materials and climate advisories;
 - Women and men small holder farmers accessing weather information through various channels;
 - Allocate resources for gender-related initiatives in the climate resilience process for irrigated lands, dry land farming and livestock production;
 - Support sustainable, climate-smart income generation interventions for female and male farmers for dry land farming;
 - Inclusion of a Gender Specialist position / provision of advice within the project to implement gender-related activities and budgeting.

By providing an equal opportunity to both men and women, and specifically targeting disadvantaged women such as those from female headed households (in rural areas 38% of the households were female-headed in 2012, ZIMSTATS), the project will aim to address some of the underlying factors that lead to gender disparities. The project will facilitate equal access to skills, knowledge, training and opportunities for taking up leadership and accessing finance by women. In this way the project aims to contribute to transforming gender norms.

During project implementation, qualitative assessments will be conducted on the gender-specific benefits (including time use analysis in household surveys) that can be directly attributed to the project. This will be incorporated in the annual Project Implementation Report, Mid-Term Report, and Terminal Evaluation. Indicators to quantify the achievement of project objectives in relation to gender equality will include:

(ii) Stakeholder Engagement

The stakeholder consultations and engagement of strategic institutions such as key Government Ministries responsible for agriculture, including irrigation, national Government institutions for gender equality, civil society working in the sector, and male and female farmers in agriculture (irrigation, dry land farming and livestock), aided in identifying relevant gender issues within the country's social context and implementing and monitoring the gender aspects of the project.

The stakeholder engagement component of this annex captures the specific issues raised and difficulties that women face in responding to building climate resilience of vulnerable agricultural livelihoods in Mzingwane, Runde and Save River Basins in southern Zimbabwe. What follows are highlights of results from the consultations and key recommendations.

Specific issues raised include:

Gender and Land Rights

- Women's land rights in the old established irrigation schemes were not adequately captured in the Irrigation Scheme Constitutions. However, relatively newly established irrigation schemes have incorporated issues of gender equality in tenure for irrigation. An estimated 40% of women have lands rights.
- In old established irrigation schemes, women attain land upon the death of their husbands. However, such land rights may be revoked through cultural inheritance practices where the eldest son, or the male inheritor of the family, may take over the plot.
- In dry land farming areas, including resettlement schemes, the majority of women do not have land rights. They access land through their husbands with only a few female-headed households having access to land rights.
- In communal lands including resettlements, farmers do not have title deeds, thereby limiting both males and females' access loans and credit facilities.

Gender and Mechanisation

- The majority of irrigation schemes in Zimbabwe use surface irrigation which delivers water by the gradient. This irrigation design is notably gender-responsive as it demands little labour for women and children.
- The drip irrigation for dry land farming is viewed as climate-smart (through using limited amounts of water efficiently) and is technologically gender-responsive. However, the initial installation costs are high and the system requires clean water sources to avoid blockages.
- NGO-supported irrigation gardens/schemes are often poorly planned, marred with limited water supply and involving manual labour for women using the bucket system.

Governance

- The consultation confirmed gender balance in male and female representation on Irrigation Management Committees (IMCs) and sub-committees. However, reality on the ground indicated that irrigation schemes located in strong patriarchal societies have their top influential leadership positions in the IMCs occupied by male farmers.

"We are in these IMC, but when it comes to power, we do not have power to make decisions. Most women are relegated to positions of Secretary of Treasury. There is strong view that women do not steal, and they often do not lie, hence their dominance in these posts"

Female Farmer- Zaka.

- The consultation findings also indicated existence of irrigation schemes that are led by females chairpersons and were noted to be performing very well.

Gender and Sustainable Marketing Arrangements

- Consultations revealed weak marketing arrangements for both dryland and irrigation farmers. Against a background of poor marketing linkages, and dwindling gains for the farmer, there is need for new programmes to support value addition initiatives at selected sites which would involve the participation of both male and female farmers.

Gender and Climate Change Knowledge



- Consultations revealed an urgent need for education by farmers on climate smart agriculture. There is limited education for both male and female farmers on climate-smart agriculture for irrigated land, dry land farming and livestock production.

Gender and Livestock

- Both males and females have ownership of livestock, with males owning more livestock. The traditional practice of “*Mombe yeumai*”⁷⁴ and the “*she goat*” given to the mother of the bride as part of the traditional ceremony for welcoming the new baby are noted as the main sources of livestock for women. However, these privileges are only enjoyed by older women whose daughters have married.
- The consultations also noted that women in irrigated schemes and dry land farming buy their own cattle from the profits made in farming or gains made from income generating initiatives and community saving clubs.

Women Time Use:

- How men and women spend time on productive and non-productive activities related to the project.

The project’s design will work towards advocacy for women’s equal participation in agricultural activities - gender parity in access to land, equal participation in decision making, and equal enjoyment of proceeds from agriculture. On the other hand, the women’s empowerment approach explicitly targets female farmers, including from female headed households, with support for the identified agricultural activities. To this end, in addition to mainstreaming gender equality principles into the existing project’s results framework, a women’s empowerment result with respective and explicit project intervention support for women farmers, paying particular attention to farmers from female headed households, in the project areas will be included. Dedicated results for women farmers will also ensure allocation of resources from the project to support women farmers. The women’s empowerment agenda for the proposed project will be anchored in working through already existing women’s groups. The proposed climate-resilient agriculture project provides an opportunity to place gender equality and women’s empowerment at the centre of agricultural policy, research, development, capacity building and the institutional development agenda.

(iii) Implementation of the GAP

The PMU staff, specifically the Project Coordinator, will ensure that the GAP is appropriately implemented. The day to day GAP activities will be executed by the Implementing Partners (IPs) and the Responsible Partners (RPs) with the support of the Gender specialist, who will spend 40% of their time on the project to transfer skills and build the capacity of the PMU, IP and RPs in the implementation of the GAP. When needed, and upon the decision of the Steering Committee, institutions with skills in gender mainstreaming can be integrated in project decision making structures. Alternatively, a gender mainstreaming technical reference group to support the IP and RPs parties to implement the GAP will be considered.

(iv) Monitoring and evaluation

⁷⁴ A young cow is given to the mother of the bride, as part of the bride price. Traditionally such cattle are valued as sacred animals and should not be abused by the husband and remaining members of the family.



Through onset analysis, data has been collated to establish a baseline. This data shall be monitored throughout implementation and evaluation. The analysis identified the differences between men and women within at-risk populations. In order to monitor and evaluate progress of the project, the following outcomes can be measured:

Quantitative outcomes:

- Gender equity in leadership positions in Irrigation Management Committees;
- Female and male community members, including from female headed households, with sustainable and resilient agricultural livelihoods;
- Gender parity in participation of training activities on CSA, and on the adoption and implementation of best practices;
- Gender balance and effective participation in agricultural governance structures in irrigated schemes, dry land farming and livestock production;
- Gender balance and effective participation of innovation platform to build climate-resilience and productivity of selected value chains;
- Increased usage of climate-smart knowledge in agricultural livelihoods;
- Business development services component targeting rural women entrepreneur groups.
- Women Farmers Groups are knowledgeable of climate-smart information and are utilizing knowledge on supported projects;
- Reduced time constraints that arise from skewed roles and responsibilities. This will be achieved through enhanced water security, adoption of CSA technologies, efficient IMCs and improved food production in female headed households who constitute 38% of households in rural areas.

Qualitative outcomes:

- Opportunities to generate additional income. Women are more likely to respond to sustainable livelihood initiatives (irrigation, dry land farming and livestock) that address their family's basic needs, such as better health education of children and nutrition, which are part of the proposed project; Additional income will render women more likely to sustain access to health and education services for their families and to invest more in productive assets.
- Improved communication and leadership skills for women participating in governance structures for the project-supported initiatives on irrigated lands and dry lands. By taking on leadership positions in Irrigation Management Committees, and leading training innovations and championing the cascading of knowledge on best practices for maximizing water availability on rain fed farmland and climate smart agriculture technologies, women will have increased self-esteem.
- Expanded involvement in public and project decision-making structures as a result of the project's capacity building trainings;
- Support for training and educational activities which may include activities related to climate-smart agriculture, decision making, leadership, business, entrepreneurship, and finance, thereby enabling empowerment and involvement of female farmers in project initiatives.
- Improved working relations between male and female farmers and also within households and inclusion of women and child headed households due to increased gender awareness.

Monitoring and evaluation approaches and methods in the project will include gender sensitive social impact surveys. Household surveys will contain time use surveys to measure the success of the project in meeting women time constraints. In addition, particular attention will be paid to tracking changes in the female headed households.



I. Gender Action Plan and Budget

This Gender Action plan provides suggested entry points for gender-responsive actions to be taken under each of the Activity areas of the project. These actions draw from lessons and best practice from other interventions and issues raised in the consultations and reviews. In addition, specific indicators are also proposed to measure and track progress on these actions at the activity level. This can be incorporated into the detailed M&E plan which will be developed at the start of implementation and provides concrete recommendations on how to ensure gender (including disaggregated data) continues to be collected and measured throughout implementation.

Objective	Actions	Indicators and Targets	Responsible Institutions	Timeline	Allocated Budget \$US
Output 1: Increased access to water for agriculture through climate-resilient irrigation systems and water resource management					
Activity 1.1: Climate proofing irrigation infrastructure for enhanced water security in the face of climate change	1.1.1 Climate-proofing and revitalizing existing irrigation infrastructure and equipment in 21 irrigation schemes (see Irrigation Sub-Assessment for detailed description)	PROJECT BASELINE: 11,066 ha under irrigation out of potential 25,285 ha in Southern Catchments / 15 districts. PROJECT TARGET: Additional 1,786 additional ha under irrigation (including land managed by women farmers) (Output 1)	AGRITEX	Year 1, Q1 to Year 7, Q4	36,878
	1.1.2 Training of 21 Irrigation Management Committees (IMCs) in climate-adapted O&M and monitoring, and establishment of O&M funds, ensuring equal opportunities for women in participation	GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 1, Activity 1.1. <i>Indicator 1.1.2 (i):</i> Increased % of women's membership in irrigation management committees <i>Baseline:</i> TBD (on project start as IMCs change membership regularly) <i>Target:</i> All the 21 irrigation schemes supported by the project have gender parity in IMCs membership, and parity is consistently maintained throughout the project period.			



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	<p>1.1.3 Field visits and technical advisory support by DOI to IMCs to support climate-resilient O&M and operationalization of the O&M funds (years 2 through 4) based on detailed O&M plan</p> <p>1.1.4 Learning and knowledge exchange workshops across IMCs (ensuring women members' participation) to improve coordination and scaling up of climate resilient irrigation systems (9 provincial district level peer meetings)</p>	<p><i>Indicator 1.1.2 (ii):</i> Number of women in strategic leadership positions in IMCs; <i>Baseline:</i> TBD (on project start as IMCs change membership regularly) <i>Target:</i> At least 50% of the strategic positions in IMCs (Chair, Treasurer, Secretary, O&M, Marketing) are occupied by women.</p> <p>Indicator 1.1.3: Number and length of IMC meetings (signifying efficiency of IMCs): <i>Baseline:</i> TBD <i>Target:</i> at least 30% reduction in the number and length of IMC meetings</p> <p><i>Indicator 1.1.4:</i> Women in charge of smallholder contributions to Operations and Maintenance Funds <i>Baseline:</i> 0 <i>Target:</i> at least 11 of the 21 irrigation schemes supported by the project have women leading and making decisions of O&M from year 2</p> <p><i>Indicator 1.1.5:</i> Number of women and men engaged in learning and exchange workshops to improve coordination and scaling up of climate resilient irrigation systems <i>Baseline:</i> 0 <i>Target:</i> at least 50% of the participants in all 9 peer meetings are women.</p>	<p>Irrigation Management Committees (IMCs)</p> <p>Ministry of Agriculture Mechanization and Irrigation Development And Ministry of Environment, Water and Climate</p>	<p>Year 1, Q1 to Year 7, Q4</p> <p>Year 1 and ongoing support</p> <p>Year 2-7</p>	<p>430,125</p>
<p>Activity 1.2: Field-based training and technology investments for farmers on rain fed farmlands for</p>	<p>1.2.1 Field-based training of 6,900 lead rain fed farmers in 230 Farmer Field Schools in rainwater harvesting, soil moisture management techniques and water efficiency practices</p>	<p>GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 1, Activity 1.2.</p>	<p>AGRITEX</p>	<p>Year 1 – Year 3</p>	<p>36,878</p>



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<p>climate-resilient water management</p>	<p>1.2.2 Procurement and installation by farmers of gender-sensitive technologies to implement climate-resilient water-resource management in rainfed farmlands</p> <p>1.2.3 Participatory workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up implementation of climate-resilient water resource management (Two open community learning days per FFS, under AGRITEX supervision)</p>	<p>Indicators 1.2.1: Number of men and women trained in CSA through FFS and adopting and implementing best practices <i>Baseline:</i> 0 <i>Target:</i> 3450 men and 3450 women (at least 30% from of women are from female-headed households)</p> <p><i>Indicator 1.2.3 (i):</i> Number of women-to women workshops and hands-on trainings on managing rainwater and soil moisture efficiency as part of sub-activity 1.2.3 <i>Baseline:</i> 0 <i>Target:</i> at least 50% of all farmer-to-farmer training workshops are women-women of which at least 30% of women drawn from women-headed households)</p> <p><i>Indicator 1.2.3 (ii):</i> Number of women leading exchange visits on best practices for maximizing water availability on rain fed farmland <i>Baseline:</i> 0 <i>Target:</i> at least 50% of the planned exchange visits are led by women</p> <p>Indicator 1.2.4: Reduction in time spent by women in farming plots, and doing casual labour as a result of successful adoption of labour serving CSA techniques <i>Baseline:</i> TBD <i>Target:</i> at least 30% reduction in time spent by participating women in managing soil moisture and casual labour</p>	<p>AGRITEX</p> <p>Ministry of Environment, Water, Climate and AGRITEX</p> <p>Ministry of Women's Affairs, Gender and Community Development</p>	<p>Year 2-3 and ongoing monitoring</p> <p>Year 1-2</p>	<p>317,560</p>
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Objective	Action	Indicator	Responsible Institution	Timeline	Allocated Budget \$US
Output 2: Scaled up climate-resilient agricultural production and diversification through increased access to climate-resilient inputs, practices, and markets					
Activity 2.1: Establish transformative multi-stakeholder innovation platforms for diversified climate resilient agriculture and markets	2.2.1 Technical assistance, trainings and meetings to establish, operationalize, and coordinate five multi-stakeholder Innovation Platforms (through quarterly meetings over four years) across 15 districts and one national-level Platform (through bi-annual meetings over four years) for upscaling diversified climate resilient production and access to markets	<p>PROJECT BASELINE: Baseline: 0</p> <p>PROJECT TARGET: 37,950 women farmers practicing CSA on rainfed and irrigated land (Output 2);</p> <p>GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 2, Activity 2.1.</p>			
	2.1.2 Develop crop-specific production and market strategies for use by all relevant value chain actors for climate-smart production and market access (two-day strategy development workshops per platform per year over 4 years and at least five plans)	<p><i>Indicator 2.1.2:</i> Number of women and men participating in, and facilitating innovation platforms to build the climate-resilience and productivity of sesame value chains; <i>Baseline:</i>0 <i>Target:</i> At least 50% participating in the 251 planned workshops are women, of which at least 30% are women from female-headed households.</p>	AGRITEX	Year 1, Q1 to Year 5, Q2	36,878
	2.1.3 Technical assistance (including legal support services to farmer organizations) to facilitate and formalize public-private partnerships across value-chain actors to upscale climate-resilient agricultural markets	<p><i>Indicator 2.1.3 (i):</i> Number of women and men smallholder farmers participating in the planned 75 innovation platforms to build the climate-resilience and productivity of horticulture value chains; <i>Baseline:</i>0 <i>Target:</i> At least 50% participants in innovation platforms are women of which at least 30% are women from female-headed households.</p>	AGRITEX	Year 1, Q1 to Year 5, Q2	590,952
			AGRITEX	Year 2 and ongoing monitoring	242,260



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	<p>2.1.4 Technical assistance and business planning and management training to smallholder farmers, particularly women (under a ward-based gender equality</p>	<p>Indicator 2.1.3 (ii): Value chain analysis, crop-specific strategies and plans are gender sensitive <i>Baseline:0</i> <i>Target: All value chain analysis reports, crop-specific strategies and plans incorporate gender considerations</i></p> <p><i>Indicator 2.1.3 (i):</i> Number of women and youth engaged in discussions with private sector; <i>Baseline: TBD</i> <i>Target: Number of women and youth engaging with private sector across value chains supported by the project increase by 50% from baseline</i></p> <p><i>Indicator 2.1.3 (iv):</i> Number of discussions with women farmers on value chains and issues surrounding market access, as part of FFS and sub-activity 2.1.4. (This indicator will also measure progress under activity 2.1.4) <i>Baseline: 0</i> <i>Target: Women constitute 50% of participants in all the planned FFS relating to value chains and market access. Of these at least 30% are women from female-headed households.</i></p> <p><i>Indicator 2.1.4:</i> Number of women and men trained in financial management, and marketing and business development, with a specific focus on women targeting existing women producers groups and savings and loans groups.</p>	<p>AGRITEX AND MIN OF WOMEN AFFAIRS SMEs</p> <p>AGRITEX AND MIN OF WOMEN AFFAIRS SMEs</p> <p>MINISTRY OF WOMEN AFFAIRS SMES AND AGRITEX</p>	<p>Year 2-4</p> <p>Year 2-4</p> <p>Year 2-4</p>	<p>190,670</p>
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	<p>action learning program and women financial empowerment training programme) and financial intermediaries to enable access to finance for sustained scaling up climate-resilient agriculture (3 programmes promoting Women’s leadership through economic leadership, gender equity and empowerment)</p>	<p><i>Baseline: 0</i> <i>Target: at least 4,110 women on dryland farms and irrigation schemes women-targeted training under a financial empowerment training programme, of which at least 30% are women from female-headed households.</i></p> <p><i>Indicator 2.1.5: Number of financial intermediaries provided with technical capacity on gender-sensitive lending schemes</i> <i>Baseline: 0</i> <i>Target: 100% of targeted financial intermediaries demonstrate knowledge and awareness of gender-sensitive lending schemes through a knowledge and awareness survey.</i></p>			
<p>Activity 2.2: Investments in inputs, technologies and field-based training to scale up the implementation of climate-smart agricultural production in the face of increasing climate hazards (rain fed and irrigated farms)</p>	<p>2.2.1 Training of Trainers (155 national, provincial, district and ward level AGRITEX staff), particularly women, to conduct Farmer Field Schools in 15 target Districts of southern Zimbabwe</p> <p>2.2.2 Organization and operationalization of 251 Farmer Field Schools for promotion of climate-resilient agriculture in the 15 Districts</p> <p>2.2.3 Procurement of inputs and technologies (e.g. seeds, tools, fertilizers) to implement CSA packages on 6,900 lead farmer plots</p> <p>2.2.4 Workshops and on-site assistance by lead farmers to facilitate farmer-to-farmer learning to scale up</p>	<p>GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 2, Activity 2.2. (Action 2.2.1 and 2.2.4)</p> <p><i>Indicator 2.2.1: Number of female AGRITEX staff trained</i> <i>Baseline: 0</i> <i>Target: 78 female AGRITEX staff</i></p> <p><i>Indicator 2.2.4 (i): Number of men and women reached by women-led FFS in the 15 targeted districts</i> <i>Baseline: 0</i> <i>Target: 543,620 people, of which at least 50% are women (See paragraph 160) “of which at least 30% are women from female headed households”.</i></p>	<p>AGRITEX UNDP And collaborating partners</p> <p>AGRITEX</p>	<p>Year 1, Q1 to Year 4, Q2</p> <p>Year 1-5</p> <p>Year 1-4</p>	<p>36,878</p> <p>632,500</p> <p>574,483</p>



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	<p>2.3.3 Impact evaluation and codification of best practices/lessons for systemic, evidence-based learning to scale-up resilient agricultural livelihoods</p>	<p>centers. Of the lead farmers, at least 30% are women from female-headed households.</p> <p><i>Indicator 2.3.3:</i> Documented gender considerations in Impact Evaluations and codification and dissemination of lessons learned and best practices; <i>Baseline:</i> 0 <i>Target:</i> All scheduled periodic impact evaluations reflect gender impact and related lessons from each participating college and research centers</p>	<p>Irrigation and Department of Economics and Markets)</p> <p>ALL</p>		
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Objective	Action	Indicator	Responsible/ Institution	Timeline	Allocated Budget \$US
Output 3: Improved access to weather, climate and hydrological information for climate-resilient agriculture					
Activity 3.1: Installation and operationalization of weather/climate and hydrological observation networks	3.1.1: Install 12 automatic weather stations to cover key agricultural zones and 10 automatic low-cost rainfall/weather stations to improve rainfall monitoring in the three catchments	PROJECT BASELINE: Baseline: 0 (No small holder farmers receiving regular tailored weather information from MET) PROJECT TARGET: At least 543,620 (50% of them women) have access to weather information	MSD	Year 1, -3	242,555
	3.1.2: Install 10 water level/gauging stations at strategic points in the three catchments	GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 3, Activity 3.1.			
	3.1.3: Upgrade systems and institutional capacities for hydro-meteorological data transmission and processing to enable localized weather, climate and hydrological model forecast generation	<i>Indicator 3.1.4 (i):</i> Number of female small holder farmers accessing weather information through various channels; <i>Baseline:</i> 0 <i>Target:</i> 543,620 people to access weather information systems, 50% (108,724) women. See par 160 in the FP. “of which at least 30% are women from female-headed households”			
3.1.4: Train MSD, ZiNWA, DR&SS/AGRITEX officials, community observers (low-cost stations) in collecting data, operating and maintaining equipment (2 trainings for MSD & ZinWA and DR&SS/AGRITEX officials and observers from 3 catchments over 2 years)	<i>Indicator 3.1.4 (ii):</i> Number of women trained in data collection, operating and maintaining equipment; <i>Baseline:</i> 0 <i>Target:</i> 60 community observers in all 3 catchments receive training of which 50% are women.	AGRITEX IMCs Sub-Catchment Committees Gender Committee for Irrigation and Rain-fed communities	36,878		
					75,000



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		(In addition to women from the 315 Government personnel)			
Activity 3.2: Develop, disseminate and build institutional capacities (MSD and AGRITEX) on tailored climate and weather information products	<p>3.2.1: Develop information products to strengthen existing national satellite/observation-based weather, 10-day and seasonal forecasts and advisories targeted to smallholder farmers</p> <p>3.2.2 Training national level ZINWA staff (partnering with UoZ) in the use of water resource models (2 trainings in WEAP and Pitman models) as well as ingesting input data from weather/climate observations and forecasts</p> <p>3.2.3 Develop regular hydrological forecasts, incorporating daily updates of hydromet observations and forecasts</p> <p>3.2.4: Disseminate climate information through mobile phones, community radio, community meetings and local posters and bulletins (costs of SMS messaging, design and formatting advisories, community radio programmes, 20 community meetings)</p>	<p>GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 3, Activity 3.2, Action 3.2.4,</p> <p>Indicator 3.2.4 (i): Number of women, women's groups, youth, and youth's groups consulted for the development of tailored products; Baseline: 0 Target: TBD after establishing the women and youth groups in the 137 wards targeted. Ensuring that at least 30% of women are drawn from female-headed households.</p> <p>Indicator 3.2.4 (ii): Number of youth (gender disaggregated) engaged with Universities in innovation hub on weather products Baseline: 0</p>	<p>AGRITEX UNDP ZINWA Agricultural coordinating Committees in project sites Harare Institute of Technology Midlands University University of Zimbabwe</p>	<p>Year 3-6</p>	<p>36,878</p> <p>230,000</p>



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		<i>Target: at least 3 youth groups on innovators from each of the three universities</i>			
Activity 3.3: Capacity building for farmers and local institutional staff on effective use of climate and weather information and products for resilient water management and agricultural planning	3.3.1: Training of local level DoI, ZiNWA and CC staff in data analysis and production of information products (based on observed and forecast water levels and weather/climate forecasts) for water resource management	GAP INDICATORS BASELINE AND TARGETS FOR ACTIVITIES ALIGNED TO OUTPUT 3, Activity 3.3, Action 3.3.1; 3.3.2 and 3.3.3. <i>Indicator 3.3.1:</i> Number of women and men government staff benefitting from training in data analysis and production of information products <i>Baseline: 0</i> <i>Target: 315 men and women (at least 50% women)</i>	AGRITEX ZINWA	Year 2 – 7	36,878
	3.3.2: Participatory training of farmers and district and local level intermediaries – including Agriculture Extension, MSD and IMC staff - in interpretation and use of climate and weather information products for crop/water management	<i>Indicator 3.3.2(i)</i> Number of women farmers and local staff trained in interpretation and use of climate and weather information products for crop/water management <i>Baseline: 0</i> <i>Target: 6,900 dryland lead farmers and 630 irrigation lead farmers (50% women)</i>	MSD, AGRITEX UNIVERSITIES, ZINWA	Year 2	75,000
	3.3.3 Set up communication and database systems to facilitate climate information management (equipment and communication materials) at three agricultural training colleges - Masvingo, Makoholi, and Esigodin (printing and distribution materials, translation into local languages, communication costs)	<i>Indicator 3.3.2 (ii):</i> level of integration of gender considerations in the new materials and advisories developed; <i>Baseline: 0</i> <i>Target: all materials and advisories reflect gender considerations</i> <i>Indicator 3.3.3:</i> Number of women and men benefitting from CIS for	WOMEN AFFAIRS MINISTRY	Year 2-4 Year 3-7	



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		resilient water management and agricultural planning <i>Baseline: 0</i> <i>Target: 543,620 people in 137 wards</i>			
GENDER ACTION PLAN IMPLEMENTATION CAPACITY ENHANCEMENT	Assessment of capacity of IPs to implement the GAP Develop a needs-based Capacity Development Plan and train Implementing partners	<i>Indicator:</i> capacity of Implementing Party and Responsible Parties established <i>Baseline:</i> - 0 <i>Target:</i> Capacity assessments report of all 5 partners conducted in year 1 <i>Target:</i> Needs based training conducted of all partners conducted by Y1 Q2	UNDP Gender Specialist	UNDP as part of M&E and HACT ASSESSMENTS	Year 1 Q1-Q2