



Republic of Uganda

STRATEGIC PROGRAM FOR CLIMATE RESILIENCE: UGANDA

PILOT PROGRAM FOR CLIMATE RESILIENCE (PPCR)



**Prepared for the
Pilot Program for Climate Resilience (PPCR)**

2 May, 2017

Foreword

The Government of Uganda recognizes the effects of climate change and the need to address them within the national and international strategic frameworks. This Strategic Program for Climate Resilience (SPCR) is a framework for addressing the challenges of climate change that impact on the national economy including development of resilience by vulnerable communities. The overall objective of the SPCR is to ensure that all stakeholders address climate change impacts and their causes in a coordinated manner through application of appropriate measures, while promoting sustainable development and a green economy.

This SPCR will build on and catalyzes existing efforts in climate resilience-building Programs in Uganda, and will address key identified barriers and constraints, in order to accelerate the transformative accumulation of benefits of climate resilience and sustainable socio-economic development in the targeted sectors and areas. The strategy presents strong “business cases” for the investment projects, and will be leveraged to attract significant financial resources from the PPCR, the Green Climate Fund (GCF), national resources as well as other financing avenues. It intends to strengthen institutional capacity for addressing climate change, as well as improving the quality and accessibility of hydro-climatic information for better climate risk preparedness and risk reduction.

This SPCR has been elaborated under the guidance of the Ministry of Finance, Planning and Economic Development and has involved an extensive participatory process as required by CIF. A number of stakeholders were consulted throughout the country to (i) enhance understanding and ownership, (ii) receive firsthand information on the proposed investment projects, and, (iii) help in the design of the investment projects to improve resilience to climate change effects. The consultative process started at national level through the Scoping Mission of the GoU, MDBs, development partners and key stakeholders including NGOs and CSOs. The process evolved to the field level across the country encompassing over 75% of the districts. This comprehensive nation-wide consultations ensured that all key issues of climate change were captured and incorporated in the SPCR. It is now time to put the ideas into action.

The SPCR will be implemented through the existing institutional framework which is elaborated in the legislation. The Ministry of Water and Environment (MWE) is the national focal climate change institution through the Climate Change Department (CCD). The Ministry will work with financial flows from the Ministry of Finance, Planning and Economic Development (MoFPED); and in collaboration with MDAs and other stakeholders especially the Ministry of Local Government (MoLG) and the District Local Governments to coordinate Program implementation.



Hon. Sam Cheptoris
Minister of Water and Environment

Acknowledgement

This SPCR has been developed with inputs, contributions and participation of a number of stakeholders in public and private sectors, academia, development partners, civil society organizations and local community groups. Ministry of Water and Environment gratefully acknowledges the roles played and support received from various stakeholders during the preparation of this SPCR. In particular, the Government of Uganda deeply appreciates the support from Climate Investment Funds (CIF), the African Development Bank (AfDB) and the IBRD/World Bank (WB) and the invaluable guidance throughout the preparation of the SPCR.

We are indebted to the task force that spearheaded the preparation of the SPCR and the independent reviewer whose comments helped to re-focus, enrich and strengthen it. Participants in the various stakeholder consultative workshops provided inputs that have made this SPCR a home-grown document that addresses national priority areas and development needs of the citizens. We are also deeply grateful to the contribution of the development partners, particularly the thematic group on climate change that reviewed the plan and made useful comments.

We thank the government ministries, departments and agencies (MDAs) for their commitment, time and knowledge contributed during the development of this SPCR. The Technical Planning Committee was extremely helpful in reviewing the document and making additional suggestions. Lastly, we extend special gratitude to the National Climate Change Advisory Committee (NCCAC) for the excellent guidance offered during the SPCR preparation and for their approval of the plan. The PPCR focal point for Uganda, Mr. Maikut Chebet, is gratefully acknowledged for steering the process to a logical conclusion.



Alfred Okot Okidi
Permanent Secretary
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April, 2017

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Abbreviations and Acronyms

ABM	Adaptation Benefit Mechanism
AF	Adaptation Fund
AfDB	African Development Bank
ASSP	Agriculture Sector Strategic Plan (2015 – 2020)
CC	Climate Change
CCD/U	Climate Change Department/Unit
CIF	Climate Investment Funds
CSO	Civil Society Organization
DLGs	District Local Governments
DPs	Development Partners
DWD	Directorate of Water Development
DWRM	Directorate of Water Resources Management
EAC	East African Community
FAO	Food and Agriculture Organization of the United Nations
FIP	Forest Investment Plan
FY	Financial Year
GCCA	Global Climate Change Alliance
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GOU	Government of Uganda
IPCC	Intergovernmental Panel on Climate Change
KCCA	Kampala City Council Authority
LPG	Liquefied Petroleum Gas
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
m.a.m.s.l.	metres above mean sea level
MDA	Ministry, Department and Agency
MDB	Multilateral Development Bank
MEMD	Ministry of Energy and Mineral Development
MoFPED	Ministry of Finance, Planning and Economic Development
MoLHUD	Ministry of Lands, Housing and Urban Development
MoLG	Ministry of Local Government
MoWT	Ministry of Works and Transport
MPIS	Project Implementation and Supervision
MtCO ₂ eq/yr	Million tons of carbon dioxide equivalent per year
MWE	Ministry of Water and Environment

NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan
NAPA	National Adaptation Program of Action
NCCAC	National Climate Change Advocacy Committee
NCCP	National Climate Change Policy
NDP II	Second National Development Plan (for 2015–2020)
NEMA	National Environmental Management Authority
NFA	National Forestry Authority
NGO	Non-Governmental Organization
NPA	National Planning Authority
OPM	Office of the Prime Minister
PPCR	Pilot Program for Climate Resilience
REDD+	Reduced Emissions from Deforestation and Forest Degradation
SDGs	UN Sustainable Development Goals (for 2016 – 2030)
SLM	Sustainable Land Management
SLWM	Sustainable Land and Water Management
SNC	Second National Communication to the UNFCCC
SPCR	Strategic Program for Climate Resilience
tCO ₂ e	tons of Carbon dioxide equivalent
TOR	Terms of Reference
TPT/C	Technical Planning Team/Committee
UBOS	Uganda Bureau of Statistics
UNFCCC	United Nations Framework Convention on Climate Change
UNMA	Uganda National Meteorological Authority
US\$	United States Dollar
USAID	United States Agency for International Development
WB	World Bank

Summary of Uganda SPCR

PILOT PROGRAM FOR CLIMATE RESILIENCE Summary of Strategic Program for Climate Resilience		
1. Country/Region:	Republic of Uganda	
2. PPCR Funding Request (in US\$ million)	GoU: USD 12.5 million	PPCR: USD 50 million FIP: USD 30 GCF, GEF and Other Sources: USD 161 million AfDB: USD 75.5 million World Bank: USD 50 million
3. National Focal Point	Mr. Chebet Maikut; Commissioner, Climate Change Department, Ministry of Water and Environment, P.O. Box 20026 Kampala, Uganda Tel. +256 701 609 414, Email: chmaikut@gmail.com	
4. National Implementing Agency	Ministry of Finance, Planning and Economic Development (Executing Agency) Ministry of Water and Environment (Coordinating)	
5. Involved MDBs	Africa Development Bank (AfDB) The World Bank Group (WBG)	
6. MDB PPCR Focal Point and Project/Program Task Team Leader (TTL)	MDB HQ FOCAL POINTS: AfDB: Gareth Phillips Chief Climate Change and Green Growth Officer Email: g.phillips@afdb.org World Bank Group: Kanta Kumari Rigaud Lead Environment Specialist Email: Kkumari@worldbank.org	MDB FIELD FOCAL POINTS: AfDB: Ms. Siham Mohamed Ahmed, Principal Natural Resources Management Specialist – Task Team Leader, Email: s.mohamedahmed@afdb.org World Bank Group: Ross Hughes Senior Natural Resources Management Specialist; Environment & Natural Resources Email: rhughes@worldbank.org Skype: rosshughes

7. Description of SPCR

(a) Key development challenges related to vulnerability to climate variability and change

- The intensity and frequency of floods and droughts resulting from expected higher temperature and more frequent extreme precipitation will significantly impact on the economy and the welfare of Ugandans, especially the poor and vulnerable, and will amplify the challenges posed by rapid urbanization.
- If not addressed as a core development issue, climate variability and change could lead to economic losses of the order of US\$ 3-6 billion annually and a 2-4% reduction in GDP over the coming decades. While the cost of adaptation is estimated to be high (US\$ 400-600 million per year), the cost if inaction is several magnitudes higher.

(b) Areas of intervention – sectors and themes

- (a) Agriculture, Livestock, Water, Natural Resources (particularly rangelands, forests and watershed); (b) urban infrastructure and services; and (c) capacity building (particularly institutional infrastructure, hydro-meteorological services, and Information and Communications Technology.
- Themes: Climate Change and Disaster Risk Reduction

(c) SPCR Strategic Pillars

- (i) Catalyzing investments for improved rural resilience and food security
- (ii) Improving resilience of urban communities and infrastructure
- (iii) Strengthening the capacity to manage climate variability and change

(d) Investment Projects

- Project 1: Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition (USD 55 million)
- Project 3: Strengthening Climate Resilience of Communities and Infrastructure in Major Urban Centers (USD 60 million)
- Project 4: Strengthening Climate Information Systems and Services (USD 32 million)
- Project 5: Enhancing Institutional Capacity in Climate Change Coordination and Mainstreaming (USD 20 million)

(e) Joint SPCR/FIP Projects

- Project 2 (a): Integrated and Sustainable Management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the Lake Kyoga and Upper Nile Water Management Zones (USD 83 million)
- Project 2 (b): Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift (USD 129 million)

(f) Expected SPCR Outcomes

- Increased resilience of rural communities and ecosystems in the Kyoga, Upper Nile, and

Albertine Water Management Zones to the impacts of climate variability and change

- Increased resilience of communities and infrastructure in major urban centers, including Kampala, Jinja, Mbarara and Hoima to the impacts of climate variability and change
- Increased adoption of Climate Smart Agriculture in 15 districts in 4 agro-ecological zones of South Western Highlands, Central Lake Victoria crescent, Eastern Lowlands and Northern plains
- Strengthened coverage, quality, and timeliness of climate information and weather services
- Climate resilience integrated into district annual work plans and budgets
- Strengthened capacity of Uganda's institutions to coordinate, implement and monitor the results of the country's climate change Program
- Enhanced coordination and networking on climate action among state and non-state actors, including women, NGOs & CSOs, youth organizations, the private sector and academia
- Lessons learned and best practices documented and disseminated in Uganda, regionally, and beyond
- Increased synergy between the SPCR and FIP programs

8. Expected key results from the implementation of the Investment Strategy (consistent with PPCR Results Framework)

8.1 Key Result (SPCR Investment Projects)

Under Pillar 1: Catalyze investments for improved rural resilience, food security and nutrition.

- Scaled up adoption of climate-smart agricultural practices in key agricultural value chains and regions
- Improved rangeland management and livestock productivity
- Improved protection of land and management of water resources in vulnerable catchments

Under Pillar 2: Improving the resilience of urban communities and infrastructure

- Improved climate-resilient urban planning
- Improved climate-proofing of key urban infrastructure
- Increased adoption of alternative energy efficient technologies (e.g., LPG and solar)

Under Pillar 3: Strengthen the capacity to manage climate variability and change

- Strengthened capacity of hydro-met institutions to collect and analyze data, and provide quality and timely climate/weather services
- Effective mainstreaming of climate variability and climate change into development programs
- Enhanced coordination and networking on climate action among state and non-state actors

8.2 Key Results (PPCR/FIP Investment Project)

- Enhanced resilience of ecosystems and status of biodiversity in the project landscapes.
- Enhanced livelihoods of the households in the project areas.
- Reduced GHG emissions from deforestation and forest degradation.
- Enhanced coordination between partners in jointly managed FIP/PPCR Projects.

9. Financing Plan for Uganda's Strategic Program for Climate Resilient Investments

S/N	SPCR Investment Projects	Indicative Cost (\$ Million)/Investment	GoU	PPCR	FIP	GCF+GEF	Indicative MDB	Lead MDB
				USD	USD	and others		
1	Enhancing climate-resilient agriculture and food security (in key value-chains)	55	2	8	0	20	25	AfDB
2	a) * Integrated and Sustainable management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the L. Kyoga and Upper Nile WMZs	0	0	0	0	0	0	WB
		83	5	16	12	30	20	AfDB
	b) IP1: Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift	0	0	0	0	0	0	AfDB
		129	1	15	18	45	50	WB
3	Strengthening climate resilience of communities and infrastructure in major urban centers.	60	2.5	2.5	0	30	25	AfDB
4	Strengthen hydro-met monitoring networks, data, and advisory services.	32	1	5	0	26	0	WB
5	Capacity building for climate risk management, strategic program support, and M&R.	20	1	3.5	0	10	5.5	AfDB
	TOTAL (\$ Million)	379	12.5	50	30	161	125.5	

10. Timeframe (tentative)

- Submission to CIF: May, 2017
- Submission to other financiers: July, 2017 onwards.
- Start of implementation: 2017
- Completion of project implementation: 2025.

11. Key national stakeholders involved in SPCR design

Ministries

- Ministry of Water and Environment
- Ministry of Agriculture, Animal Industry and Fisheries
- Ministry of Lands, Housing and Urban Development
- Ministry of Finance, Planning and Economic Development
- Ministry of Local Government
- Ministry of Energy and Mineral Development
- Ministry of Works and Transport
- Ministry of Gender Labour and Social development
- OPM- Office of the prime minister

Agencies

- National Forestry Authority
- Uganda Wildlife Authority
- Uganda National Meteorological Authority
- National Environment Management Authority
- National Water and Sewerage Cooperation
- Kampala Capital City Authority

Academia

- Makerere University
- Nyabyeya Forestry College

Research institutions

- National Agricultural Research Organisation (NARO)

Private Sector

- Uganda Timber Growers' Association

Civil society organizations

A list of 48 civil society organisations consulted during the SPCR preparation is given in Annex 2.

12. Development Partners

African Development Bank

Climate Investment Fund

The World Bank

The European Union

United nations Development Program (UNDP)

United States Agency for International Development

Food and Agriculture Organisation of the United Nations (FAO)

Executive Summary

1. The Strategic Program for Climate Resilience (SPCR) is a plan of action for addressing the effects of climate change and variability. The Government of Uganda has prepared the SPCR as a strategic framework for addressing the challenges of climate change that impact on the national economy including development of resilience by vulnerable communities. The overall objective of the SPCR is to ensure that all stakeholders address climate change impacts and their causes in a coordinated manner through appropriate measures, while promoting sustainable development and a green economy.
2. Part 1 presents the national context in which the SPCR has been developed while Part 2 contains the proposed strategic actions, investment projects and areas of intervention.
3. Uganda's current climate with its inherent variability presents considerable development challenges. Most social and economic sectors such as water, agriculture, forestry, energy, health, etc. significantly depend on and are influenced by climate and its vagaries. Climate change related hazards such as droughts, floods, storms and landslides cause considerable damage, disrupt economic activity and claim lives.
4. The economy and welfare of the people are intricately linked to the natural environment and are therefore highly vulnerable to climate variability and change. This vulnerability is amplified by poverty, high population growth and poor stewardship of the natural resource base, which constrain the options to increase resilience. Current and future climate risks, if not appropriately addressed, will exacerbate existing poverty and livelihoods, and further compromise the environment and economic growth aspirations of the Ugandan people.
5. This SPCR has been aligned to Uganda's long-term development Vision (Vision 2040) which aims to move the country from its current low income status that relies highly on agriculture to a competitive upper middle income country with a per capita income of US\$ 9,500 by 2040. The Vision recognizes that climate change affects all sectors of Uganda's economy, and underscores the need to develop and implement appropriate strategies, policy, institutional and legal frameworks to build climate resilience into all sectors.
6. The SPCR is to be implemented through the existing institutional framework which is well elaborated in the legislation. The Ministry of Water and Environment (MWE) is the national focal climate change institution through the Climate Change Department (CCD). Ministry of Finance, Planning and Economic Development (MoFPED); the National Planning Authority (NPA), and, the Ministry of Local Government (MoLG) work in conjunction with MWE to coordinate policy implementation. The SPCR has been prepared through a consultative process and therefore contains the aspirations of Ugandan stakeholders to adopt a programmatic approach to mainstream climate change adaptation into national and local plans and strategies. In addition, the SPCR will strengthen the resilience of rural and urban communities and their socio-economic infrastructure, build the capacity of national institutions and empower non-state actors to address climate change resilience.

7. The stakeholders' priority themes are: (i) promoting the scaling-up of climate-resilient agriculture; (ii) fostering institutional strengthening for addressing climate change; (iii) promoting climate resilient approaches to landscape and watershed management; (iv) strengthening hydro-meteorological networks and services; and (v) promoting climate resilient urban development and infrastructure.

8. The criteria used to prioritize the investments in this SPCR include (i) alignment with national development priorities and PPCR objectives; (ii) level of vulnerability of regions and sectors to climate change risks; (iii) stakeholder inputs; (iv) effectiveness and impact; (v) potential for transformational change and for scaling up; (vi) potential for sustainability of outcomes; (vii) potential to achieve multiple benefits of adaptation, mitigation, poverty reduction and sustainable development; (viii) gender equity, involvement of vulnerable groups and inclusion of indigenous knowledge; and (ix) leveraging of funding from MDBs and other development partners.

9. The strategic pillars (SP) in this SPCR are SP1: Catalyzing investments for improved rural resilience and food and nutrition security, SP2: Improving resilience of urban communities and infrastructure; and SP3: Strengthening the capacity to manage climate variability and change. The details of the strategic pillars are presented in Part 2 of this SPCR.

10. The SPCR will be complemented by on-going and planned initiatives. It will also form the basis on which funding is sought for the country's climate change agenda as the strategies and activities contained therein are considered critical. Also, the framework established will eliminate possible duplication of projects, and, will identify and build on synergies.

11. This SPCR provides for synergies and potential investment actions with FIP and this is elaborated in Section 7.4. The SPCR investments are estimated to cost USD 379 million, and will be implemented through local institutional structures the National Climate Change Coordination Committee (NCCPC), National Climate Change Advisory Committee (NCCAC), Ministry of Finance, Planning and Economic Development (MoFPED) and the Climate Change Department in the Ministry of Water and Environment (MWE). The SPCR also provides for a request for Project Preparation Grants amounting to USD 1.5 million.

12. Lessons learnt from the implementation of the SPCR will be widely disseminated through reports to the donors and MDBs, reports to stakeholders and the preparation and dissemination of knowledge products through the CIF's Monitoring and Evaluation Program; the Evaluation & Learning Transformational Change Learning Partnership; and the PPCR Pilot Country network. This knowledge will also be highly relevant for the preparation of and programming for NDPIII (2025-2030), Uganda's second NDC (2025-2030) and the second phase of the SPCR projects.

PART 1

1. Introduction to SPCR

Background, purpose and Objectives

13. The Strategic Program for Climate Resilience (SPCR) is a plan of action for addressing the effects of climate change and variability. It is funded through the Pilot Program for Climate resilience PPCR, one of four funding windows of the Climate investment funds (CIF). The Government of Uganda has prepared the SPCR as a strategic framework for addressing the challenges of climate change that impact on the national economy including development of resilience by vulnerable communities.

14. The purpose of the SPCR is to support Government efforts towards achieving its strategic vision (Vision 2040) and implementation of National Development Programs as articulated in the second National Development Plan (NDP II: 2015/16 – 2019/20). The development goal is to ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda.

15. The overall objective of the SPCR is to ensure that all stakeholders address climate change impacts and their causes through appropriate measures, while promoting sustainable development and a green economy. The specific objectives are to:

- i. Enhance climate resilient agricultural production, food security and nutrition.
- ii. Strengthen climate resilience of communities and infrastructure in major urban centers.
- iii. Strengthen hydro-meteorology services.
- iv. Enhance institutional capacity in climate change coordination and mainstreaming.
- v. Build rural community resilience through Integrated and Sustainable Management of Landscapes and Catchments for improved catchment protection, water supply, storage and utilisation.

16. This SPCR builds on the existing efforts in the country to strengthen climate resilient Programs and to address the key barriers and constraints so as to accelerate the transfer of transformative benefits of climate resilience and sustainable socio-economic development to the targeted sectors and areas. The strategy presents strong “business cases” for the investment projects, and will be leveraged to attract financial resources from the PPCR while targeting other sources including the Green Climate Fund (GCF), national resources as well as other bilateral and multilateral funding.

2. National context

17. Uganda (located between 29° 34' - 35° 0' East and 4° 12' North and 1° 29' South) has a total surface area of 241,550 km² of which 41,743 km² (17.2 %) is open water and swamps and 199,807 km² is open land¹. The central part of the country is a plateau that is surrounded by four main mountain ranges; namely Rwenzori in the west, Elgon in the east, Mufumbira in the southwest and Moroto in the northeast².

18. Uganda is divided into 120 districts (Figure 1) and one City (Kampala Capital City). The districts are further sub-divided into 181 counties, 1,382 sub-counties and 7,241 parishes. The population is about 40 million and is predominantly young (76% is less than 30 years old) and rural (79%), with an average density of 173 persons per km².³ In addition, with an average annual growth rate of 3%³ the population is expected to reach 80 million by 2040.

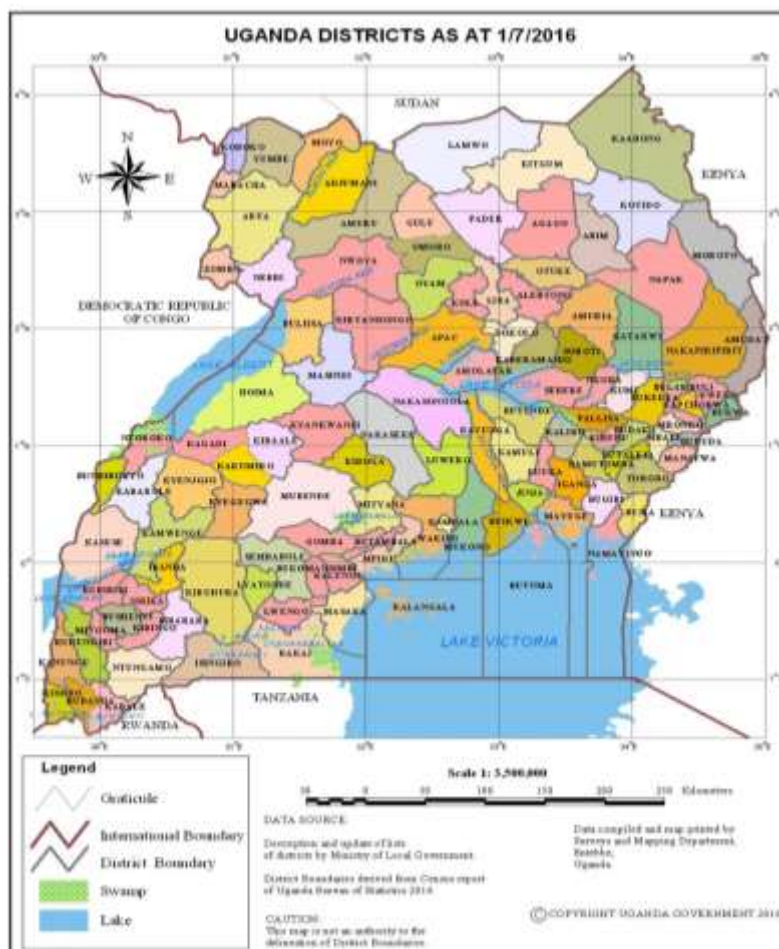


Figure 1: Uganda administrative boundaries and water resources.

¹ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

² 2010 Uganda State of the Environment Report (SOER). National Environmental Management Authority (NEMA), Government of Uganda

³ 2014 National Population and Household Census: Final Main Report. March 2016. Uganda Bureau of Statistics (UBOS), Government of Uganda.

19. Uganda is a low income country with a US\$ 36.5 billion economy structured around services (47.1%), agriculture (24.8%) and industry (20.6%). The per capita gross domestic product (GDP) is US\$ 676.⁴ After a period of slow economic growth in the 1970s and early 1980s, macroeconomic stability, public investment, and post-conflict rebound, helped Uganda achieve sustained high growth during 1987-2010 (Figure 2). Real GDP growth averaged 7% per year in the 1990s and the 2000s, followed by a decade of slowdown of GDP growth to an average of 5% per year due to economic volatility, and leading to a sharp decrease of per capita income growth over the same period.

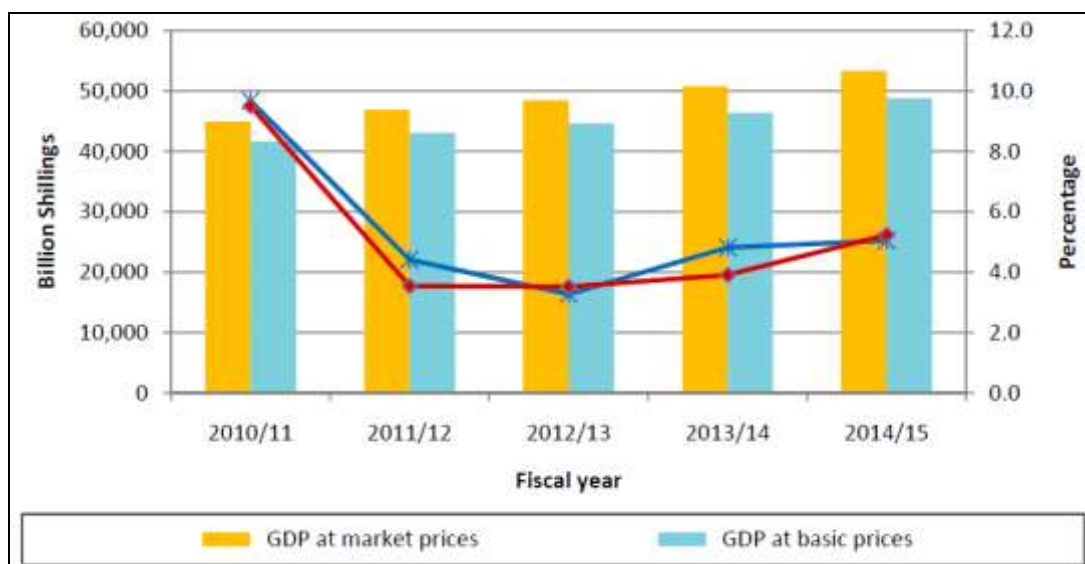


Figure 2: Annual trend of GDP growth rate (%) at market price
(Source: 2015 UBOS Statistical Abstract)

20. Overall, sustained economic performance has helped reduce poverty, which dropped from 31.1% in 2005/2006 to 19.7% in 2012/2013⁵ and enabled Uganda achieve the first Millennium Development Goal (MDG) of halving people living in poverty, and make significant progress in reducing hunger, promoting gender equality and empowering women. However Uganda's economy still continues to face many challenges, including a very young population producing some 700,000 new entrants into the job market every year, slow development of infrastructure and inappropriate urban development, persistent high levels of poverty especially in the northern region (Figure 3), and a high dependence of the majority of the poor on subsistence agriculture, coupled with significant pressure on the country's natural resource base and vulnerability to climate risk.

⁴ World Bank (2016). Uganda Country Brief

⁵ Uganda Strategic Climate Diagnostic (World Bank 2015)

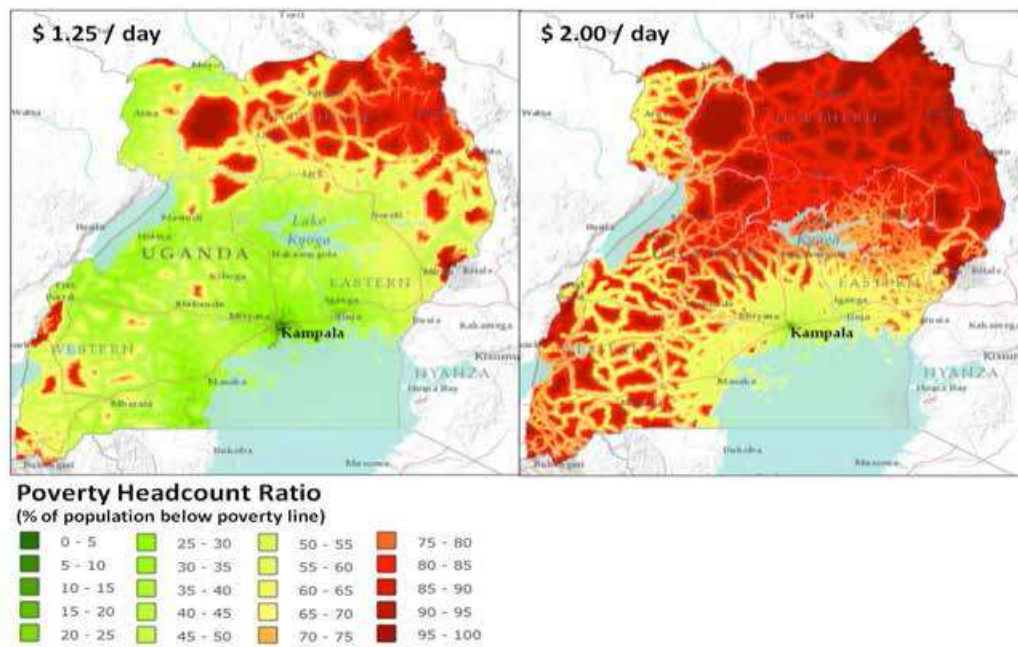


Figure 3: Maps of poverty distribution in Uganda.

Source: Uganda Strategic Climate Diagnostic (World Bank 2015)

21. The national Vision 2040 sets out to transform Uganda from a peasant to a modern and prosperous country, with a per capita GDP of US\$ 9,500 by 2040 (Figure 4). To achieve this transformation, the real GDP growth rate is expected to average 8.2% p.a., translating into total GDP of about US\$ 580.5 billion with a projected population of 61.3 million in 2040⁶.

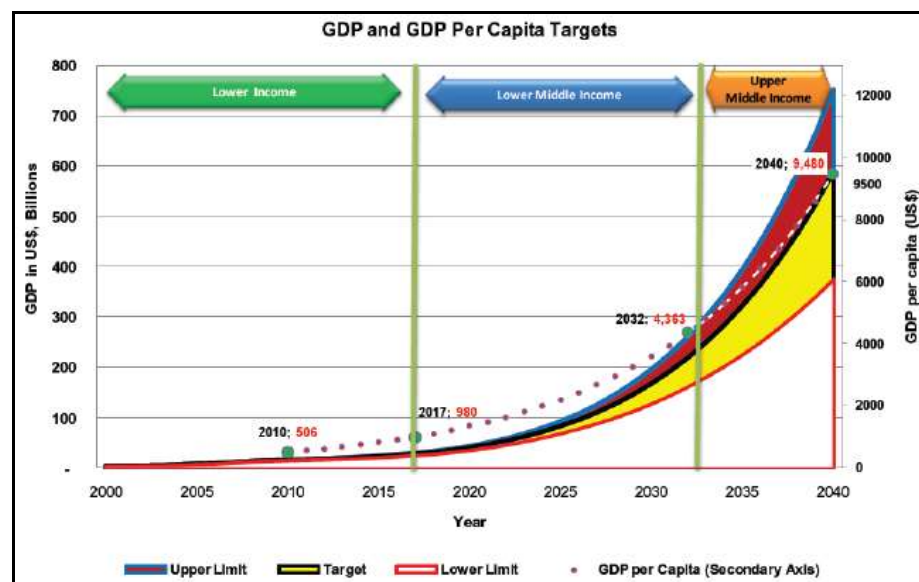


Figure 4: The Growth path to the upper middle income status by 2040.

(Source: Vision 2040, NPA estimates (2010))

⁶ NPA (2010). Uganda Vision 2040. National Planning Authority, Government of Uganda

3. Development context and climate risks

3.1 The County's Climate

22. Uganda's climate is characterized by temperatures ranging from 16 to 31° C. Most of the country has high moisture levels except the Karamoja region in the northeastern part of the country which experiences a semi-arid condition especially during the dry season. The average annual rainfall ranges from 600–2,500 mm received in two seasons of March – June and October – December.

23. The country lies within a relatively humid equatorial climate zone, but the topography, prevailing winds, and water bodies cause large fluctuations in rainfall patterns across the country⁷. Although there has been no discernible change in total annual rainfall beyond natural variability, there is a likely decrease during the long rains of March – May⁸. These conditions make climate one of Uganda's most valuable natural resources that supports the agrarian economy and farming households. Climate determines the state of other natural resources such as water, forests, wildlife and biodiversity that form the basis for socio-economic development in other sectors such as agriculture, fisheries, tourism, transport and health. This dependency inherently makes Uganda highly vulnerable to the impacts of climate change⁹. Uganda's climate is significantly affected by the La Nina and El Nino phenomena. Climate change impacts on these phenomena are not clearly understood to make any climate change predictions with confidence. However, there is evidence that warming will increase the intensity or frequency of these phenomena¹⁰.

24. Temperature, on the other hand, varies mainly with altitude and changes very little from year to year, in the order of 0.5°C¹¹. However, it is observed that temperatures have been increasing by approximately 0.2°C per decade over the last 30 years¹². Figure 5 shows the climate classification and average annual rainfall of Uganda.

⁷ MWE (2013). National Water Resources Assessment Report. Directorate of Water Resources Management (DWRM)

⁸ CDKN (2015). Economic assessment of impacts of climate change in Uganda: Main Report. Climate and Development Knowledge Network (CDKN)

⁹ MWE, CCD (2014). Uganda's Second National Communication (SNC) to the UNFCCC on Climate Change. Ministry of Water and Environment, Climate Change Department, Government of Uganda

¹⁰ Oxfam (2013). Turning up the heat: Climate change and poverty in Uganda.

¹¹ USAID (2013). Climate change vulnerability assessment for Uganda.

¹² World Bank (2015). Uganda Climate Profile

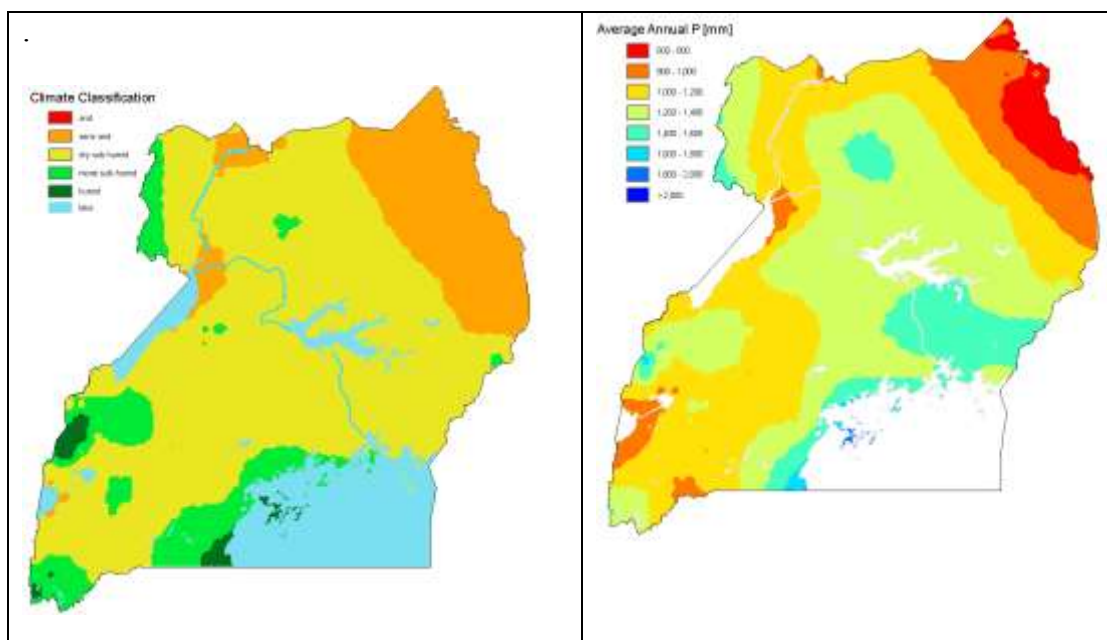


Figure 5: Maps of Uganda's climate classification and average annual rainfall.
(Source: Uganda National Water Resources Assessment Report, 2013)

3.2 Climate change and variability

25. Uganda has experienced climate change and variability in the last 50 years with average temperature increase of 0.28° C per decade and with January and February experiencing a warming trend with an average temperature increase of 0.37° C per decade. The frequency of hot days has increased while the frequency of cold days has decreased. On the other hand, rainfall has decreased, become more unreliable and less evenly distributed.¹³ Various climate projections for Uganda for this century indicate that (i) temperatures will rise, causing higher evaporation and consequent water stress (Figure 6); (ii) frequency and severity of floods and drought will increase; and (iii) variability of precipitation will increase^{14,15} (Figure 7). Specifically, the Uganda Climate Profile¹⁶ projects that the mean annual temperature across Uganda will increase between 1.2 and 2.3°C by 2050, and will increase to between 1.7 and 5.6°C by 2100. It also projects that the Heat Wave Duration Index (HWDI¹⁷) will increase between 0.1 and 3.3 days per year by 2050 and between 0.8 and 71.1 days per year by 2100. Furthermore, most years will experience at least 30 consecutive dry days¹⁸ with some years experiencing up to 60 consecutive dry days by 2050 and 80 on occasion by 2100.

¹³ National Climate Change policy, 2015; Ministry of Water and Environment, Uganda.

¹⁴ World Bank (2015). Uganda Climate Profile

¹⁵ USAID (2013). Climate Change Vulnerability Assessment for Uganda

¹⁶ USAID (2013). Climate Change Vulnerability Assessment for Uganda

¹⁷ HWDI (Heat Wave Duration Index) – the average number of consecutive days in a year where daily temperature exceeds the historical daily mean by at least 5°C

¹⁸ Consecutive dry days – maximum number of consecutive dry days a year where precipitation is less than 1 mm/day

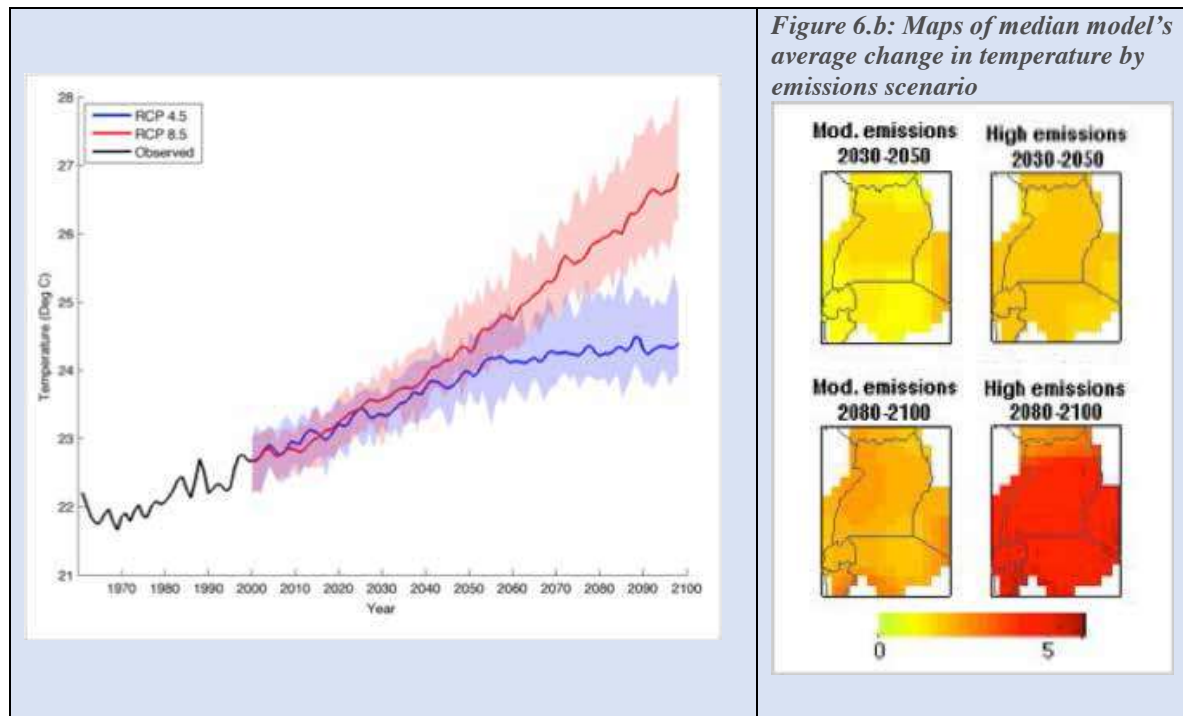


Figure 6: Annual historical (black) and projected (blue and red) temperature spatially averaged across Uganda; and median model's average change in temperatures by emission scenarios.
 Source: Uganda Strategic Climate Diagnostic (World Bank 2015)

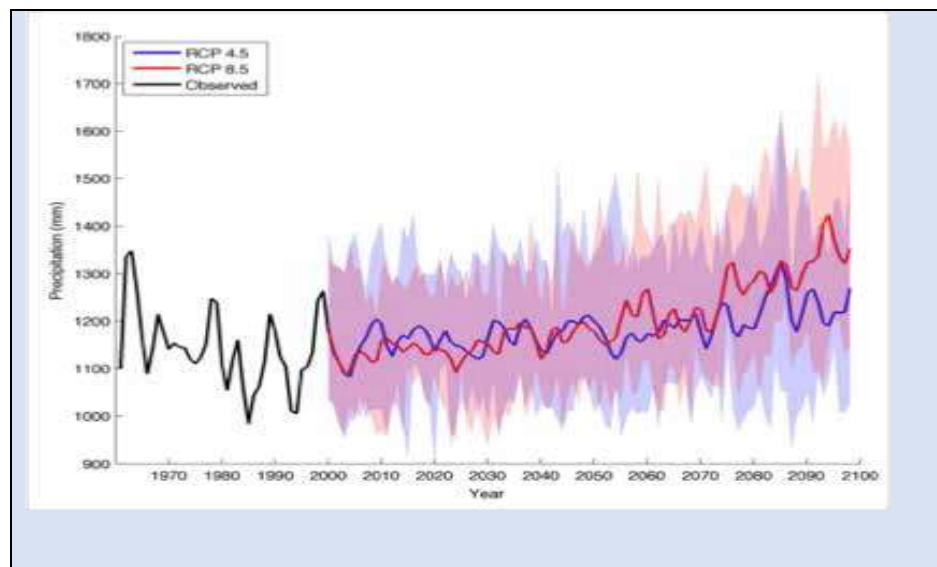


Figure 7: Annual historical (black) and projected (blue and red) precipitation spatially averaged across Uganda
 Source: Uganda Strategic Climate Diagnostic (World Bank 2015)

3.3 Linkage of climate risk and development

26. Uganda's climatic variability presents considerable development challenges. Current and future climate risks, if not appropriately addressed, will exacerbate poverty, compromise the environment and curtail economic growth. For instance, climate change will increase the frequency and severity of extreme rainfall events and result in hazards such as droughts, floods, storms and landslides, which cause considerable damage, disrupt economic activity and claim lives. The impacts of climate change will have negative consequences on agricultural production, food and nutrition security, forests, water supply, infrastructure, health, livelihoods and overall development.

27. In order to address the challenges of climate risk and its impact on development in Uganda, there is a need to strengthen institutional capacity at all levels, provide adequate and timely information, utilize analytical tools and expertise to adequately assess, plan and respond to climate risks and their consequences. Furthermore, adequate infrastructure will be required to provide a buffer against climate risks thus ensuring provision of secure and reliable services. Without the above interventions, the poor state of existing infrastructure will increase the chances of destruction and damage from climate extremes¹⁹.

28. Uganda is ranked as the 27th most vulnerable and 25th least ready country to address climate change²⁰. The Climate Change Policy's Implementation Strategy (2015) indicates that the costs of inaction outweigh the cost of adaptation. Consequently there is a need for significant investments and innovations to improve readiness, reduce risks and enhance resilience.

3.4 Vulnerability by sector and themes

29. Various studies have been undertaken on climate vulnerability and the impacts on different sectors of the economy by UNDP²¹, USAID²², CDKN²³, and FAO²⁴. In this section, vulnerability of the different sectors to climate change and risks is presented with a view to informing key adaptation actions for the SPCR thematic areas. The vulnerability of Agriculture, Forestry and wetlands sectors are presented in subsections 3.4.1 to 3.4.3 while the thematic areas are presented in subsections 3.4.4 to 3.4.8.

3.4.1 Agriculture

30. Agriculture is the backbone of Uganda's economy, contributing 24.7% to the national GDP (*crops - 13.7%, livestock - 4%, fisheries - 1.2% and forestry - 4.1%*), contributing 80% to

¹⁹ World Bank (2015). Uganda Strategic Climate Diagnostic

²⁰ The University of Notre Dame Global Adaptation Index (ND-GAIN Index) summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience (<http://index.gain.org/country/uganda>)

²¹ UNDP 2012. Climate Risk Management for Sustainable Crop Production in Uganda: Lessons from Rakai and Kapchorwa Districts

²² USAID, 2013. Uganda climate change vulnerability assessment report. African and Latin American resilience to climate change project.

²³ Ministry of Water and Environment, 2015. Economic Assessment of the Impacts of Climate Change in Uganda.

²⁴ FAO, 2015. Cost Benefit Analysis (CBA) of Climate Change Adaptation and Prioritization in Agriculture, Environment and Water Sectors in Uganda. Vulnerability assessment report, Final Draft.

the total export earnings and employing 72% of the work force²⁵. Agricultural production is dominated by smallholder subsistence farmers engaged in production of food and cash crops, horticulture, fishing and livestock farming, and contributing 75 - 80% of the total agricultural output and marketed agricultural produce.²⁶

31. The development of the agriculture sector is guided by the Agriculture Sector Strategic Plan (ASSP) for the period of 2015/16 to 2019/20. The aim of the ASSP is to “*achieve an average growth rate of 6% per year over the next 5 years*”²⁷, for improved household income and food and nutrition security. The implementation of the ASSP will be achieved through different strategic Programs. One of the strategic programs is ***Climate Smart Agriculture (CSA) Program (2015-2025)***²⁸ aimed at building resilience of agricultural farming systems for enhanced food and nutrition security. This SPCR is one of the strategies to implement the Program and investment area 1 is focused on enhancing climate smart agriculture (Section 8). The subsections that follow are focused on the vulnerability of the agriculture subsectors to climate change.

3.4.1.1 *The crops sub-sector and vulnerability to climate change*

32. Uganda’s crops sub-sector contributed 13.7% to national GDP in FY 2014/15²⁹. Current statistics indicate that 16 major crops are grown including cereals, root crops, oil crops, bananas, tea and coffee. Coffee and tea contributes 15% and 3% to total export revenues respectively. Crops are grown according to different agro-ecological zones (AEZs)^{30,31}, which are characterized by different farming systems determined by soil types, climate, and socio-economic and cultural factors (Figure 8). The crops are grown alongside livestock production which is elaborated in sub section 3.4.1.4.

33. Crop farming is predominantly subsistence-based and rain fed, with limited irrigation. Whereas crop production has increased over the years, this increase is attributed to area expansion rather than increase in productivity. Low crop yields and yield deficits (from agronomic potential) greatly impede the sub-sector’s potential. The low crop productivity and low returns are tied to climate related impacts (droughts, floods, rainfall variability), poor quality agro-inputs, diminishing soil fertility, poor land management and agronomic practices, disease and pests, coupled with high harvest and post-harvest losses.

²⁵ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

²⁶ Second National Development Plan II (NDP II) (2015/16–2019/20). National Planning Authority (NPA), Government of Uganda

²⁷ Agriculture Sector Strategic Plan (ASSP) (2015-2020). 2016. Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Government of Uganda

²⁸ Uganda Climate Smart Agriculture Program (2015-2025). Ministry of Agriculture, Animal Industry & Fisheries (MAAIF) and Ministry of Water and Environment (MWE). Government of Uganda

²⁹ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

³⁰ Increasing Incomes through Exports – A Plan for Zonal Agricultural Production, Agro-processing and Marketing.

2014. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Government of Uganda

³¹ An Agro-Ecological Zone (AEZ), as defined by FAO is a broad area with similar socio-economic background and in which ecological conditions, farming systems and practices are fairly homogeneous. In one AEZ, the same type of crops can be cultivated and the same livestock can be raised.

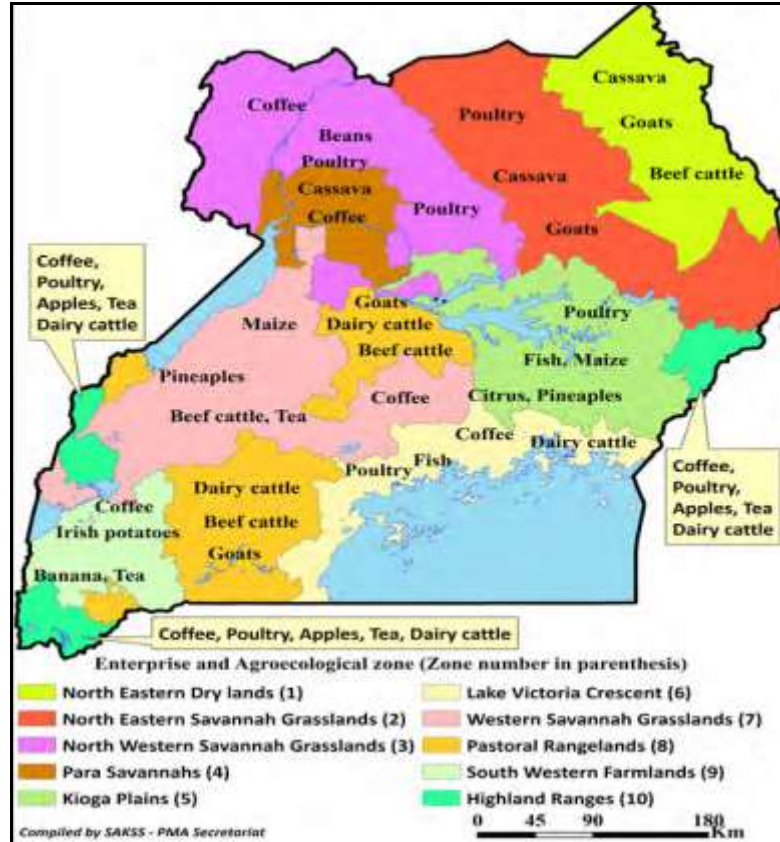


Figure 8: Map of the farming zones of Uganda.

(Source: Uganda Agriculture Sector National Adaptation Plan, 2016)

34. The impact of weather-related disasters on crops has been reported by Kaggwa *et al.* (2009)³². The report indicates that 800,000 hectares of crops are destroyed annually resulting in economic losses of more than US\$ 120 billion (US\$ 71 million). Rainfall deficits during 2010-2011 led to damage and production losses of US\$ 565 million in the crops sub-sector³³. Vulnerability of the crops subsector to climate change and variability has been documented by USAID³⁴ in 2013 and CDKN³⁵ in 2015 and has been summarised in Annex 3 to this SPCR. This SPCR will help to address the risks faced by the crops sub sector.

³² Kaggwa, R., Hogan, R., and Hall, B. (eds). (2009). Enhancing the Contribution of Weather, Climate and Climate Change to Growth, Employment and Prosperity. UNDP/NEMA/UNEP Poverty Environment Initiative: Uganda.

³³ OPM, DDM (2012). The 2010–2011 Integrated Rainfall Variability Impacts, Needs Assessment and Drought Risk Management Strategy. Department of Disaster Management (DDM) of the Office of the Prime Minister (OPM), Government of Uganda

³⁴ USAID (2013). Uganda Climate Change Vulnerability Assessment. Main Report. Prepared by Tetra Tech ARD for the USAID, under the African and Latin American Resilience to Climate Change (ARCC) Project

³⁵ CDKN (2015). Economic assessment of the impacts of climate change in Uganda: Final Report. By Climate and Development Knowledge Network (CDKN) and UK Department for International Development (DFID), for the Government of Uganda

3.4.1.2 The livestock sub-sector and vulnerability to climate change

35. The livestock sub-sector contributed 4% to the GDP in FY 2014/15³⁶. In recent years while the total livestock population was increasing, productivity was still low.³⁷ Current statistics³⁸ project average milk production per cow per week at about 8.5 litres and egg production per week at 4 and 5 for exotic layers and indigenous chicken, respectively. The challenges responsible for low livestock productivity are given in Annex 3. The challenges are likely to be exacerbated by climate change and variability.

36. Pastoralism is the dominant form of livestock-keeping in Uganda, especially in the “cattle corridor” (illustrated in Box 1 and Figure 9), inhabited by 13.3 million people, which is 38.4% of the country’s total population (UBOS, 2016).

Box 1: Summary of the Uganda cattle corridor

Uganda’s cattle corridor is characterized by the drylands area traditionally designated to pastoralist activities. It stretches diagonally from the southwest to the northeast of the country covering 84,000 km².

The corridor includes Ntungamo, Mbarara, Rakai, Sembabule, Mubende, Kiboga, Nakaseke, Luweero, Nakasongola, Kamuli, Soroti, Katakwi, Nakapiripirit, Moroto, and Kotido Districts.

The dryland areas are considered to be part of the country’s most fragile ecosystems. They receive irregular and low rainfall (500 mm-1500 mm annually) and experience periodic and extreme drought. The temperature ranges from 15 to 32.5°C.

Source: USAID (2011). *Climate Change and Conflict in Uganda: The Cattle Corridor and Karamoja*.

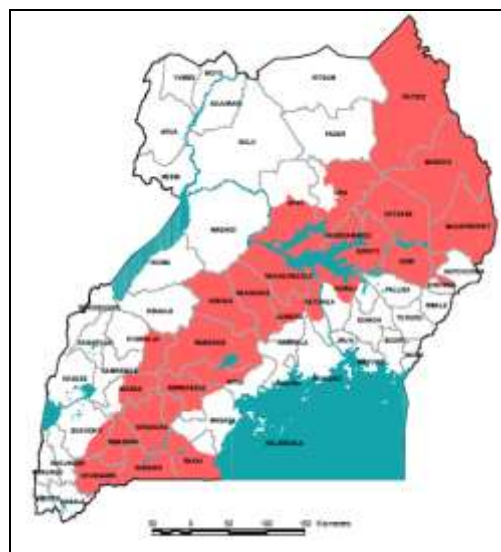


Figure 9: The cattle corridor (Source: Uganda CEA- WB 2012)

37. The increased frequencies of extreme weather events (mainly droughts) resulting from climate change and variability adversely affect the productivity of livestock and farmers’ livelihoods. The growth in population and corresponding increase in the number of livestock have extended grazing into marginal lands and forests thereby causing severe land degradation, vegetation loss and reduced livestock productivity.

38. Prolonged drought in livestock grazing systems causes severe water shortage, leading to mortality of animals, low production of milk and meat, food insecurity, increased food prices, and a general negative effect on the economy³⁹. Heat distress suffered by animals reduces the

³⁶ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

³⁷ Livestock estimates for 2014: 13.6 million cattle; 3.8 million sheep; 14 million goats; 3.6 million pigs; and 45 million chicken (UBOS 2015: Annual Statistical Abstract)

³⁸ UBOS (2010). The National Livestock Census Report 2008. Uganda Bureau of Statistics (UBOS), Government of Uganda.

³⁹ Uganda Climate Smart Agriculture Program (2015-2025). MAAIF and MWE. Government of Uganda

rate of animal feed intake and results in poor growth performance and low meat and milk production. Climate change also influences incidence of livestock vectors and diseases thereby reducing livestock productivity in the country.

3.4.1.3 The fisheries sub-sector and vulnerability to climate change

39. Uganda's fisheries sub-sector contributes to Uganda's national economy; for example in FY 2014/15, fisheries contributed 1.2% to GDP and 5% of total export earnings. About 94% of the total fish catch comes from Lakes Victoria, Albert and Kyoga. About 15 percent⁴⁰ of Uganda's total surface area is open water mainly comprising five major lakes (Victoria, Albert, Kyoga, Edward and George), which are main contributors to capture fisheries. In addition, there are also over 160 minor lakes and rivers, flood plains and swamps that partly contribute to fish production⁴¹. The most common fish caught are Nile perch (primarily for export), and Nile tilapia and Silver fish (*mukene*) for domestic and some regional consumption. The predicted climate change and variability are likely to reduce water levels in lakes and this will negatively affect fish production⁴². Studies conducted on inland lakes in Uganda, including Lake Victoria, indicate that the size of indigenous fish species has reduced due to increase in temperatures in the water bodies⁴³.

40. Aquaculture production on the other hand has grown exponentially over the last 10 years, with an annual growth rate of over 300% – production was 285 tons in 1999 and reached 73,000 tons in 2003³⁰. Aquaculture could be used as one of the adaptation measures to help communities that have depended on fish to supplement capture fisheries. However, the development of aquaculture in Uganda is constrained by low adoption of appropriate technologies, inadequate investment in research and inadequate aquaculture extension services.

41. Fisheries and aquaculture are vulnerable to climate change, variability and non-climate related factors such as rapid human population growth. However, there are no statistics to indicate the effects of specific parameters such as increase in temperature on fish stock distribution and abundance in Uganda⁴⁴. The impacts of climate change and variability on the fisheries sub sector in Uganda result from extreme weather events⁴⁵ such as storms and high winds on the lakes. For instance, climate change affects Silver fish (Mukene) and Nile perch value chains stages such as production, processing and transport⁴⁶. This SPCR is designed to support sustainable fisheries in the country through multi pronged interventions including research on the impact of climate change on fisheries biology and ecology.

⁴⁰ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

⁴¹ Uganda Agriculture NAP (2016-2030). MAAIF, Government of Uganda

⁴² MWE, DWRM (2013). Uganda National Water Resources Assessment. Ministry of Water and Environment, Directorate of Water Resources Management, Government of Uganda

⁴³ <http://www.ipsnews.net/2015/08/climate-change-shrinking-ugandas-lakes-and-fish/>

⁴⁴ Hepworth, N. and Goulden, M., 2008, Climate Change in Uganda: Understanding the implications and appraising the response, LTS International, Edinburgh

⁴⁵ WorldFish Center (2012). Impacts of climate change and variability on fish value chains in Uganda: Project Report 2012-18. Climate Change, Agriculture and Food Security Program of the CGIAR.

⁴⁶ WorldFish Center (2012). Impacts of climate change and variability on fish value chains in Uganda: Project Report 2012-18. Climate Change, Agriculture and Food Security Program of the CGIAR.

3.4.2 Forestry

42. Forests cover about 10% of Uganda's total land area. In the last three decades the forest cover has declined from 30% of the total land area in 1990 to below 10% in 2015, with forests on private land declining at rates much higher than those in the protected areas (Table 1).

Table 1: Status of forest resources by category, size and period

Tenure	Forest Type	Coverage/size in hectares				
		1990	2000	2005	2010	2015
Private	Tropical High Forests well stocked	172,274	127,022	79,789	50,662	20,439
	Degraded Tropical High Forest	175,052	160,883	149,008	50,423	35,400
	Woodland (including montane)	2,971,763	2,258,873	1,948,534	945,221	605,146
	Sub Total	3,319,090	2,546,778	2,177,331	1,046,306	660,986
Protected	Tropical High Forests well stocked	419,456	549,140	419,972	431,259	410,449
	Degraded Tropical High Forest	83,911	57,792	36,536	55,160	100,880
	Woodland (including montane)	1,028,027	842,756	907,752	703,113	556,464
	Sub Total	1,531,394	1,449,688	1,364,260	1,189,532	1,067,793
Grand Total		4,850,484	3,996,466	3,541,591	2,235,837	1,728,778

(Source: Draft Uganda Forest Investment Plan, 2017)

43. The key drivers of deforestation that increases the vulnerability of the forest sector to climate change and variability consist of agricultural expansion in forested lands; charcoal production and firewood harvesting; livestock grazing, timber production; and human settlement and urbanization (making Uganda a net carbon emitter from its forest resource). Climate change incidences such as long droughts impede tree regeneration in wood lands and forests thus resulting in reduced tree cover and wood scarcity. In addition, farmers are forced to clear forest lands for cultivation of crops and livestock grazing during dry periods, thereby escalating forest degradation and deforestation. Further deforestation will adversely affect biodiversity and wildlife resources through habitat loss and reduced food sources.

44. The predicted incidences of extreme events will also have a devastating effect on the forest flora and fauna as will the increase in forest fires due to droughts. Changes in precipitation and runoff patterns will result in decrease in the availability of water in many forested watersheds, thus decreasing the goods and services they provide. Incidences of pest outbreaks are also expected to rise as the defenses of host species change with a changing climate, as well as with the change in the abundance of parasites and predators.

45. As part of the effort to address the above challenge, Uganda's 2015 INDC⁴⁷ projects that through planned afforestation/reforestation measures, the trend of afforestation will convert the Land Use Land Cover Change and Forestry Sector from a net carbon emitter (of

⁴⁷ MWE, CCD (2015). *Uganda's Intended Nationally Determined Contribution (INDC, 2015): Submitted to the Conference of Parties 2015 (COP 21) of the UNFCCC*

about 8 MtCO₂ equivalent per year in 2030 under a business-as-usual scenario) to a source of net carbon remover (of -11.7 MtCO₂ equivalent per year in 2030 under the Intended Nationally Determined Contribution).

46. Approaches such as afforestation, reforestation, restoration, and avoided deforestation (REDD+) will ensure the continuation of carbon sequestration for mitigation of GHG. These actions will also provide resilience solutions through approaches such as payment for ecosystem services, community-based and community-driven forest management that improve livelihoods of vulnerable people dependent on forest resources. The SPCR will elaborate synergies and shared investment opportunities with the ongoing Uganda FIP, to build a climate resilient and more productive and sustainable forest sub-sector, in order to gain both climate change adaptation and mitigation co-benefits.

3.4.3 Wetlands

47. Wetlands cover 11% of Uganda's total land area. They are critical for regulation of ecosystem hydrology, carbon retention and support a diversity of economic activities. Current drivers of Wetlands degradation and loss are expected to reduce the extent of wetlands to 5.3% by 2025 if nothing is done to reverse the trends⁴⁸. The key drivers of wetland degradation include: (i) human population pressure on wetlands; (ii) unplanned settlements and cultivation especially by the urban and rural poor; (iii) over-exploitation for material goods; (iv) agricultural expansion and intensification; (v) limited information about wetlands, funding and technical capacity; and (vi) emerging new challenges like oil exploration, investments and climate change impacts. Figure 10 shows the wetland areas in Uganda.

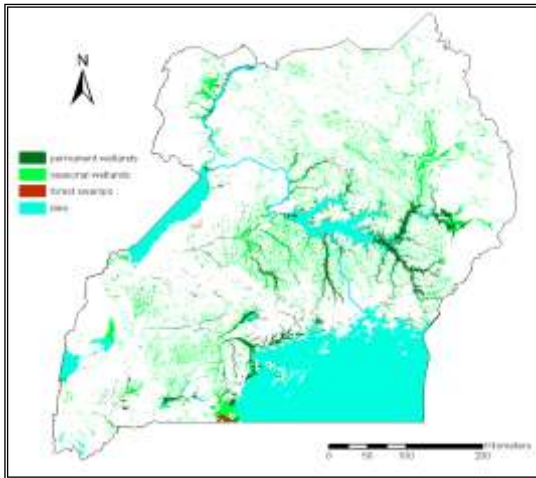


Figure 10: Wetland areas in Uganda
(Source: Uganda National Water Resource Assessment Report, 2013)

48. The pressures on the wetland ecosystems will greatly reduce the resilience wetlands ecosystems to the adverse effects of climate change and variability. Ongoing efforts in management and restoration of wetlands are expected to enhance the resilience of these ecosystems. The proposed measures for wetland restoration are projected to result into approximately 260,000 hectares of restored wetlands. However, due to uncertainty about the potential of methane emissions, the annual mitigation impact could be between 0.8 MtCO₂

⁴⁸ Uganda Wetlands Management Department (WMD) (2015). Ministry of Water and Environment (MWE)

equivalent and net zero⁴⁹. This SPCR will augment the current efforts on wetlands management and utilization as part of the implementation of the national climate change policy.

3.4.4 Land degradation

49. Land is a basic unit of production that supports agriculture and other economic activities in the country. Land degradation is experienced in different parts of the country and if it is left to prevail, it will be a major impediment to agriculture, natural resources productivity and sustainable national economic development. As a factor of production, land and the associated resources (forests, wetlands, soils, minerals, fisheries etc.), contribute over 50% of the GDP⁵⁰. Around 36% of Uganda is affected by severe land degradation and 10% by very severe land degradation. Based on biophysical factors, four land degradation zones^{51,52} (landscapes) in Uganda were defined namely, the Cattle Corridor, Southwestern and Eastern Highlands, Lake Victoria Crescent Region, and Eastern and Northern Uganda (Figure 11). In these areas it is estimated that soil nutrients such as nitrogen, potassium and phosphorus are lost at the rate of 85, 75 and 10 kg/ha/year respectively. Soil erosion is estimated at above 5 tons/ha/year⁵³.

50. These land degradation zones experience a myriad of climate related pressures and risks, coupled with other human pressures, like deforestation, wetland encroachment, etc. Of these, the Cattle Corridor is considered as the most degraded because it is water stressed and the ecosystems are fragile. Figure 12 shows the soil erosion risk profile for Uganda. Climate change is projected to result in incidences of extreme climate events such as high rainfall and extended droughts. Land in areas that will experience high rainfall will be subjected to erosion, landslides and other forms of mass wasting thus resulting in further severe land degradation. On the other hand, land in areas that will experience extended droughts will lose vegetation cover, soil will become compacted, and also lost through wind erosion.

⁴⁹ MWE, CCD (2015). *Uganda's Intended Nationally Determined Contribution (INDC, 2015): Submitted to the Conference of Parties 2015 (COP 21) of the UNFCCC*

⁵⁰ UBOS (2015). Statistical Abstract.

⁵¹ NEMA (2010). State of the Environment Report (SOER). Uganda

⁵² World Bank (2012). Uganda Country Environmental Analysis (CEA)

⁵³ NEMA (2010). Uganda State of the Environment Report (SOER)

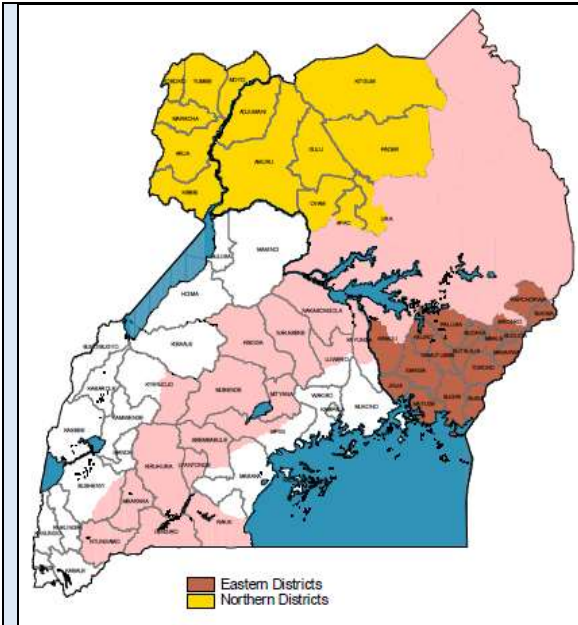


Figure 11: Land degradation zones

(Source: Uganda Strategic Investment Framework for SLM, 2010 – 2020)

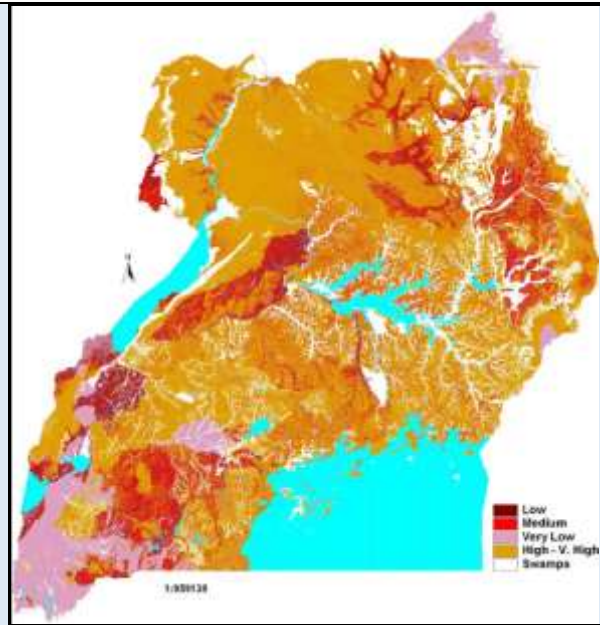


Figure 12: Vulnerability to soil erosion risk

(Source: Uganda State of the Environment Report, 2010)

51. In an effort to address the vulnerabilities of the agriculture sector to climate change and variability, the Agriculture Sector-specific National Adaptation Plan (Agriculture NAP) (2016-2030) has been developed. The country also developed a National Forest Plan and Wetlands Sector Strategic Plan to which this SPCR has been developed to respond to the concerns articulated therein. These sector plans are all costed and will require resources to be implemented. The NAP's estimated implementation budget for example is US\$ 522 million over a 15 year period (about US\$ 35 million per annum). This SPCR will play a catalytic role in the implementation of the Agriculture NAP and each of the sector plans.

3.4.5 Water

52. Climate change is already affecting water availability, quality and security across Uganda for both production and domestic use¹². In addition, the forecasted rise in temperature and rainfall variability due to climate change will adversely affect water resources and water-dependent sectors such as agriculture, livestock and energy. Rising temperature will accelerate evapotranspiration and will decrease soil moisture, which will adversely impact agriculture production. Demand for water will continue increasing as a result of population growth, climate change and environmental degradation. Smallholder farmers will be particularly vulnerable to this competing demand for water as they rely on rain-fed agriculture and cannot afford irrigation infrastructure for their agricultural lands. The cattle corridor in particular faces a high water stress as it naturally receives less rain; the carrying capacity of the rangelands is under critical pressure given the increasing levels of overgrazing and water scarcity. To face these challenges, the NCCP advocates for supporting on-going efforts to ensure that climate change concerns are integrated into national efforts for

sustainable and long-term conservation, access and effective utilization and management of water resources.

53. Uganda is divided into regional water management zones (WMZs)/major hydrological basins comprising Lake Victoria, Lake Kyoga, Lake Albert and Upper Nile⁵⁴ (Figure 13 and Table 2). These are further delineated into smaller catchments. The water management zones provide a framework for addressing climate change effects in an integrated manner as they are managed through a multi stakeholder consultative approach.



Figure 13: Water Management Zones

[Source: Directorate of Water Resources Management, 2015)

Table 2: Catchments in the four Water Management Zones

Upper Nile WMZ/ Basin <ul style="list-style-type: none"> • Delineated into four catchments of Albert, Nile, Aswa and Kidepo 	Kyoga WMZ/ Basin <ul style="list-style-type: none"> • Five catchments of Karanga-Kapire, Sironko, Kyoga, Mpologoma and Kwania
Albert WMZ/ Basin <ul style="list-style-type: none"> • Five catchments of Semliki, Kafu, Kamdini and Albert 	Victoria WMZ/ Basin <ul style="list-style-type: none"> • Four catchments of Rwizi, Edward, Kagera and Katonga

⁵⁴ MWE (2014). Uganda Catchment Management Planning Guidelines. Directorate of Water Resources Management (DWRM)

(Source: Uganda Catchment Management Planning Guidelines).

54. The WMZs (for decentralized basin-wide water resource management and planning) are advancing integrated catchment management planning through multi-sectoral and broad bottom-top stakeholder engagement in identification, prioritization and addressing of shared catchment problems. They provide a good entry point for piloting, testing and scaling up best practices in sustainable land and water management, as a means of reducing catchment and natural resource degradation whilst improving local community livelihoods. This SPCR will use water management zones as entry points to promote community resilience to climate change and variability as they offer an opportunity for integrated planning and catchment level.

3.4.6 Agricultural infrastructure and vulnerability to climate change

55. Uganda's agricultural sector heavily depends on physical infrastructure such as roads, bridges, communication networks, storage and market places that are essential to support the production of goods and services, the distribution of finished products to market, and access to basic social services. Such critical infrastructure boosts rural incomes for better access to markets, increased agricultural productivity and socio-economic development. With Uganda's already significant infrastructure deficit and sometimes poor quality infrastructure, negative impacts of projected climate change (flooding, landslides and droughts) disproportionately fall on poor smallholder farmers whose livelihoods are already precarious as a result of numerous factors including weak markets and high transaction costs⁵⁵.

3.4.7 Urban resilience to climate change and variability

56. By March 2016, there were 259 urban centres in Uganda (Figure 14 and Table 3). These include one Capital City (i.e. Kampala), 33 Municipalities, 163 Town Councils and 62 Town Boards. By 2014, the Kampala city had a population of 1.5 million with a population density of 7,928 persons per km² and a growth rate of 3.5%. Between 2002 and 2014, the growth in urban population was mainly due to reclassification of urban areas⁵⁶. The nature of urbanization in Uganda has two dimensions: first an increasing growth path that continuously presents urban management problems and sustainability challenges; second the creation of districts, resulting in more urban centers with inadequate administrative, financial, social and economic managerial capacity⁵⁷. According to the 2014 National Population and Housing Census, 21% of the Ugandan population is urban. With the urban population growth rate estimated at 4.5% p.a. the urbanization level is projected to be about 30% by 2040.

⁵⁵ USAID (2014). An Overview of Climate Change and Agricultural Infrastructure in Uganda. African and Latin American Resilience to Climate Change (ARCC) Project, USAID

⁵⁶ UBOS. 2015 Annual Statistical Abstract.

⁵⁷ Climate Change Assessment for Kampala, Uganda: A Summary. 2009. Cities and Climate Change Initiative by the UN Habitat

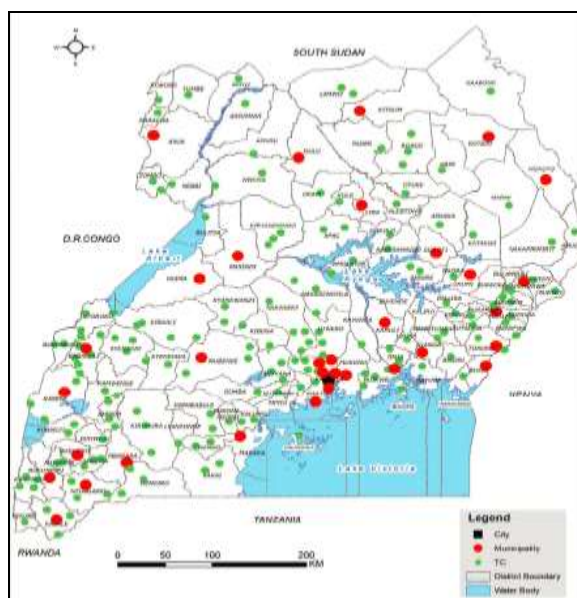


Figure 14: Districts and Urban Centres as at March 2016
(Source: UBOS. 2014 National Population and Housing Census, Final Report)

57. Of particular importance to this SPCR is the fact that over 89% of the urban dwellers use charcoal and firewood from unsustainably managed sources, as energy for cooking and heating, which is a serious threat to forests and woodlands. Furthermore, urban growth has not been guided by adequate planning and investment, resulting in urban centers that are congested and inhospitable. The poor planning has increased climate change vulnerability of most infrastructure for drainage, waste management and utilities such as water, sewerage, electricity and ICT. This SPCR will help in enhancing the capacity for urban planning and improvement in utilities infrastructure.

Table 3: Number of Urban Centers by type and Urban Population, 1991–2016

Type of Urban Centre	1991		2002*		2014**	
	Number	Population	Number	Population	Number	Population
City	1	774,241	1	1,189,142	1	1,507,080
Municipality	13	480,922	13	745,036	33	3,249,609
Town Council	33	338,901	61	1,065,209	163	2,361,033
Town Board/Township	20	75,589	20	na	62	308,142
Total	67	1,669,653	75	2,921,981	259	7,425,864
NB: * The Urban Population of 2002 excludes the Population enumerated in Town Boards						
** The Urban Centres are as of March 2016 while the population is as of 2014						

(Source: UBOS. 2014 National Population and Housing Census, Final Report)

58. Uganda's urban centers have experienced floods as one of the consequences of climate change affecting million of people and destroying property. Kampala in particular,

experienced 11 flood events from 1993 to 2014 (Figure 15), resulting in 38 deaths, 67,713 people affected, 123 homes destroyed and around 21,000 homes damaged. Flood-related damages in Kampala are projected to range between US\$ 3.7 and 17.6 million by 2025 and between US\$ 33.2 and 101.7 million by 2050. Costs of climate proof infrastructure will range between US\$ 560 and 600 million during 2015-2030, and reach between US\$ 3.3 and 3.7 billion during 2015-2050. The costs will increase with time, to a large extent due to human population and economic growth. In terms of percentage of city GDP the costs are expected to increase from 0.03-0.04% in 2015 to around 0.1% in 2050. In per capita terms, the costs will increase from US\$ 2 to 3 million in 2015 to US\$ 27 to 34 million in 2050. These costs have prompted Government of Uganda to guide urban authorities to develop climate change action plans. Kampala Capital City Authority has taken a lead in this endeavor (Box 2).

59. Furthermore, urban areas in Uganda have experienced droughts due to climate change and variability posing significant socio-economic challenges. The effect of drought has been experienced in terms of disruption of potable water supply and hydro-electric services due to reduced reservoir/lake/river water levels - affecting the activities of the people and the economy. Both droughts and floods also disrupt food production, which increases the risk of food and nutrition insecurity. This SPCR is designed to provide a catalytic role in enhancing community resilience in urban centers by addressing the above challenges.

Box 2: Summary of climate change profile of Kampala City

Kampala Capital City is home to 1.5 million residents, with 3.5 million found in the Greater Kampala Metropolitan Area (GKMA). It has an estimated daily work force of 4.5 million and annual growth rate of 3.5%. Projections indicate that the population will grow to about 5 million by 2020, and to 10 million within a generation.

Kampala is situated near the equator, on the northern shores of Lake Victoria. The city covers an area of approximately 195 km² although the city 'region' of Kampala (Greater Kampala) covers an estimated land area of 1,895 km² engulfing the satellite towns of Entebbe, Kiira, Wakiso, Mukono, Lugazi and Gayaza.

Kampala receives an annual rainfall of between 1,750 mm and 2,000 mm, with two annual rainy seasons – from March to May, peaking in April; and from August to November, peaking during October and November. Though the area experiences two wet season patterns, heavy rains occur even in relatively dry months of the year.

RCP4.5 and RCP8.5 climate projections indicate that near surface temperatures will increase between 1.5 and 3 °C by 2095. A small decline of about 20 mm is predicted in the annual rainfall average, although the frequency and intensity of heavy rains will increase.

Climate change vulnerabilities

- Flooding arising from increased rainfall and runoff is the most significant climate change impact on Kampala City. Many of the poor people in Kampala live in flood plains and reclaimed wetlands, and are exposed to frequent flooding during the rainy season resulting in loss of lives and property. The UN Desinventar database registers the destruction of 123 homes (9 per year) in Kampala due to flooding from 1993 to 2014. The flooding leads to power outages, contamination of water sources especially in the flood prone areas, frequent outbreak of water-borne diseases, damage to roads, buildings and settlements; etc.
- The main drivers of flooding include unplanned and weakly regulated land use; inadequate, poorly designed and poorly maintained urban infrastructure, especially the drainage systems; poor solid waste disposal and management practices; etc.
- Kampala also has significant vulnerability to droughts. First, the city highly depends on Lake Victoria for its water supply, with limited reliable alternative water supply options. Secondly, the city mainly uses hydro-electric energy which is very vulnerable to reduced reservoir/lake water levels.
- The high utilisation levels of biomass (charcoal and firewood) as a source of energy for cooking, escalates the deforestation and degradation of forests in the urban, peri-urban and mainly rural areas. This increases the emission of greenhouse gases and undermines the resilience and recovery of affected natural ecosystems.

Sources: (1) Kampala Strategic Plan (2014/15-2018/19); (2) Kampala Climate Change Action: Energy and Climate Profile (2015); (3) Economic assessment of climate change impacts in Uganda (CDKN, 2015).



Figure 15: A scene of flooding in Uganda's Capital city, Kampala.

3.4.5 Rural resilience to climate change and variability

60. With about 79%⁵⁸ of the national population being rural and over 77% deriving their livelihoods and welfare from subsistence rainfed and low productive agriculture, the majority of the rural population is highly vulnerable to the vagaries of the climate change and low soil fertility. This climate-related vulnerability is compounded by high population growth, high poverty levels in many rural areas (at 89.3%) with most having very low financial and technological adaptive capacity to adequately cope with or mitigate the impacts of climate change.

61. The vulnerability of the rural population to climate change and variability is exacerbated by poor access to basic infrastructure and services, like safe drinking water and sanitation, energy, health facilities, schools, good roads and transport systems, reliable and affordable communication services. For example, 97% of the rural population use firewood (85.2%) and charcoal (11.8%)⁵⁹ as energy for cooking. This escalates the deforestation and degradation of forests, wetlands and woodlands. The rural areas also supply the bulk of fuelwood to meet cooking energy demands in the urban areas. This increases the emission of greenhouse gases and undermines the resilience and recovery potential of affected natural ecosystems. Rural women are especially vulnerable in terms of food insecurity, water shortage and fuel wood scarcity. Children, the elderly, and persons with disabilities or sick are also particularly vulnerable⁶⁰. This SPCR will enhance the resilience of rural communities to the effects of

⁵⁸ UBOS. 2014 National Population and Household Census.

⁵⁹ Uganda national Charcoal Survey, 2016. Ministry of Energy and Mineral Development, 2016.

⁶⁰ MWE (2015). Uganda Intended Nationally Determined Contribution (INDC). 2015. Government of Uganda

climate change and variability by promoting climate smart agriculture, forest and woodland restoration, improved biomass energy supply and safe drinking water.

62. In terms of safe drinking water, climate change will exacerbate water scarcity and pollution problems, particularly in the semi-arid regions. During droughts water tables drop, boreholes go dry, and streams and swamps typically dry up. In the Cattle Corridor districts of Gulu, Apac, Lira, Moroto, Kotido, Soroti, Kumi, Mbarara, and Ntungamo, severe cases of drought were recorded in 1998, 1999, 2000, 2002, and 2005, affecting approximately 655,000 people⁶¹. The prolonged drought of 1999–2000 caused severe water shortages leading to loss of animals, low production of milk, elevated food prices, and food insecurity.

63. ***A case for rural water supply:*** SPCR will contribute to the building of climate resilience for rural livelihoods and strengthening and scaling up ongoing efforts in rural water supply given the low (66.5%) rural water access level. Targeted interventions will benefit the vulnerable rural communities by increasing their hygiene and health status, household productivity through reduced water-collection times, opening up opportunities for household garden watering and other income-generating activities. These socio-economic benefits would bolster the rural economy and household livelihoods.

3.4.8 Health and climate Change

64. Climate change is projected to increase threats to human health and will have significant direct and indirect health implications for Ugandans. It has been predicted that the prevalence of several diseases that are currently endemic in Uganda will increase due to climate change. These diseases include malaria, lymphatic filariasis, helminthes, trachoma, cholera and typhoid⁶². Other diseases that are not yet established in Uganda but are likely to be introduced because of climate change include dengue fever, and Rift Valley fever. This SPCR recognizes the inter-relationship between food security, nutrition and human health. Climate change threatens human health through its adverse effects on food insecurity and malnutrition.

65. Malnutrition and HIV/AIDS both have important consequences on peoples' resilience to climate change and particularly to extreme events such as heavy rainfall and flooding that adversely affect agriculture. Malnutrition will increase the susceptibility of women, children and other vulnerable groups to a variety of diseases, including diarrheal diseases, tuberculosis, malaria, and cardiac disease, because their immune systems will be weakened⁶³. This SPCR will provide an additional window for the government of Uganda to address the challenges of climate change and variability on human health through an integrated approach that simultaneously include a special focus on farmers' adaptation to climate change effects which will ensure food and nutrition security intricately lined to human health.

3.4.9 Climate information systems

⁶¹ World Bank. 2012. Uganda Country Environmental Analysis (CEA)

⁶² Tetra Tech ARD. (2013). Uganda climate change vulnerability assessment report (pp. 1–78). United States Agency for International Development.

⁶³ Balbus, J. M., & Malina, C. (2009). Identifying vulnerable subpopulations for climate change health effects in the United States. *Journal of Occupational and Environmental Medicine / American College of Occupational and Environmental Medicine*, 51(1), 33–37. doi:10.1097/JOM.0b013e318193e12e

66. Building climate resilience and preparedness to climate-related hazards requires effective and reliable climate-water resources-information systems and services. The Uganda National Meteorological Authority (UNMA) under the Ministry of Water and Environment (MWE) has the mandate to monitor weather and climate and provide forecasts and advisories to government and other stakeholders for use in sustainable development. The Directorate of Water Resources Management (DWRM) under the same ministry is responsible for monitoring and advising on water resources.

3.4.9.1 Climatological network

67. There are four main types of meteorological stations in the Uganda hydro-climatic network – synoptic, climatological, agro-meteorological and hydro-meteorological⁶⁴. Figure 16 shows the location of some climatic stations in Uganda. Table 4 gives the number of existing climatic network stations while Table 5 summarizes the main challenges and unfunded priorities for UNMA.

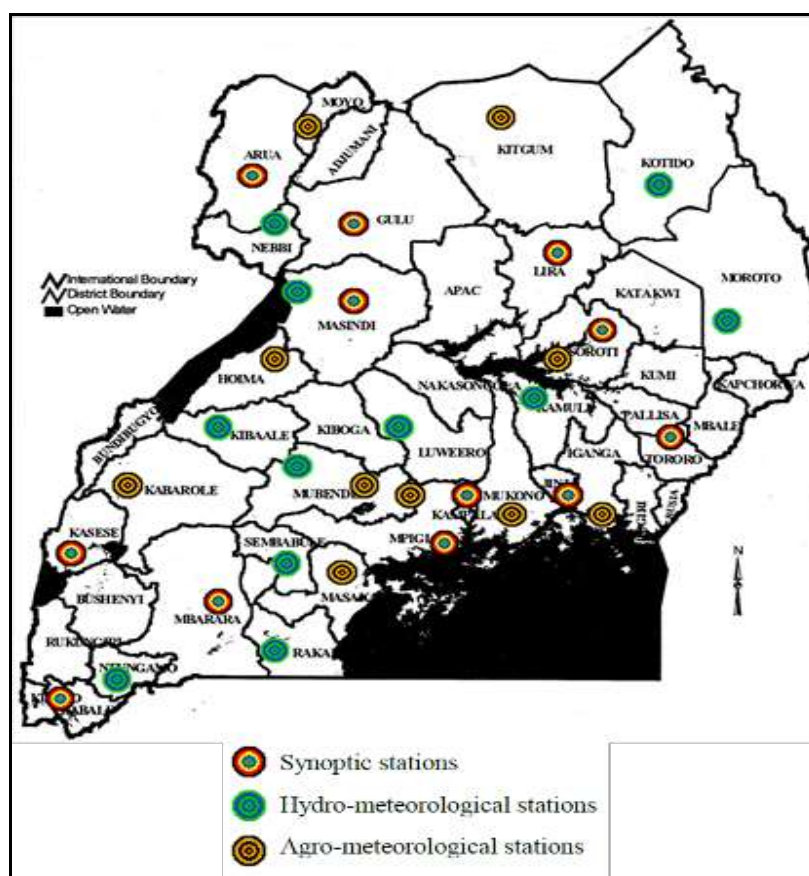


Figure 16: Location of climatic stations in Uganda.
(Source: Uganda National Meteorological Authority (UNMA), 2014)

Table 4: Network of Climate Monitoring Stations in Uganda

⁶⁴ UNMA (2013). A Modernization Plan for Uganda's Meteorological Services. By MDA Information Systems LLC. For UNMA

No	Station Type	Operational stations	Optimum stations	Deficit (%)
1	Synoptic stations	12	16	25
2	Climatological stations (hydrological and agro-meteorological stations)	40	60	33
3	Rainfall Stations	150	600	300
4	Upper Air Stations	1	2	50
5	Radar Station	1	2	50
6	MSG Receiver	1	2	50

(Source: Uganda National Meteorological Authority (UNMA), 2013)

Table 5: Challenges and unfunded priorities for UNMA

Challenges	Unfunded priority
<ul style="list-style-type: none"> Inadequate station networks: Increased spatial and temporal climate variability due to climate change call for increased station network density and continuous records Meteorological equipment, instruments and installations are capital intensive Inadequate telecommunication infrastructure in place, affecting collection of timely data. Limited awareness on the importance of weather and climate information by beneficiary communities and institutions Lack of optimum human resources at UNMA 	<ul style="list-style-type: none"> A 3 RADAR system An Integrated Lightning Detection System Land for Meteorological Installations UNMA Home and Regional offices Human Resource Capacity (UNMA and Users) Transport Facilities

3.4.9.2 Water resources monitoring network

68. DWRM manages the water resources network which consists of river stage/discharge stations, meteorological stations, water quality and sediment sampling, groundwater, and spatial datasets⁶⁵. Table 6 shows the status of the water resources network by 30 June 2015.

Table 6: Status of existing water resources monitoring network, by 30 June 2015

Station Category	Stations	Functional	Functionality % (14/15)	Functionality % (13/14)
Surface Water	91	75	82	48
Surface Water telemetric stations	19	18	95	Stations undergoing construction
Groundwater	30	29	97	82

(Source: Water and Environment Sector Performance Report, 2015)

69. High value stations (with long reliable data time series) are being converted to telemetry to improve data quality and obtain real time data for timely decision making for extreme events. This upgrade is expected to cover 70 stations across the country by 2017. An optimal

⁶⁵ NBI (2014). Needs Assessment and Design of a Regional Nile Basin Hydromet Services and a National Water Resources Monitoring System for South Sudan: Design Report. Nile Basin Initiative (NBI)

hydrological network consisting of 185 surface water stations and 86 groundwater stations is planned in the next five years.

70. Both UNMA's meteorology services and MWE's hydrology information services have recently attracted considerable government and development partner financing. These parallel improvements need to be linked to an integrated decision support for hydro-meteorological monitoring and information system with complementary analytical tools and communications capabilities that will allow climate risk monitoring and risk assessment, early warning, disaster risk preparedness and development planning⁶⁶. The system needs to be improved to provide accurate information to farmers so that they may make timely planting.



Figure 17: A failed maize crop in Lira in Northern Uganda due to a prolonged drought. Timely and accurate information could stem the losses.

⁶⁶ World Bank (2015). Uganda Strategic Climate Diagnostic

4. Overview of Climate Change Related Policies, Strategies and Activities

71. Stocktaking of all past, ongoing and pipeline climate change investments was undertaken as part of PPCR preparatory activities. This included desk review of key national and sectoral plans, policies, strategies and programs and a consultative review with key government agencies and national and international development partners. This section provides a brief summary of the main initiatives.

4.4 Key International and Regional Agreements

72. The SPCR is cognizant that the Government of Uganda is a party to most international environmental and climate change agreements. In particular, Uganda is party to UNFCCC, Kyoto Protocol, UN Convention on Biological Diversity (UNCBD), the Convention to Combat Desertification (UNCCD), Montreal Protocol and is party to several relevant regional treaties which add value to integration of climate change in development planning. Uganda has to date submitted the 1st and 2nd National Communications (in 2002 and 2014), NAPA (2007), INDC (2015) and other periodic status updates to the UNFCCC.

4.5 Key National Development Plans

73. The SPCR is formulated in consonance with national and relevant sectoral development goals and priorities, and aims to build on Uganda's long term goal of achieving climate-resilient and low-carbon development linked to green growth and broader sustainable development goals⁶⁷.

74. **Vision 2040:** Uganda's long-term development Vision is "*A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years*". This aims at changing from a predominantly low income to a competitive upper middle income country with a per capita income of US\$ 9,500 by 2040⁶⁸. The Vision recognizes that climate change affects all sectors of Uganda's economy, and underscores the need to develop and implement appropriate strategies, policy, institutional and legal framework to build climate resilience into all sectors.

75. **National Development Plan II (2015-2020):** The current NDP II is the second in a series of six five-year Plans aimed at achieving the Vision 2040. The goal of this Plan is to propel the country towards middle income status by 2020 through strengthening the country's competitiveness for sustainable wealth creation, employment and inclusive growth. The Plan prioritizes investment in three key growth opportunities of *Agriculture; Tourism; Minerals, Oil and Gas*, as well as in two development fundamentals of *Infrastructure and Human Capital Development*. The effective implementation of this Plan is expected to lead to an average growth rate of 6.3% and increase per capita income from US\$ 788 (in 2014) to US\$ 1,039 by 2020.

⁶⁷ Uganda Second National Development Plan (NDP II) (2105-2020). National Planning Authority (NPA)

⁶⁸ Uganda Vision 2040 (2010). National Planning Authority (NPA)

76. The NDP II integrates priorities of the Climate Change Policy (2015), and recognizes the need for cross-sectoral and multi-stakeholder engagement and coordination in promotion of climate change resilient and low carbon development pathways and the need to respond to the challenges posed by climate change through both adaptation and mitigation, to build resilience that is crucial to ensuring sustainable development. It emphasizes Uganda's approach to climate change adaptation through strengthening the country's institutions and adopting mitigation policies and practices that have adaptation benefits that lead to green growth and a green economy.

4.6 Key Policies and Strategies

77. **Climate Change Policy (NCCP):** The Climate Change Policy aims at *ensuring a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda*. It focuses on providing direction for the key sectors being affected by the impacts of climate change; facilitating adaptation; and strengthening coordinated efforts amongst sectors towards building an overarching national development process that is more resilient. The policy also provides a framework for ensuring coordinated action, with adequate attention paid to capacity development and climate financing mechanisms. The policy's key pillars are adaptation, mitigation, and research and observation, with adaptation emphasized as a primary priority and mitigation as secondary.

78. **Climate Change Law:** The Government of Uganda is currently preparing the Climate Change Bill (expected to be approved by Cabinet in FY 2017/18). The Bill and eventual Law aims to provide a legal framework for strengthening implementation and coordination of climate change actions, support monitoring and implementation enforcement by various actors. In summary, the law will provide:

- (a) A framework for the implementation of global obligations arising from relevant international conventions, protocols and agreements;
- (b) A framework to enhance the resilience of human and ecological systems to the impacts of climate change taking into consideration of the Constitution of the Republic of Uganda;
- (c) For the mainstreaming the principle of sustainable development in the planning and making of decisions on climate change;
- (d) A contribution towards the global efforts of combating climate change and facilitate approaches that support low carbon climate resilient development.
- (e) A framework for the governance, coordination and financing of climate change at all levels.

79. A number of other sectoral policies and strategies relevant to climate change and resilience are presented in Annex 2.

4.7 Key Programs and Projects

80. The 2016 Uganda Climate Change Actors' Landscape⁶⁹ reported the existence of many state and non-state actors undertaking climate change focussed activities related to adaptation and mitigation. The actors include Ministries, Departments and Agencies (MDAs), District Local Governments, NGOs, Development Partners, Community Based Organisations (CBOs), Academic institutions, and Private institutions (Table 7). The report highlighted some conflicts among some actors due to (i) duplication of activities in same areas – showing inadequate coordination by the CCD, (ii) some Development Partners not revealing exact amounts of funding, and (iii) conflict over legal ownership of targeted resources/areas.

Table 7: Main Focal Sector of the Climate Change Actors

Focal sector	Number of actors	%
Water	10	12.1
Environment	38	46.3
Energy	13	15.8
Agriculture	15	18.2
Financial cooperation/Carbon finance	6	7.3
Total	82	100

(Source: Uganda Climate Change Actors' Landscape Report. 2016. CCD)

81. Key programs are highlighted in Table 8, and more details are provided in Annex 2.

Table 8: Summary of some key climate change programs and studies

Program/project	Summary
Economic assessment of the impacts of Climate Change in Uganda (2015)	<ul style="list-style-type: none"> The study provides information on the current “adaptation deficit” in Uganda and the negative consequences of climate variability on the Ugandan economy. The aim was to provide policy makers and international development partners in Uganda with the evidence base on the economic impacts of climate change in order to mobilize increased climate investment finance for adaptation in climate-sensitive sectors.
By Climate and Development Knowledge Network (CDKN)	<ul style="list-style-type: none"> It analyzed five sectors namely Agriculture and livestock; Energy; Water; Human settlements; Transport infrastructure at national level, and five local level case-studies were conducted in Kampala (focusing on infrastructure), Kabale and Tororo (health/malaria), Karamoja (agriculture and livestock), Mount Elgon (coffee), and Mpanga river catchment (water and electricity). It shows that the cost of inaction under climate variability and change for the above sectors is estimated between US\$ 270 and 332 billion for the period 2010–2050.
Intended Nationally Determined Contribution (INDC), 2015	<ul style="list-style-type: none"> The priority of the Uganda INDC was adaptation The country committed to work on reducing vulnerability and addressing adaptation in agriculture and livestock, forestry, infrastructure (with an emphasis on human settlements, social infrastructure and transport), water, energy, health and disaster risk management. Sustainable Land Management (SLM) and Climate Smart Agriculture (CSA) will be scaled up to increase resilience at the grassroots level.

⁶⁹ Uganda Climate Change Actors' Landscape Report. 2016. Climate Change Department (CCD)

Program/project	Summary
	<ul style="list-style-type: none"> For mitigation, Uganda will focus on implementation of a series of policies and measures in the energy supply, forestry and wetland sectors. The budget for implementation of actions will be 30% national and 70% international funding sources.
2 nd National Communication (SNC) to the UNFCCC (2014)	<ul style="list-style-type: none"> The SNC summarized up to date information as well as general and specific data on climate change in Uganda, the national GHG inventory, interventions made and/or proposed for climate change adaptation and mitigation. The emission estimates cover five sectors: <i>(i) energy, (ii) industrial processes, (iii) agriculture, (iv) land use, land use change and forestry, and (v) waste</i>. The GHG reported in inventory are: CO₂, CO, CH₄, Nitrous Oxide (N₂O), Nitrogen Oxides (NO_x), Sulphur dioxide (SO₂) and Non-Methane Volatile Organic Compounds (NMVOC). Land use change contributed the highest emissions followed by energy.

82. Many of the current activities are supported by development partners and there is potential to scale up most of them through well-developed synergies. Some of the activities are presented in Annex 2.

5. Institutional Assessment

83. While Uganda has taken important steps to develop a credible climate change program, its starting point was a weak institutional framework that impairs the country's capacity to respond to climate challenges. The existing institutional and policy framework to manage climate risks is characterized by poor staffing and skills, weak implementation capacities, separation of institutional responsibilities, lack of coordination and limited partnerships with academia, Non-Governmental Organizations (NGOs), and the private sector.

84. A national policy to reduce climate vulnerability and to promote measures to better cope with climate risks has been developed, but is awaiting final approval and faces financial and capacity challenges for implementation. In addition, to remedy the institutional fragmentation within government that has up to now constrained an integrated approach or significant mainstreaming of climate considerations into public investment and activities, national and local coordination mechanisms have been setup, but also face resource constraints and implementation challenges.

85. Another key area of critical importance to effective institutional performance is the weakness of the information and knowledge base needed for decision making. In Uganda, as is the case across the Africa continent, data collection or monitoring networks are sparse, poorly maintained and inadequately staffed, resulting in records that are incomplete and of poor quality. These difficulties are compounded by the lack of related decision-support and communication tools (including rainfall, flood, drought, and storm forecasting, as well as a comprehensive early warning system), and by insufficient data sharing across countries on climate-related issues that are of common interest.

86. This section examines the current capacity of major stakeholders, and outlines the current institutional framework for Uganda's climate change planning and coordination activities. Although Uganda's climate change institutional framework has impressively evolved in the recent past, there are some areas of focus that need to be strengthened and improved during the SPCR implementation.

5.4 National Government institutions

87. At the national level, the Constitution of Uganda (1995) as amended in 2005, provides a starting point and overall regulatory framework for implementation of the Climate Change Policy. Objective XIII of the Constitution advocates for the management of the environment for sustainable development. Article 39 states that *"every Ugandan has a right to a clean and healthy environment"*. Article 245 states that *"Parliament shall, by law, provide for measures intended: (a) to protect and preserve the environment from abuse, pollution and degradation; (b) to manage the environment for sustainable development; and (c) to promote environmental awareness."*

88. The **Ministry of Water and Environment (MWE)** is the national focal climate change institution through the **Climate Change Department (CCD)**. The MWE is also the National Implementing Entity (NIE) for the Adaptation Fund. The key functions of the CCD are:

- a. Serving as the National Focal Point for the UNFCCC. In this respect, the Department is responsible for preparation of the National Communications, the Intended Nationally Determined Contributions (INDC), and other national status updates to the UNFCCC;
- b. Monitoring the implementation of the Climate Change Policy and its Implementation Strategy;
- c. Acting as an information clearinghouse on climate change concerns;
- d. Providing policy and strategic advice on climate change;
- e. Supporting awareness raising, communication and outreach on climate change;
- f. Ensuring the integration of climate change concerns into overall national planning through coordination with the relevant ministries, departments and governmental agencies (MDAs), and Local Governments;
- g. Providing secretarial services to the National Climate Change Policy Committee (NCCPC), the National Climate Change Advisory Committee (NCCAC) and the Designated National Authority (DNA) for Clean Development Mechanism (CDM) projects.

89. The mainstream Government department works in an environment which has a vibrant civil society and a clear set of activities relevant to climate change are undertaken both by civil society and the private sector which are described in sections 5.7 and 5.8. Uganda has enjoyed significant support from development partners as well and these are briefly described in section 5.6.

90. This section on institutional assessment has briefly considered Uganda's institutional capacities to coordinate climate change activities in the country. The Climate change Department is the focal point and will coordinate the implementation of the investment plan. There are still some capacity gaps in the institutional framework as indicated in paragraphs 83 and 86. In order to address such capacity gaps and to enable the department to coordinate, support and monitor all PPCR investments at the national and local level, the investment plan includes a technical assistance project, which will build on capacity strengthening activities initiated during the investment preparation phase. The SPCR capacity building investments is targeted to support knowledge management and institutional support up to district level.

Box 3: Key achievements and ongoing activities of the Climate Change Department

The Climate Change Department (CCD), formerly Climate Change Unit (CCU) was created in 2008, directly under the office of the Permanent Secretary of the Ministry of Water and Environment (MWE). It was originally under the Uganda Meteorological Department of the MWE but was later elevated to a full Department in 2014.

Key achievements and ongoing activities of the Climate Change Department/Unit (CCD) include:

- a. Led the formulation of the National Climate Change Policy (NCCP), which followed a very wide stakeholder consultation and validation process
- b. Is leading the preparation of the Climate Change Bill, which is expected to be passed in FY 2016/17
- c. Guided the integration of climate change issues and priorities into the National Development Plans I (2010-2015) and II (2015-2020)
- d. Prepared and submitted the First and Second National Communications (in 2002 and 2014), NAPA (2007), INDC (2015) and other periodic status updates to the UNFCCC
- e. Prepared and rolled out guidelines for mainstreaming climate change into sectoral and District Local Governments' policies and plans (*"Guidelines for the Integration of Climate Change in Sector Plans and Budgets", June 2014*). The CCD has also supported the preparation of sector-specific climate change mainstreaming guidelines for the agriculture sector
- f. Supported the formation of specific Climate Change Task forces and Focal Officers in different Ministries, Departments, Agencies and District Local Governments
- g. Established a National Climate Change Resource Centre (NCCRC) intended to house the National Greenhouse Gas Inventory System (GHG Inventory), National Climate Change Knowledge Management System (KMS), dynamic Climate change actors' atlas, Monitoring Reporting Verification (MRV) and Performance Measurement Framework (PMF) for tracking of the Climate Change Policy implementation at national, MDA and district levels, etc.
- h. Supported the preparation of the Uganda Green Growth Development Strategy (2016-2030)
- i. Supported the preparation of the Agriculture Sector-specific National Adaptation Plan (Agriculture NAP) (2016)
- j. Is leading the preparation of the framework for the National Adaptation Plan (NAP), which will be a long-term national adaptation implementation strategy. The NAP roadmap was submitted to the UNFCCC in May 2015.

91. The *National Climate Change Policy Committee (NCCPC)* also called the Policy Committee on Environment (PCE) coordinates policy implementation and ensures information flow on resource allocation for the implementation of the Climate Change Policy. The Committee is chaired by the Prime Minister as the apex body in coordinating climate change activities in the country.

92. The *National Climate Change Advisory Committee (NCCAC)* ensures working level coordination and provides technical input to the NCCPC. This committee is chaired by the Minister of Water and Environment and brings together technical representatives from the various government sectors at the national level, along with representatives from private-

sector associations, civil society, academia and district authorities. The Figure 18 is a presentation of the Institutional landscape for climate change coordination in the country.

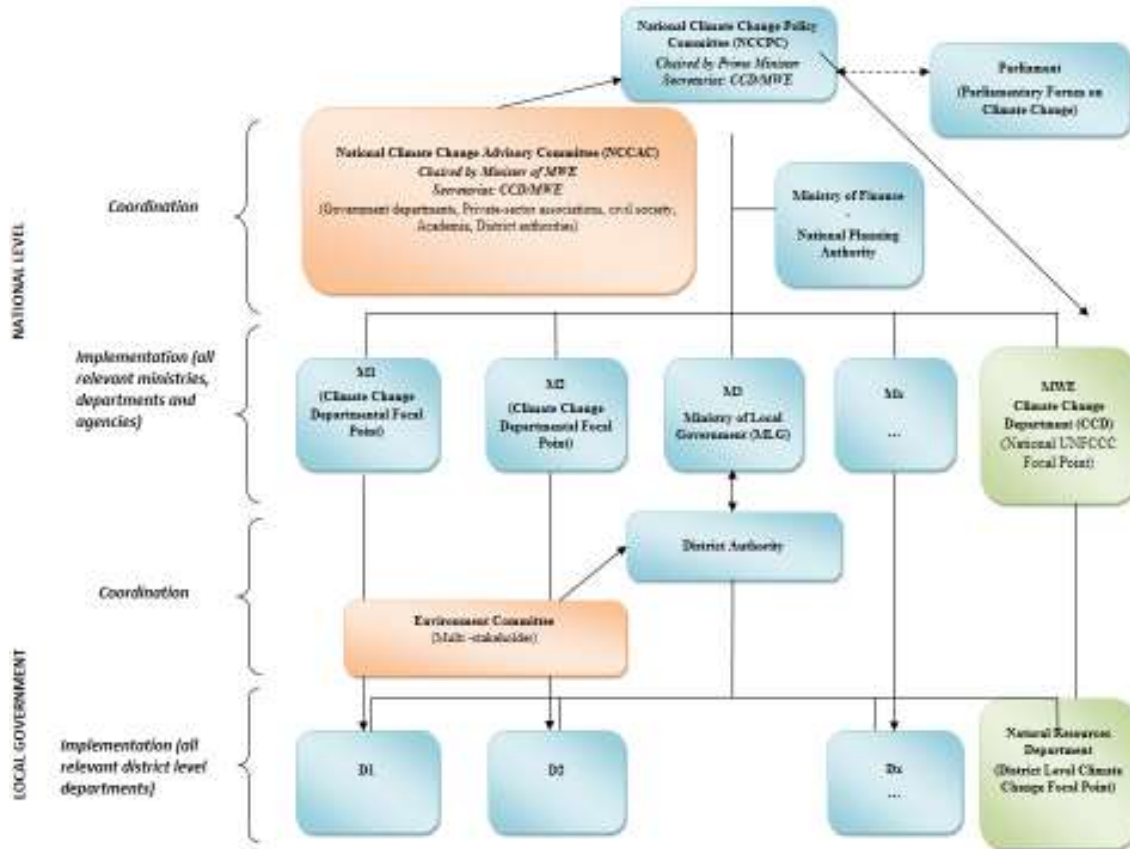


Figure 18: Institutional Framework for Climate Change coordination in Uganda

93. The **Parliamentary Forum on Climate Change (PFCC)** promotes awareness and climate change actions within the Parliament⁷⁰ of Uganda. Details of climate change matters are discussed under the Parliament's Standing Committee on Natural Resources.

94. Three other national ministries/authorities (Table 9) have a specific role to play in national coordination to ensure policy implementation.

⁷⁰ The Parliament of Uganda, which is the legislature, exercises overall oversight of national policies, programmes and actions; including the important roles of budgetary appropriation and ensuring accountability

Table 9: Roles of MoFPED, NPA and MoLG in national climate change policy coordination

Ministry/authority	Specific role
Ministry of Finance, Planning and Economic Development (MoFPED)	<ul style="list-style-type: none"> • Ensure that national, sectoral and district-level budgets and indicative planning figures integrate climate change through appropriate provisions for the implementation of the policy and its strategy • Review quarterly and semi-annual reports from the ministries, departments and agencies concerned, to ensure that resource use is in line with expected and actual progress in implementing the policy • Facilitate the introduction of relevant financial mechanisms and tools to the relevant stakeholders, as per the implementation strategy, to support financial resource mobilisation and investment for the implementation of the policy • MoFPED is also the National Designated Authority (NDA) for the Green Climate Fund (GCF)
National Planning Authority (NPA)	<ul style="list-style-type: none"> • Ensure that the ministries, departments and agencies concerned integrate climate change through adequate provisions in their annual work plans for the implementation of the climate change policy, building on the guidance provided in the costed implementation strategy but consistent with all relevant national policies and legislations • Ensure that the agreed work plans are implemented, through a review of quarterly and semi-annual reporting by the institutions concerned and appropriate follow-up actions by the NPA
Ministry of Local Government (MoLG)	<ul style="list-style-type: none"> • Provide guidance to the districts to translate the policy priorities and the implementation strategy into coherent plans at the district level • Ensure that districts make adequate provisions in their development plans, annual plans and budgets for the implementation of the climate change policy • Ensure that these are acted upon as planned through a review of relevant reports from the districts and appropriate follow-up actions by the MoLG, as required

95. Other Government institutions with responsibilities related to management of climate change are given in Annex 2.

5.5 Local Government institutions

96. While the district-level climate change focal point is anchored within the District's Natural Resources Department, all departments ensure that climate change issues in their respective sectors are integrated into the District Development Plans. Adequate provision is made in district-level Indicative Planning Figures for each sector to ensure that they address the climate change policy priorities, along with the setting of relevant performance indicators. The existing Environment Committee structure at the district level acts as a mechanism to ensure cross-sectoral coordination.

5.6 Development Partners

97. The coordination of climate change activities and projects among Development Partners is maintained through the *Thematic Group on Climate Change* (Table 10), which was established in November 2010. The inter-sectoral Thematic Group on Climate Change is a sub-group of the Environment and Natural Resources Development Partner Group, corresponding to the institutional set-up of climate change mandate within the GoU structures. Membership of this group is open to development partners supporting Uganda in adaptation and mitigation measures to climate change in all relevant sectors. The objective of the Thematic Group on Climate Change is to improve both the effectiveness and the quality of development assistance for climate change in Uganda.

Table 10: Developments partners' thematic group on climate change

Development Partner	Climate change related initiatives supported
The European Union (EU)	Climate change is considered a cross cutting issue and support has been to various activities including: Updating the Country Environment Profile and options for CC mainstreaming;; the Sawlog Production Grant Scheme (SPGS) – Program jointly funded by Norway; The Karamoja Livelihoods Project (KALIP) SEA – Support to developing a strategic environmental assessment for the road sector; Energy efficiency/renewable energy; GIZ – Promoting Access to Modern Energy in North Uganda (PAMENU); Church of Sweden: Increase access to energy efficient stoves among rural households and sustainable reforestation in Northern Uganda (Kitgum and Pader districts); and TRIODOS – Regional project – expanding energy markets through microfinance (Uganda, Kenya and Tanzania).
United States Agency for International Development (USAID)	Supported the Livelihoods and Enterprises for Agricultural Development (LEAD) Project; are Supporting Research at Makerere; and, support several agriculture and natural resources management initiatives
UK Department for International Development (DfID)	Capacity building, policy issues and implementation of pilot activities. Some of the support includes to Oxfam Climate Action Network; Carbon Foundation of East Africa; Parliamentary Forum on Climate Change (PFCC) and the Territorial Approach to Climate Change (TAAC) in Eastern Uganda.
The Germany Embassy German Agency for International Cooperation –GIZ	GIZ supports partners in identifying the causes of climate change and in modernizing environmental policies, Renewable energy/energy efficiency; Regional cooperation on climate change, and Development of strategies to mainstream climate change into other sectors. Integrated water resources management as well as water and sanitation; and capacity building.
Food and Agriculture Organisation of the United Nations -FAO	FAO is supporting agriculture and natural resources management projects country wide. Is involved in establishment of Agro-pastoral Field Schools (APFS) to support the implementation of climate change adaptation and disaster risk reduction plans.
UNDP- United Nations Development Program	UNDP has an Environment and Energy Unit (EEG) which also focuses on Climate change adaptation and mitigation. UNDP also helps administer the GEF Small Grants Program that supports community-based initiatives focused on climate change among other GEF focal areas. UNDP has supported sustainable land management initiatives; strengthening climate information and several small grants.
World Food Program (WFP)	WFP approaches the challenges of climate change from the point of view of its impact on hunger and nutrition. From anticipating shocks, to reacting rapidly when disasters occur, to building resilience to future threats, to strengthening social protection and safety nets. The partnership with Uganda is support community resilience.
Danish International Development Cooperation (DANIDA)	The Danish Embassy has supported several interventions related to climate change including: - Support to establishment of a Climate Change Unit; -Support to Mainstreaming of Climate Change Adaptation;

	-Support to Preparation of Uganda's Participation in COP 15; -Tree Talk Plus–Greening Uganda (NGO project); and, -Territorial Approach to Climate Change in the Mbale Region of Uganda.
Netherlands Embassy	The Netherlands Embassy supports community development, food security and economic cooperation Programs in the country thereby contributing to resilience aspects for rural communities. In 2014 the initiatives benefited 100,000 farmers, of which one third were women, producing 56,000 tons of cereal equivalents (enough to feed 280,000 people) and 75 million liters of milk ⁷¹ .
Irish Embassy	Irish Support to Uganda has supported interventions in the social services sector including Education and capacity building, the Governance sector and various aspects of economic development ⁷² .
Swedish International Development Agency	Uganda's NDP with its focus to increase growth and reduce poverty forms the basis for Sweden's support. Sweden, aims to strengthen the respect for human rights in Uganda, enhance the local population's opportunities to make a living and to obtain improved health as well as freedom from violence ⁷³ .
The World Bank	The world Bank has supported and continues to support several environment and natural resources management projects including the Nile Basin Reforestation Project; Kampala Landfill Gas Project; Municipal Waste Compost Project; and the West Nile Electrification Project among others.
Norwegian Embassy	Norway Plays a central role mainly in the management of the oil sector in Uganda. But the bilateral assistance is in other sectors as well including Health, Environment management, emergency assistance, good governance and Education ⁷⁴ .

5.7 Civil society

98. Civil Society are one of the main climate change actors in Uganda. The international civil society organizations that are active in Uganda include Wildlife Fund for Nature (WWF), CARE International, Oxfam, Save the Children-Uganda, and, World Vision International. The latter three have formed a consortium, the ACCRA- Africa Climate Change Resilience Alliance; to collectively address climate change issues. Civil society activities on climate change issues is by a mix of International and local level NGOs as well as Community Based Organizations (CBOS) as indicated in Annex 2. This SPCR recognizes the vibrant civil society network in the country and they will be utilized as close partners to implement SPCR investment options.

5.8 Private sector

99. The private sector in Uganda participates mainly along the agricultural value chains. Specifically, the private sector has the potential to direct their investments in ways that enable climate risk management by different value chain actors, simultaneously reducing risks to their own businesses. Private sector actors in Uganda include both large (private seed companies and commercial banks) and small (farmer's cooperatives and small scale food processors) and they are increasingly playing a major role in climate change resilience. However, the sector is still nascent and needs to be supported as well. The developing industry and manufacturing sectors are being mobilized especially the Uganda Manufacturers' Association and the Private Sector Foundation to create awareness on climate change issues

⁷¹ <http://uganda.nlembassy.org/key-topics/development-cooperation>.

⁷² <https://www.irishaid.ie/news-publications/publications/publicationsarchive/2015/may/uganda-csp-evaluation-report-2015/>

⁷³ <http://www.swedenabroad.com/en-GB/Embassies/Kampala/Development-Cooperation/Swedish-Development-Cooperation-with-Uganda/>

⁷⁴ <https://www.norad.no/en/front/countries/africa/uganda/>

and have a huge potential to promote climate resilience. Some initiatives to support climate resilience are underway and provide great promise if well nurtured. Details of relevant private sector initiatives are given in Annex 2. This SPCR is designed to build on and tap into the existing private sector initiatives to enhance climate resilience both for urban and rural communities.

100. **Insurance.** The Insurance industry has developed in the recent years and the sector is now taking on agriculture insurance as a product to enable climate risk to be transferred off the farmers. For example, Lion Insurance, the UAP and others have now formed a consortium to support agriculture insurance. The other relevant private sector players to facilitate enhancement of climate change resilience in the country include mobile phone companies such as MTN, Vodafone and Airtel and these have the potential to scale up the provision of weather information to farmers. A pilot was undertaken during the last two years by a UNDP funded initiative to use such a platform and it is a viable approach to ensure information is delivered efficiently to the farmers.

5.9 Gender and climate Change

101. In Uganda, there is a dearth of information and statistics to illustrate the effects of climate change on gender and yet climate change and increased weather variability has significant gender implications due to the different roles, needs, capacities and positioning of men and women in society. As a consequence, women and men are exposed to different risks and vulnerabilities. There have been some effort to study the effect of climate change on gender⁷⁵ however, the study was largely qualitative and based on three districts only (Kasese, Mbale and Nakasongola).

102. This SPCR section is based on the premise that climate change affects everybody and it is not gender neutral. Responses to effects of climate change and variability cannot be effective without taking into consideration the different needs of women and men, the inequalities that compound the impacts of climate change for women and the specific knowledge they can contribute to the solutions.

103. The SPCR recognizes that women are particularly most vulnerable to the impacts of climate change such as food insecurity, water shortage and fuel wood scarcity. This is because women are responsible for availing food as well as various nutrition needs of the children they take care of. In addition, women have the extra responsibility of collecting firewood and cooking, and are exposed to diseases associated with smoke during cooking. Equally significantly, men are also vulnerable and their vulnerability stems from their inability to provide for their families, a role they have traditionally played.

⁷⁵ Florence Kyoheirwe Muhanguzi, Consolata Kabonesa, and Hosea R.D. Muhanguzi 2012. Gender and Climate Change: Assessing Impacts and Strategies for Mitigation and Adaptation to Climate Change in Uganda. Ministry of Water and Environment, Makerere University, School of Women and Gender Studies and ICEDEA.

104. The effects of climate change have led to changes in gender roles, consequently making some men and women take on non-traditionally prescribed roles. These include women's engagement in income generating activities to provide for their families and men's involvement in fetching water from distant places during the dry season for domestic use.

Ugandan women account for more than 60% of all food production and are especially vulnerable to the impacts of climate change because of their dependence on natural resources and agriculture for the livelihoods of their families. The challenges they face are compounded by unequal access to production resources, limited decision making power and mobility particularly in rural areas.

105. This SPCR will support the implementation of diverse integrated strategies to enable women and men that live in highland and lowland regions of Uganda to cope and adapt to the effects of climate change. The strategies will include climate smart agricultural practices such as agroforestry, mixed farming, soil conservation, food storage and engaging in various alternative sources of income generation. The SPCR will promote coping mechanisms and adaptation measures which include enhancing the adaptive capacities of men and women to access weather and climate information and participation in social networks that may provide resources or various forms of support needed to cope with the impacts of climate change.

5.10 Vulnerable social groups

106. In the Uganda, the vulnerable social groups include women, children, conflict-affected groups, people with disabilities, low-paid (formal and informal sector) workers, malnourished, ethnic minorities, agricultural workers, the elderly, pregnant women, and people living with HIV/AIDS. The vulnerability is mainly due to high poverty levels in specific areas of the country. In the Ugandan context, social support networks are options that offer safety nets to the vulnerable people. These are however progressively breaking down as individualism takes root and tears apart the social fabric of a typical African family. The poor, people living with disability, youth, people living with HIV/AIDS, the elderly, orphans and vulnerable children, refugees, and marginalized communities are therefore at risk in relation to climate change and specific strategies need to be developed to address their vulnerability. The social support thus needs to be strengthened where they are breaking down such as in the sprawling urban centres.

107. This SPCR will implement Programs to enhance the ability of the vulnerable social groups to anticipate, cope with, resist and recover from the impacts of climate change and variability. The capacity of the vulnerable social groups to anticipate the impacts of climate change and variability will be enhance by improved access to climate information so that they can engage in productive agriculture and related economic activities in a timely manner. In addition, social support systems and strong neighbourhood systems are very important in minimizing vulnerability of individuals, households and communities. This SPCR will prioritize resilience Programs that invest in social networks and neighbourhood cohesion systems to facilitate collective efforts to cope with adverse

effects of climate change and variability. Early warning systems and disaster preparedness will be supported to minimize community vulnerability while building household and individual resilience. The vulnerable social groups will be mainstreamed in the proposed investment projects in this SPCR. The investment projects will enhance the ability of vulnerable social groups to resist and recover from the negative effects of climate change and variability by engaging in economic activities for poverty reduction at both household and community levels.

6. Participatory process for preparing the SPCR

6.1 Stakeholder feedback from the scoping, technical, and joint missions

108. As part of the preparatory phase of the SPCR, a scoping mission was held in October 2015, followed by a technical mission in March 2016, the first joint FIP/PPCR mission in June 2016, and the second joint FIP/PPCR mission in October 2016. All the meetings brought together key line ministries and the relevant departments and government agencies as well as development partners, NGOs and CSOs as part of the consultative process. Annex 5 gives the details of the meetings and key decisions made.

109. At the national level, these missions met with members of the NCCPC, the NCCAC, key government agencies, CSO representatives, development partners, and the private sector. In addition, they met with District Local Government officials, technical officials and other key stakeholders at the grassroots level in several parts of the country, including those in the east and north (*Mbale, Bududa, Katakwi, Moroto, Gulu, Kiryandongo and Masindi districts*), and in the west (*Mbarara, Rubirizi, Kasese, Fort Portal, Hoima and Masindi districts*).

110. In addition, these missions visited key pilot programs at the district level and were able to engage Local Government stakeholders (Annex 5) and get their views on the challenges and opportunities, and insights from local level actors on the priorities in order to better inform and guide the potential PPCR investment opportunities. A summary of discussions and key findings of these missions and engagements is given in Annex 5. This section however highlights key decisions that affected the drafting of the SPCR and selection of the investment options.

Scoping mission (October, 2015)

Made a quick review of Government policies and discussed the FIP and PPCR modalities with Government.

- Agreed on process and that FIP and PPCR preparation would be implemented by the Ministry of Water and Environment.
- Both investment plans would be submitted at the same time in November, 2016.
- The Government to communicate to CIF on the MDB leadership of the process.

Technical Mission (March 2016)

The mission held meetings with national level stakeholders, development partners and NGOs.

- Criteria for selection of focus landscapes and themes were agreed
- Landscapes selected included Albertine rift, Mt. Elgon and the Cattle corridor.
- Discussed support for private and public investments in efficient timber, charcoal and fuelwood value chains.

First joint mission (June, 2016)

Meetings were held with development partners, NGOs, district local Governments, and key stakeholders at field level.

- Technical assessments were made of issues on climate change and possible solutions
- Noted the serious human encroachment into forests, wetlands and other fragile ecosystems

- Noted the low institutional capacities ie. Technical, financial and material support as well as weak institutional coordination to address climate change issues.
- Reviewed the first draft of the SPCR noting good progress of the drafting process
- Confirmed the thematic areas identified during the first joint mission.
- Agreed on adopting a basin/catchment management approach within 3 of the 4 water management zones namely Albertine, Kyoga and upper Nile water management zones.
- Seven indicative investment options were identified (details in Annex 5).

Second joint mission (October, 2016)

Meetings were held with development partners, NGOs, Ministries, Departments and agencies.

- Significant progress had been made with the preparation of SPCR document and the third draft was shared with stakeholders for review and comments.
- Noted that provisionally the SPCR implementation would cost USD 200 million with possible financing anticipated from various sources including USD 70million from CIF if fund are made available and USD 100 million to be requested from GCF.
- Identified investments were confirmed with stakeholders; and were aligned with Uganda's Vision 2040, NDPII, the National Climate change policy and the INDC.
- Synergies and potential joint investment actions between FIP and PPCR were identified and discussed.

6.2 Stakeholder feedback from National and Regional level consultative meetings

111. In October and November 2016, several stakeholder consultative meetings were held throughout the country organized at national and regional levels and additional valuable inputs were received. Further consultative meetings were held with the legislature in January 2017 and finally the SPCR was subjected to the approval processes.

112. National level stakeholder consultations targeted national level government officials from relevant ministries, departments and agencies, as well as development partners, the private sector, NGOs and CSOs operating at the national level, and multilateral and bilateral development agencies working in Uganda. ***Five national level stakeholder consultative meetings were conducted as follows*** (List of participants is given in Annex 6):

- a. The first meeting was held on October 4, 2016 in Mukono (about 30 km outside Kampala City) and targeted top government officials from line ministries, relevant government departments and agencies. The participants in the meeting also included development partners.
 - Extensively discussed agriculture insurance and noted that it required further investigation. It will be part of the analytical studies.
 - Suggested provision of rural water for domestic use and water for production.
 - Suggested addition of Agoro-Agu to the main catchments for provision of water.
 - Agreed on the focus to 8 urban centers to enhance climate resilience of urban communities.
- b. The second meeting was held on October 5, 2016 in Kampala, and was attended by representatives from academic institutions, civil society organizations and non-governmental organizations, the media and the private sector.

- Discussed the role of civil society organisations in the Program implementation
 - Agreed that advocacy and lobbying were major inputs by the civil society organisations
 - Discussed details on policy enforcement including for wetlands forests and agriculture
 - Noted that agriculture was the backbone of the country's economy and that this should be given high priority.
- c. The third meeting was held on October 6, 2016 in Kampala, and was attended by the members of the Technical Planning Committee of the Strategic Plan for Climate Resilience.
- Discussed the selected investment Programs and noted that the fisheries subsector was very important and yet was missing in the identified investment options. Urged the drafting team to include it under investment option 1.
 - Suggested strengthening the investment option on provision of water for production and domestic use as droughts are now critical in the country
 - Requested a further review of the joint FIP-PPCR project with a view to developing one joint project.
- d. The fourth meeting was held on October 25, 2016 in Kampala, and was organized for the members of the National Climate Change Advisory Committee (NCCAC) which advises the Government of Uganda on climate change issues.
- Discussed the SPCR version 3 to assess progress so far.
 - Noted that the priority investments had been included.
 - Urged the drafting team to finalise field level consultations and complete the document.
 - Emphasized the importance of agriculture and requested the analytical studies to commence soon including that on agriculture insurance.
- e. The last national level consultative meeting was held on January 13, 2017 in Entebbe, and was convened for members of the relevant climate change committees of the Parliament that constitute the Parliamentary forum on climate change.
- Discussed and applauded the efforts by Government to address climate change issues.
 - Emphasized the importance of agriculture noting that since it is mostly rainfed it will be drastically affected by climate change.
 - Requested that if possible enhancement of climate resilient agriculture should be undertaken in the whole country.
 - Noted that the Program should be undertaken and implemented by the relevant ministries with the requisite capacity for each of the investments.
 - Suggested creating awareness to communities on alternative energy for cooking such as biogas rather than cutting trees for charcoal and firewood.

- Emphasised the urgency to finalise the climate change law in order to address any loopholes that could lead to escalation of unsustainable development approaches.

113. Four regional stakeholder consultative meetings were held throughout the country:

- (i) The first regional meeting was held on November 15, 2016 at Mukono, and brought together officials from local governments, as well as local community leaders, NGOs and community based organizations, from 20 districts from central Uganda.
 - Suggested replacement of charcoal burning with production in the component on charcoal production
 - Agreed with the proposed investment options but noted that insurance could mainly be possible through organized farmer groups.
 - Proposed that Government should implement realistic rural electrification Programs
 - Should explore wind mills as a form of energy.
 - Emission from the transport sector should be targeted especially in urban areas
 - Strategy should be developed for forest establishment at subcounty level for indigenous trees.
 - Suggested that instead of focusing on the eight municipalities that are already too expensive to correct in terms of planning; the Program should focus on new areas that are not yet developed.
- (ii) The second regional meeting was held on November 17, 2016 in Mbale, and brought together officials from local governments, as well as local community leaders, NGOs and community based organizations from 20 districts in eastern Uganda.
 - Discussed and agreed to the proposed investment Programs but asked for details on the specific sites
 - Suggested inclusion of promoting cooperatives so that farmers can address markets, access soft loans and effectively implement agriculture insurance through the cooperative framework.
 - The Program should consider indigenous knowledge in addressing some of the activities such as tree species that are medicinal to add value to the communities.
 - Lift taxes on solar and also encourage the use of biogas to address the energy issue.
 - Include sewerage and storm drainage plans and add demonstrative implementation of at least some of the plans. This could include upgrading the existing drainage system both for flood water and sewerage.
 - Include carrying out assessments for pollutants especially the industries in urban centers and design control measures.
 - Include training of trainers in climate change vulnerability and resilience.
- (iii) The third regional meeting was held on November 18, 2016 in Gulu, and brought together officials from local governments, as well as local community leaders, NGOs and community based organizations from 18 districts from northern Uganda.

- Discussed and agreed with the proposed investment options and emphasized the importance of enhancing agriculture resilience to climate change.
- Suggested the inclusion of promoting the use of wastes more productively specifically making waste management a commercial activity in urban areas.
- The Program should address issues of attitude change for waste management both in rural and urban areas.
- There should be an assessment of other municipalities than the proposed ones in order to assess cost effectiveness and increase on the number of targeted urban centers.
- Suggested inclusion of conflict management issues in the Program where these will occur especially on land, cultural and user rights of resources.

(iv) The fourth and last regional meeting was held on November 22, 2016 in Fort Portal, and brought together officials from local governments, as well as local community leaders, NGOs and community based organizations from 21 districts from western Uganda.

- Discussed and agreed with the investment options but added that there is need to undertake mapping of soils to assess suitability of investments in agriculture.
- Noted that livestock disease control in the cattle corridor was not clearly articulated
- For insurance, deal as close as possible with farmers themselves and use a cooperative framework.
- Include the processing of pasture into hay using solar for feeds to livestock
- Include fisheries especially the management of lakes;
- Suggested inclusion of management of transboundary resources such as the semliki and river Nile resources.
- Ensure specific target areas such as Buhweju, Rubirizi and Rubare are included.
- There is need to establish District climate change committees

114. A National Climate Change Advisory Committee Consultation and Approval Meeting was finally held to consider and approve the SPCR. The Advisory Committee (NCCAC) provided input to the development of both the SPCR and FIP and endorsed the documents for submission by Government of Uganda to the CIF during a meeting held on 27th April 2017 at Rivonia Hotel, in Kampala.

115. The objectives of all the stakeholder consultative meetings were:

- a) To provide information to stakeholders on the SPCR preparation process and explain to them the status of development of the SPCR;
- b) To present to the stakeholders the proposed investment Program resulting from the consultative process and analytical work so far prepared, and seek their input and views on the content and appropriateness of the proposed investment projects;

- c) In view of their local knowledge, to get stakeholders' inputs and advice on identifying appropriate locations for the proposed investment projects in terms of districts or regions; and
- d) To validate the process and content of the SPCR in order to complete its preparation for formal submission to the CIF-AU.

116. The summary of the key conclusions from the consultative meetings include agreement on thematic areas, discussions of the geographical scope and adjustments to project investments. The details of the key decisions are provided in Annex 5.

117. The detailed report of the stakeholder consultative process is given as Annex 5 of this SPCR and the consultative reports are provided on the CCD website.

PART 2

7. Rationale and focus of the SPCR

7.1 Rationale and importance of Uganda SPCR

118. As seen in detail in the previous sections, Uganda is already experiencing the effects of climate change across its economic and social fabric. Most of the climate impacts, especially in the short and medium term are through variability and extremes already stated in several sections and paragraphs above. The negative impacts have already led to considerable damage, disrupted economic activity and adversely affected the lives of large segments of the population, particularly the poor. For example, the 2010/2011 drought is estimated to have cost the country the equivalent of over 7% of GDP.

119. Climate change will invariably heighten the current risks. Based on a multitude of the best climate projections, and notwithstanding the inherent uncertainty in outcomes, all recent studies of Uganda's climate broadly agree on a number of key vulnerability-causing trends that are likely to emerge over the coming century: (i) temperatures will rise, causing higher evaporation and consequent water stress; (ii) precipitation will remain highly variable; and (iii) extremes may become more severe and the frequency of extreme precipitation events is likely to increase.

120. In addition to persistent poverty, lack of adequate infrastructure, and weak adaptive capacities, which are prevalent in many developing countries, Uganda's vulnerability to climate risk is magnified by:

- a. *The high climate-sensitivity of its economy and livelihoods*, which are directly dependent on rain-fed agriculture—which supports the majority of Ugandans. Total dependence on rain-fed agriculture and poor soil health coupled with land degradation increases vulnerability of farming systems and predisposes rural households to food and nutrition insecurity and poverty thus eroding their productive assets and weakening their coping strategies and resilience;
- b. *Increasing natural resource degradation that amplifies negative climatic impacts*, as a result of population pressures, rapid urban growth, unsustainable agricultural activities, high rates of deforestation, wetland reclamation, encroachment into flood plains and protected areas, and watershed degradation. All these will affect the ability of natural systems to provide important functions that underpin much of the Uganda's socio-economic well-being; and
- c. *A low institutional capacity at all levels*, amplified by inadequate database, tools, and information systems to systematically incorporate current and future climate risk into the design of both the “hard” and “soft” infrastructural foundation of Uganda's economy.

121. While these trends pose *considerable challenges* to the country, affecting strategic choices and increasing the cost of development, Uganda’s policy makers have realized that it is *also an opportunity* to address key policy and institutional constraints to accelerating growth and poverty reduction by mainstreaming climate risk into the country’s development process and make it more resilient.

122. And as indicated in Sections 3 and 4 above, Uganda is diligently working on strengthening its nascent national climate change institutions and program, and has already met key policy targets, completed (or is planning to complete) important analytical work, and launched wide-ranging and inclusive consultations regarding the prioritization of climate resilient programs and activities in key economic sectors and in local development plans, over the short and medium term. This has also led to strong support from Uganda’s internal stakeholders as well as external partners, as indicated by the range of projects and activities already funded or in the planning phase presented in Tables 15 and 16.

123. Based on the above, Uganda’s SPCR is formulated in full alignment with national and relevant sectoral development goals and priorities as articulated in Vision 2040, NDP II (2015-2020) and the Climate Change Policy (2014). It is designed to leverage the experience and portfolios of the MDBs and other development partners. Moreover, the SPCR aims to contribute to Uganda’s goal of getting onto a pathway of climate-resilient and low-carbon development, guided by green growth and consistent with the 2016-2030 Sustainable Development Goals (SDGs). As such, the SPCR is fully aligned with - and will contribute to - *the PPCR objective of mainstreaming climate concerns into the development programs in order to make them more resilient to climate variability and change.*

124. The SPCR will build on and catalyze existing efforts in climate resilience-building in Uganda, and will address key identified barriers and constraints, in order to accelerate the transformative accumulation of benefits of climate resilience and sustainable socio-economic development in the targeted sectors and areas. The transformative impact would come from the scaling-up of existing programs on the one hand, together with more effective integration into planning and implementation structures at central and local government levels, and the sharing of knowledge between programs and stakeholders and generation of new knowledge on the other.

125. The SPCR presents strong “business cases” for the included investment projects, and will be leveraged to attract significant financial resources from the PPCR, the GCF, national resources as well as other financing avenues including the Adaptation Benefit Mechanism which Uganda is proposing to be established under Article 6.8 of the Paris Agreement, the Adaptation Fund and GEF. It is also expected to catalyze the increased budgetary allocation towards climate change action, from the current inadequate 0.2%⁷⁶ to the 1.6% of the GDP (as recommended in the NCCP’s implementation strategy).

⁷⁶ G. Tumushabe et al (2013). Uganda National Climate Change Finance Analysis: Main Report. For the Overseas Development Institute (UK) and the Advocates Coalition for Development and Environment (ACODE)

126. During the development and design of the individual projects, links to existing and planned development projects (such as those listed in Tables 11 and 20) will be explored and developed in order to leverage existing development finance.

127. It will strengthen institutional capacity for addressing climate change, as well as improve the quality and accessibility of hydro-climatic information for better climate risk preparedness and risk reduction, thus enabling a more resilient development. The projects prepared under this plan will benefit from climate and hydromet data in their preparation, implementation and mid-term reviews. In time, the investments of the PPCR--both hard and soft—and their spillovers effects in terms of incentives, awareness, and behavioral change will also lead the private sector and households to invest in adaptation and risk prevention measures. The PPCR will help to make citizens of Uganda economically stronger and better able to withstand climate induced shocks.

128. Moreover, while Uganda has one of the lowest per capita carbon emissions, estimated at 1.39 tCO₂e – far below the global average of approximately 7.99 tCO₂e – and with its contribution to the world’s total carbon emission estimated at 0.099%⁷⁷, its high vulnerability to global warming and climate change impacts⁷⁸ justifies its short and medium term focus on making its development climate resilient, while at the same time also contributing to global mitigation efforts, an approach which is fully reflected in the SPCR.

129. Although the NAP preparation is in the early stages the key elements have already been identified; which follow the guidance from the UNFCCC. These elements are outlined in the Uganda NAP road map⁷⁹ and they have a close linkage with priority themes in section 7.2 of this SPCR. The road map identifies elements that must be tackled to effectively address climate change impacts and this SPCR will assist in the implementation. The Agriculture NAP has been developed and has synergy with this SPCR.

130. Uganda developed the Nationally Determined Contributions (NDC) in 2016 to show the country’s commitment to the UNFCCC. The NDC prioritizes both mitigation and adaptation; both of which have been elaborated in this SPCR. Therefore, this SPCR will be one of the initial approaches to implement the NDC. The country commits to work on reducing vulnerability and addressing adaptation in agriculture and livestock, forestry, infrastructure (with an emphasis on human settlements, social infrastructure and transport), water, energy, health and disaster risk management. Sustainable Land Management (SLM) and Climate Smart Agriculture (CSA) are singled out for scaling up to increase resilience at the grassroots level and a specific investment project is planned to address this commitment⁸⁰.

131. Under its commitment to the Paris Agreement, Uganda will prepare a long term strategy to move towards net zero emissions by the end of this century. This SPCR will help to create an economy which has increasingly lower GHG emissions and increasingly higher levels of

⁷⁷ MWE, CCD (2015). *Uganda’s Intended Nationally Determined Contribution (INDC, 2015): Submitted to the Conference of Parties 2015 (COP 21) of the UNFCCC*

⁷⁸ The University of Notre Dame Global Adaptation Index (ND-GAIN Index) summarizes a country’s vulnerability to climate change and other global challenges in combination with its readiness to improve resilience (<http://index.gain.org/country/uganda>)

⁷⁹ The Uganda NAP Road Map, Climate Change Department, MWE, 2016.

⁸⁰ Proposed Investment Project 1: Enhancing Climate- Resilient Agricultural Production Food Security and Nutrition.

climate resilience. As such, it will help to form the basis of a long term strategy for the urban, water, energy and agricultural sectors. The Ministry of Finance, Planning and Economic Development (MoFPED), the lead Ministry in this exercise and host of focal points such as the Green Climate Fund, will be critical in owning this program and driving it forward. As such, MoFPED will ultimately be the focus of capacity building from both MDBs under the CIF and more broadly from donors and the international community.

7.2 Priorities and focus of Uganda SPCR

7.2.1 Priority themes

132. Emerging from the various diagnostics and assessments, joint technical missions with MDBs, field visits, and consultations with stakeholders, broad priorities emerged around the need to both strengthen the enabling environment through knowledge, information, and institutional capacity, and, implementation of select investments in order to address specific climate issues. Therefore, the main priority themes which have strong support from national and district governments, civil society and development partners, and which form the foundation for the proposed SPCR investment projects are: (i) promoting the scaling-up of climate-resilient agriculture; (ii) fostering institutional strengthening to addressing climate change; (iii) promoting climate resilient approaches to landscape and watershed management; (iv) strengthening hydro-meteorological networks and services; and (v) promoting climate resilient urban development and infrastructure. Table 24 shows the foundational role of these themes in the design of the strategic pillars of the SPCR, and the associated investment program.

7.2.2 Selection of SPCR investments

133. Consistent with the identified priority themes above, the investments and activities for the Uganda SPCR were meticulously identified and prioritized through wide consultations with various stakeholder groups. The prioritization criteria for the investments was selected and jointly agreed upon, to ensure it was fully participatory and transparent. The specific criteria used include:

- a. Alignment with national development priorities (*i.e. Vision 2040, NDP II, Climate change policy, NDC and SDGs*), sector strategies, and PPCR objectives; including potential for transformational change and for scaling up.
- b. Level of vulnerability of regions and sectors to climate change risk
- c. Recommendations from the stakeholders consultations and field visit observations
- d. Potential for sustainability of outcomes and impacts (*e.g. lives to be saved/improved, economic benefits*), potential to achieve multiple benefits of adaptation, mitigation, poverty reduction and sustainable development;
- e. Sensitivity to gender issues, vulnerable groups and indigenous knowledge
- f. Leverage of funding from MDBs, Climate Finance institutions and other donors.

134. As explained in the NDC, recent studies, which require further refinement, have estimated that, in the absence of adaptation actions, the cost of the impacts of climate variability and change in Uganda would range between USD 270 and 332 billion over the 40 year period 2010-2050, for the agriculture, water, infrastructure, and energy sectors. Annual costs could be in the range of USD 3.2 billion to USD \$5.6 billion within a decade in these

four sectors alone. The priority investments in this SPCR have therefore focused on the sectors and activities which will need to be scaled up substantially, utilizing inputs from other financing mechanisms.

135. The priority investments will be designed to blend with existing or pipeline investments of the supporting Multilateral Development Banks (AfDB and World Bank). This will enable PPCR funds to mainstream climate change into larger investment projects, thus achieving impacts at scale. This blending will also help to reduce overall transaction costs during processing and implementation and thus helps to ensure that investments deliver value for money at the implementation level. Table 11 indicates some of the on-going projects funded by the MDBs.

Table 11: Synergies with on-going programs by MDBs

Name of project	Implementing agency	Link to SPCR	Location
<i>African Development Bank</i>			
Farm Income Enhancement and Forest Conservation Project	MWE	Catchment management and irrigation	Kasese and Butaleja districts
Climate Proofing, Water and Sanitation through Additional Funds to Water and Sanitation Program	MWE	Climate proofing of urban infrastructure and improvement of welfare of the urban poor	Ten districts in eastern and north eastern Uganda
Uganda Rural Electricity Access Project	Rural Electrification Agency (REA)	Improved access to green connections to enhance livelihoods and economic opportunities of rural households	16 districts in central, eastern, southern, north, north-east, north-western
Community Agricultural Infrastructure Improvement Program Project – 1 (CAIIP-1)	MAAIF, Local Government, Works and Transport	Improved infrastructure for access to markets	26 districts in eastern and central Uganda
Agricultural Value Chains Development Project	MAAIF	Commodity-focused integrated approach to agricultural value chains	Countrywide
Agricultural Infrastructure Development Program	Local Government	Improved access to agricultural markets	Countrywide
<i>The World Bank</i>			
Uganda Clean Cooking Supply Chain Expansion Project⁸¹	MEMD	Adaptation and mitigation and so support community utilization of improved technologies for cooking to reduce forest degradation and deforestation thereby mitigating GHG emission	Countrywide

⁸¹ <http://projects.worldbank.org/P153679/?lang=en&tab=details>

		and enhancing resilience	
Uganda Grid Expansion and Reinforcement Project	MEMD	Mitigation and resilience through increased access to alternative energy sources	West Nile region
Northern Uganda Business Advisory Support Project for Uganda is to improve and sustain the incomes of poor households belonging to existing and new community interest groups (CIGs).	OPM	Adaptation by providing business development skills and advisory services to community groups and individuals	Four pilot districts Kitgum, Gulu, Nebbi, and Soroti

7.2.3 *Strategic pillars of the SPCR*

136. Uganda's SPCR is underpinned by the same vision expressed in the country's *Vision 2040*:

“A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years”

...and shares the same goal expressed in the *National Climate Change Policy* (NCCP):

“To ensure a harmonized and coordinated approach towards a climate-resilient and low carbon development path for sustainable development in Uganda”

137. The SPCR development objective supports the National Climate Change Policy goal by aiming to increase the resilience of communities most exposed to climate variability and change, through the concerted action of all stakeholders, while promoting sustainable development and a green economy and thus contributing to the achievement of Uganda's Vision 2040.

138. The Green Growth strategy which is one of the platforms operationalizing the policy is in alignment with SPCR, and supports the country in delivering on the NDC. Thus there is clear synergy with country strategic frameworks and aspirations.

139. To achieve these objectives, and on the basis of extensive analytical work (Table 14) and consultations (Ref. Annex 5 for more details), the Government of Uganda has made the strategic choice to prioritize support under the SPCR in three areas, leading to designing the SPCR around three strategic pillars (SP) to support of the country's emerging climate change program (Figure 19):

- (i) SP 1: Catalyzing investments for improved rural resilience and food security
- (ii) SP 2: Improving resilience of urban communities and infrastructure
- (iii) SP 3: Strengthening the capacity to manage climate variability and change

140. The selection of the focal areas under these strategic pillars was the result of the consultations with national stakeholders and their on-the-ground experience, supported by the various technical assessments, and were deemed to be the most likely to complement ongoing efforts to achieve the desired transformational impact. While the scope of the problem may seem much bigger in rural landscapes—where over 70 percent of the population and 80 percent of the poor live, the huge infrastructure deficit and the rapid increase in urban settlements with precarious living conditions, make the issue of urban resilience equally important for support by the SPCR.

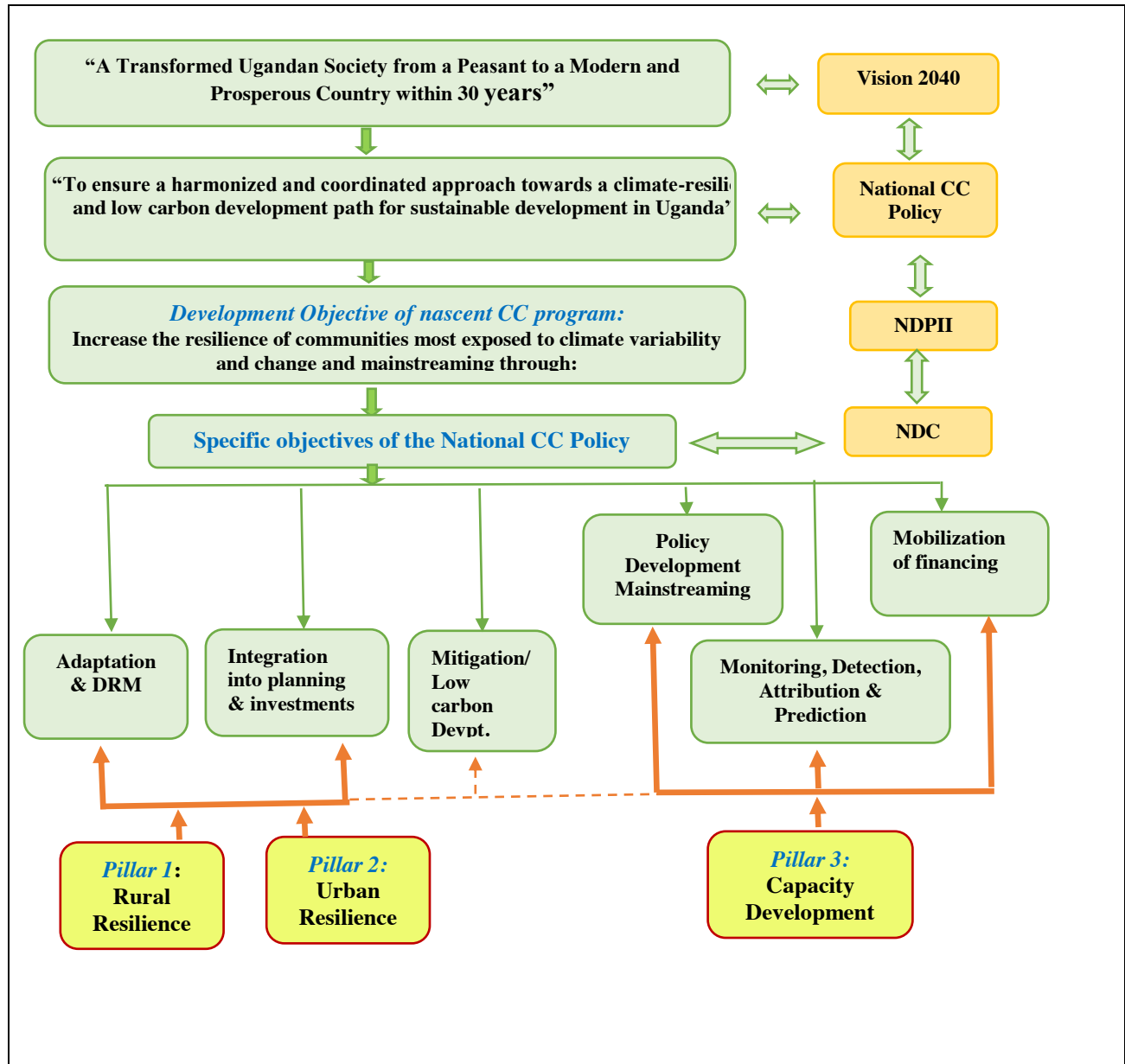


Figure 19: SPCR Pillars in support of the National CC Policy & Program

141. The number of selected activities was kept deliberately small and focused on top priorities to allow the national climate change program to gain strength while at the same time support the implementation of the SPCR as it gets rolled out. For these reasons, and mindful of international experience and lessons learned from the PPCR since its inception, it was decided to seek to mobilize funding and move to implement the whole program as a package over an eight year period (2017-2024), and at the same time prepare for a follow up phase as part of NDPIII (2025-2030) in order to achieve irreversible transformational change at scale, and move Uganda that much closer to its Vision 2040.

SPCR Pillar 1: Catalyzing Investments for Improved Rural Resilience and Food Security
(Estimated cost US\$ 100 million)

142. *The first strategic pillar* of the SPCR is at the core of the poverty-environment nexus, and is aimed at building rural resilience through improved food security—and enhanced earning opportunities for the predominantly poor farming and pastoralist households—and the sustainable management of soil and water resources in vulnerable catchments. This would be achieved by investing in: (i) the adoption of climate-smart agriculture (CSA) approaches and practices in the production, processing and marketing systems of key agricultural value chains (*grain, oil seed, Irish potato, Coffee, Fruit trees, and livestock/dairy*); (ii) sustainable rangeland management; and (iii) the protection of flood/drought prone water catchment ecosystems to ensure the sustainability of water supplies for both domestic and economic use, and the maintenance of fisheries, hydropower generation, and minimum environmental flows. In particular, the adoption of CSA technologies by farmers would lead to sustainably increase productivity and enhance resilience, but would also have mitigation co-benefits (Box 4).

Box 4. "CSA practices have helped us escape the bad droughts" – Ms. Nabirye Safina; Farmer

Some of the CSA technologies include Permanent Planting Basins (PPB) and Rip-lines. Both PPB and Rip-Lines help to harvest and conserve water. In addition, they help with precision nutrient management as micro doses of fertilizer and manure are placed within the PPB or furrow together with the seed. A combination of water conservation and precision nutrient management is the open secret behind the benefits of these two technologies.

Ms. Nabirye Safina of Twisanie Group in Buyende Town Council (*Buyende district located in the cattle corridor of the country*) has taken on ripping, minimum tillage and fertilizer application in maize production.

During the second rains (short September-November season) Ms. Nabirye decided to plant her maize early, despite the erratic/ unreliable rains. She planted early because she wanted to test/ see whether the CSA technologies would help her overcome the erratic rainfall challenges because other farmers in the area had advised her not to plant early because the season was not good. The rains were on and off and were punctuated by a series of droughts/ long dry spells. Based on the performance of her maize crop she is and other members in her group are convinced that CSA technologies she is using are the ones that made her maize crop survive the drought.



Ms Nabirye Safina of Twisane Group in Buyende Town Council in her maize garden

"Ripping buries weed seeds deep, herbicides clear the rest and when I add DAP I now harvest 1,500 kg of popcorn maize from one acre compared to 700 kg I used to get. Ripping also helps the soil to take in water and keep it in the soil. Some of this water/ rain just used to flow away and also take some of my soil. We have a good market for popcorn maize, one kilogram goes for UGX 1,000/= [\$ 0.3] says Ms. Nabirye. I now get UGX 1,500,000/= [\$ 429] instead of UGX 1,000,000/= [\$ 286] and this money has helped me a lot".

143. These SPCR investments are both catalytic and transformational because of several reasons. First, they leverage the extensive support by the MDBs to the agriculture sector, by focusing on supporting the scaling up of adoption by Ugandan farmers of CSA practices, and contributing to improve the resilience and productivity of the “cattle corridor” ecosystem--thereby also supporting the implementation of Uganda’s CSA Program (2015-2025), and opening the door to further resource mobilization in support of fully mainstreaming climate change into agricultural policies, plans, and actions. Second, because both the public and the private sectors play critical complementary roles in the agriculture value chain, it is expected that through demonstrations and learning significant behavioral change will ensue. Third, while the use of modern science and climate smart technologies in agricultural production is still limited, the role of research will be re-oriented to support innovations that facilitate the transition to climate-smart agriculture by smallholder farmers. This knowledge and capacity building are critical strategic priorities to leverage innovations, increase efficiencies, and build resilience.

SPCR Pillar 2: Improving the Resilience of Urban Communities and Infrastructure
(Estimated cost - US\$ 60 million)

144. *The second strategic pillar* of the SPCR focuses on strengthening community resilience in eight sprawling urban centers, and prepare for the rapid urbanization of the country, which in the past has not been accompanied by adequate land use planning as an investment, resulting in cities that have huge infrastructure and amenity deficits, are increasingly congested and vulnerable to climate risk, and where urban slums (which house 60% of Uganda’s urban population⁸²) are predominantly established in the most high-risk areas such as landfills, landslide or flood-prone areas, and areas exposed to toxic waste or pollution. Moreover, under this pillar support will also be directed to alternative energy efficient technologies (such as LPG and solar), which will not only contribute to improving the welfare of urban households, but will also improve energy security, and reduce the use of solid fuels and the associated greenhouse gas emissions.

145. The SPCR investments in urban resilience are very timely and will contribute not only to improving the welfare of some 5 million urban dwellers, but will also leverage significant investments by the MDBs and bi-lateral partners in water supply and sanitation, energy, communications, and transport infrastructure, to help green Uganda’s economy and accompany its structural transformation driven by further agglomerations of people and economic activity.

SPCR Pillar 3: Strengthening the Capacity to Manage Climate Risk
(Estimated cost US\$ 40 million)

146. *The third strategic pillar* brings together various policy, institutional, and capacity building initiatives into a coherent and sustainable national climate change program, with (a) effective coordination mechanisms including monitoring and review, at national and local levels, (b) human and technical capacity for screening, prioritizing, and providing input into

⁸² World Bank (2015): Uganda Strategic Climate Diagnostic

sector strategies and programs, and (c) reliable hydro-meteorological networks, information base, analytical and modeling capacity, and services and communication. In addition, the SPCR would help Uganda build the financial capacity to support its climate change program and respond to the development challenges posed by climate risk and natural disasters through collaboration with regional and global funding mechanisms, and the contribution of its partners.

7.3 Results Framework

147. As mentioned previously, the pillars of the SPCR were strategically selected by the national stakeholders with the aim of complementing the efforts and resources of Uganda's partners—led by the MDBs-- in order to achieve transformational change in the form of:

- (i) Increased consensus on making *adaptation and climate risk reduction part of the country's core sustainable development agenda*, and not separate from it, as reflected in key government policy and planning documents;
- (ii) Improved capacities for the *integration of climate resilience* into national and District planning, sector strategies, knowledge development, outreach, and implementation;
- (iii) Increased *finance availability both through budgetary allocation and through climate resilient investments financed by development partners*; and
- (iv) Enhanced *learning and knowledge sharing* on integration of climate resilience into development, between different agro-climatic zones within the country, regionally (especially with neighboring countries like Kenya, Ethiopia, Zambia, and Niger), and internationally (through continued commitment to and participation in the implementation of the COP21 Paris Agreement and beyond).

148. The more specific results and outcomes expected from implementation of the SPCR are summarized in Table 15.

7.4 Synergies between the SPCR and the Forest Investment Plan

149. The SPCR has been formulated in parallel with the Forest Investment Plan (FIP). The Uganda Forest Investment Program (FIP) is a government led Program that has been developed through a multi-stakeholder engagement process led by the Ministry of Water and Environment. The purpose of Uganda's FIP is to reduce emissions from deforestation and forest degradation through investments that aim to reduce pressure on natural forests, enhance forest ecosystem services, improve coordination and governance in the forest sector, and ensuring a vibrant forest industry in Uganda. It aims to trigger a transformative change in the forestry sector towards low-carbon, sustainable development. The FIP has been developed to ensure close alignment with Uganda's second National Development Plan (NDPII), as well as key national policies (e.g. the National Forest Plan), programs (e.g. PPCR) and strategies (e.g. REDD+). FIP will provide up-front bridge financing to implement the National REDD+ Strategy that combines national and landscape level investments within the Lake Albert, Lake Kyoga and Upper Nile Water Management Zones to address these priorities. Uganda's FIP aligns with the Global FIP core Programs areas, namely; a) institutional capacity, forest

governance and information; b) forest mitigation measures, including forest ecosystem services; and, c) non-forest sectors which create pressures on the forest sector.

150. Synergies and potential investment actions have been identified between the SPCR and FIP, in particular in relation to resilient landscapes and catchment management; charcoal value chains and cooking energy demand in urban environments; and institutional capacity building, governance and transparency (Table 12).

151. A specific investment project 5 is a joint SPCR/FIP project and will target to improve resilience of the focus landscapes to climate change while at the same time addressing mitigation actions through an integrated approach. The investments aim at addressing key drivers of deforestation and forest degradation, strengthening agricultural based livelihoods through improved land productivity of small land holders, strengthening sustainable natural forest management, restoring degraded areas, protection of catchment forests and promoting wood value chains.

152. Such measures will be for example enhancing the capacity of agricultural extension services to promote soil conservation measures and climate smart agriculture including agroforestry, providing access to technology (know-how, improved agricultural inputs) and affordable finance for investments such as small scale irrigation and water collection structures. Energy investments will include further upscaling of improved cook stoves and investments in power generation (heat, electricity) from woody biomass linked to commercial re- and afforestation projects. Furthermore support will be given to the operationalization of the zonal water management administration by building capacity, development of [sub] catchment plans and alignment of other land use plans and catchment plans through e.g. involvement of all stakeholders in the catchment management committees. Furthermore, feasible designs and agreements for PES/compensation schemes will be developed and implemented together with the hydropower developers, mining (oil) companies and other industries as applicable.

153. Expected **catalytic outcomes** are (i) increased agricultural production directly related to increased and diversified household income, (ii) reduced soil erosion, (iii) reduced fuel wood demand per household, (iv) off-grid electricity supply and affordable process-heat for households and industries and/or balanced power generation with the main grid, (v) improved household access to wood energy and other timber products from agroforestry, (vi) clear and accepted zonation of land uses defined in the context of water catchment plans.

154. The predicted **transformative impacts** will be (i) increased household resilience to climate change and variability, (ii) reduced likelihood of disasters related to extreme weather events, (iii) reduced threat to existing and proposed infrastructure such as hydropower plants or water conservation structures, and (iv) economic development.

Table 12: Synergies between SPCR and FIP investments

PPCR	PPCR Sub-component	FIP
Project 1: Enhancing climate resilient agricultural production and food security		
	Component 2: Strengthening sustainable rangeland management and improved livestock production systems through: (a) Rangelands management, (b) Support for livestock production systems and services, (c) Promoting tree biomass production in targeted landscapes.	Afforestation/reforestation in protected areas and private lands
	Component 2: Expansion of water storage and water supply systems	Catchment management
Project 2a and 2b: Integrated and Sustainable Management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the a) Lake Albert and b) Lake Kyoga and Upper Nile Water Management Zones (FIP & PPCR)	Component 1: Strengthening integrated water catchment management Component 2: Strengthening forest management and conservation Component 3: Restoring land, forest and other ecosystems in key sub-catchments Component 4: Enhancing land productivity and promoting agriculture and forest resources-based livelihoods / nature based tourism development Component 5: Enhancement of access to water for domestic use and agricultural production including support to Water Harvesting, Storage and Utilization Component 6: Program management, monitoring and Coordination	Component 1: Strengthening integrated water catchment management Component 2: Strengthening forest management and conservation Component 3: Restoring land, forest and other ecosystems in key sub-catchments Component 4: Enhancing land productivity and promoting agriculture and forest resources-based livelihoods / nature based tourism development Component 6: Program management, monitoring and Coordination
Project 3: Strengthening climate resilience of communities and infrastructure in major urban centers	Component 2: Up scaling alternative energy efficient technologies (LPG, Solar etc...)	Promote efficient utilization of forest resources through development of efficient product value chains for timber, wood fuel and charcoal
Project 4: Strengthening Hydro-met monitoring networks, data and advisory services	Component 1: Strengthening climate and water resources monitoring networks	Catchment Management
	Component 3: Strengthening communication and information dissemination capabilities to end users	Support to the WMZs
Project 5: Enhancing institutional capacity in climate change coordination and mainstreaming	Component 1: Strengthening the Coordination function of the CCD, National Climate Change Resource Centre and Knowledge Management System (KMS)	To strengthen sector management and coordination capacities

		Mainstreaming forestry in non-forest sectors
	Component 2: Up-scaling of Climate Change Information Management Systems (IMs) to Districts and linking them to the National Climate Change Knowledge Management System	Strengthening knowledge and information base for the forestry sector

7.5 Alignment with FIP

155. The FIP, with a focus on forests and mitigation and the SPCR, focusing on adaptation in the agriculture, water, energy and infrastructure sectors, have been developed at the same time and will be implemented jointly and are complementary to each other. The FIP and SPCR investments have common themes: (i) building institutional and technical capacity, (ii) delivering public goods through integrated landscape management, and (iii) improving livelihoods and resilience.

7.6 SPCR Financing

156. The indicative costing and potential financing sources of the SPCR investment projects is given in Table 13. The NDC estimates that during the next five years (short-term) the cost of adaptation in the priority sectors of agriculture, energy, water, and infrastructure, is estimated at around USD 537.1 million. This estimated SPCR financing is thus less than 50% and more efforts are needed to mobilize resources⁸³. The financing table 13 indicates that Uganda requests resources from PPCR, FIP, MDBs, as well as other financing sources to the tune of USD 379 million.

157. FIP, PPCR and other sources of finance are critical to the implementation of this SPCR. The Government of Uganda is requesting resources from the FIP and PPCR but is also mindful of the fact that resources for project implementation may not be forthcoming, or may only be partially forthcoming. Other sources of finance which the GoU and MDBs will seek include: GCF finance for both mitigation and adaptation activities through the respective accredited entities; the Adaptation Fund (AF) and the Global Environment Facility (GEF) to the extent that country allocations allow; bilateral finance from Development Partners who are already active or who wish to be active in specific technologies, sectors or geographic areas of Uganda; and market and non-market mechanisms under Article 6 of the Paris Agreement and in particular, the newly proposed Adaptation Benefit Mechanism (ABM) which has been put forward by GoU as a means of raising finance for adaptation and resilience.

Table 13: Indicative Financing Sources for the SPCR

S/N	SPCR Investment Projects	Indicative Cost (\$ Million)/Investment	GoU	PPCR	FIP	GCF+GEF	Indicative MDB	Lead MDB
				USD	USD	and others		
1	Enhancing climate-resilient agriculture and food security (in key value-chains)	55	2	8	0	20	25	AfDB

⁸³ Uganda's Intended Nationally Determined Contribution (INDC), 2015.

2	a) * Integrated and Sustainable management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the L. Kyoga and Upper Nile WMZs	0	0	0	0	0	0	WB
		83	5	16	12	30	20	AfDB
	b) IP1: Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift	0	0	0	0	0	0	AfDB
		129	1	15	18	45	50	WB
3	Strengthening climate resilience of communities and infrastructure in major urban centers.	60	2.5	2.5	0	30	25	AfDB
4	Strengthen hydro-met monitoring networks, data, and advisory services.	32	1	5	0	26	0	WB
5	Capacity building for climate risk management, strategic program support, and M&R.	20	1	3.5	0	10	5.5	AfDB
	TOTAL (\$ Million)	379	12.5	50	30	161	125.5	

7.7 Project preparation grant

To ensure that this SPCR results in the preparation of projects for which finance can be requested, the MDBs request a Project Preparation Grant from the PPCR as indicated in the summary that follows. See Annex 1 for the full Project Preparation Grant request:

S/N	SPCR Investment Projects	Project Preparation Grant Request (USD)	
		AfDB	World Bank
1	Enhancing climate-resilient agriculture and food security (in key value-chains)	250,000	
2	a) * Integrated and Sustainable management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the L. Kyoga and Upper Nile WMZs	250,000	
	b) IP1: Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift	0	250,000

3	Strengthening climate resilience of communities and infrastructure in major urban centers.	250,000	
4	Strengthen hydro-met monitoring networks, data, and advisory services.	0	250.000
5	Capacity building for climate risk management, strategic program support, and M&R.	250,000	
TOTAL (\$ Million)		1,000,000	500,000

7.8 Implementation arrangements

158. Steering and oversight arrangements for the SPCR preparation: A Technical Planning Committee (TPC) was constituted with wide representation from key MDAs, DLGs, DPs, private sector, academia and civil society (list of TPC attached in Annex 2). The Committee together with the NCCAC provided overall coordination to ensure quality and adequacy of the SPCR process. A list of the members of the National Climate Change Advisory Committee (NCCAC) is attached in Annex1 as well.

Implementation of the SPCR will be imbedded in the current institutional arrangements of the climate change program as illustrated in Figure 20. In particular:

- a) Policy Oversight will be under the purview of the Policy Committee on Environment (PCE) also called National Climate Change Policy Committee (NCCPC), which is under the Prime Minister's office, and this will ensure overall strategic direction and coherence with government plans and programs.
- b) At the national level, coordination will be assured by the National Climate Change Advisory Committee (NCCAC), which will essentially serve as the SPCR implementation steering committee. In particular, it would: (i) review and approve the overall work program and budget on an annual basis (based on projects under implementation); (i) take stock of program results and recommend adjustments/restructuring, as needed; and (iii) advise on dissemination and knowledge sharing activities.
- c) A special unit would be set up within the MWE to support the implementation of the SPCR (Coordination Monitoring & Reporting Unit). This role could be played by a dedicated team within the Climate Change Department in MWE, and would be responsible for (i) overall monitoring and reporting on the basis of the program Results Framework, which would be on the basis of and in collaboration with the implementation units of the projects under implementation; (ii) undertake communications and outreach activities related to the Program as a whole; and (iii) prepare and follow up on the meeting of the NCCAC and NCCPC.
- d) Individual project management units (PMUs) would be set up within the agencies responsible for each of the investment projects (e.g., Ministry of Agriculture, Animal Industry, and Fisheries, Uganda National Meteorological Authority, municipalities/local governments, Ministry of Water and Environment, Ministry

of Lands, Housing and Urban Development). These units will be in charge of all aspects of project implementation, including procurement, financial management, environmental and social due diligence, and monitoring and reporting. In addition, these PMUs will interface with the respective MDBs, and with project beneficiaries, and local communities.

159. Once approved, and in order to finalize implementation arrangements, as part of a detailed feasibility, each project will undertake a systematic mapping of stakeholders and beneficiaries.

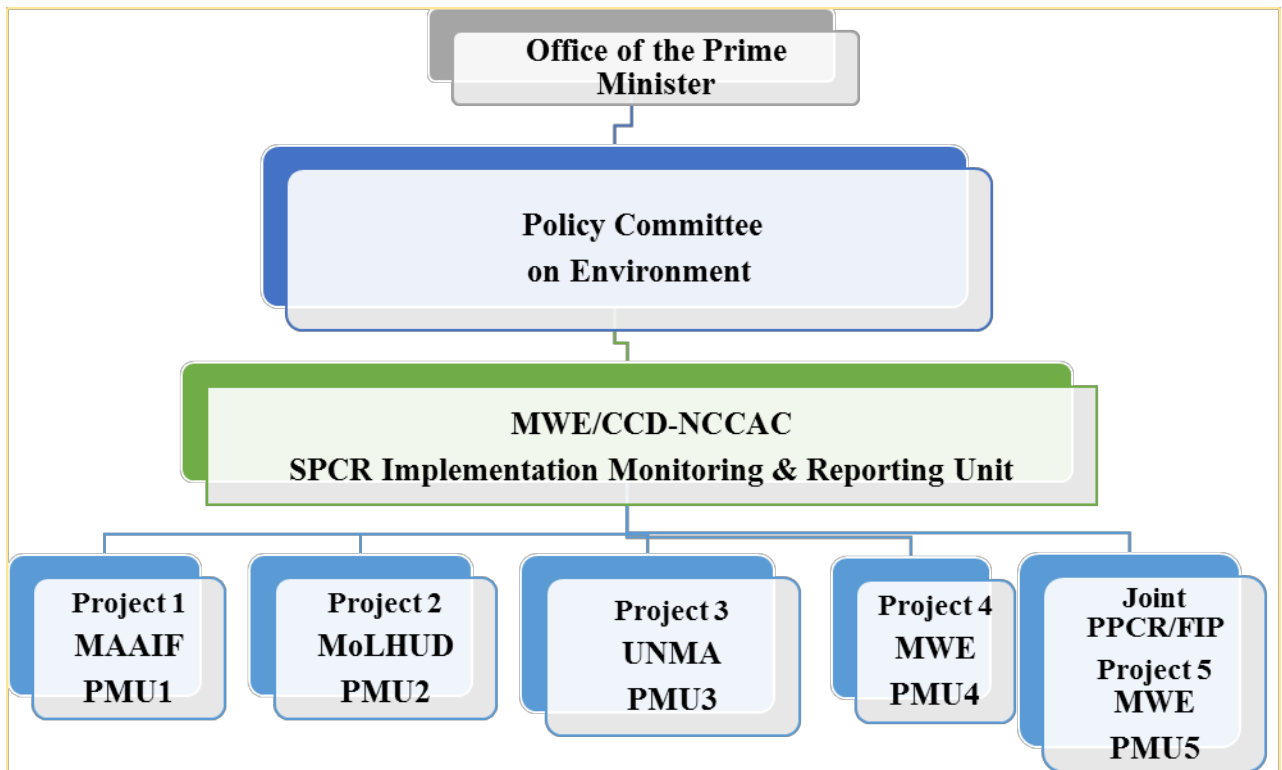


Figure 20: Illustrative Implementation arrangements

Note: 1. The secretariat of the policy committee on Environment is National Environment Management Authority (NEMA) when discussing issues of the Environment and it is the Climate Change Department (CCD) when discussing issues of climate change⁸⁴

2. PMU3 –will collaborate with the Directorate of Water Resources management (DWRM).

7.9 Environmental and Social Due Diligence of the Program

160. Environmental and social assessments may be carried out during individual project design, in line with both GoU and MDB requirements. In the event that the full SPCR is

⁸⁴ The National Climate Change Policy, 2015.

submitted to GCF or another source of funding, it may be necessary to undertake a Strategic Environmental and Social Assessments (SESA) focused on:

- a. The regulatory and institutional framework for environmental management, and for land acquisition, and dealing with vulnerable groups
- b. The capacity, track record and performance of institutions (like NEMA) to review and clear projects and programs, included projects financed by MDBs.
- c. Providing recommendations for filling gaps.

161. The National Environment Management Authority (NEMA) will be responsible for review, comments and overall approval of the Environmental Social Impact Assessment (ESIA) for each project.

162. As per MDB standard operating procedures, each project will be subjected to full E&S Safe guards evaluation to ensure that projects are strongly beneficial to the society and the environment, although it is anticipated that the projects are generally environmentally and socially beneficial. Ultimately, new tools for GHG emissions and adaptation benefits will be applied to help raise new and additional climate finance.

7.10 Knowledge sharing

163. GoU together with MDBs will engage in documenting and highlighting lessons learnt and best practices from projects during implementation and arising from on-going monitoring and evaluation. With CIF support for such exercises, for example under the Evaluation & Transformational Change Learning Partnership and through Pilot Country Meetings, the MDBs will work with GoU to prepare knowledge products and share reports on project progress, monitoring and evaluation with GoU, Development Partners and stakeholders.

164. There are five analytical studies in process which are funded using the GoU Investment Plan Preparation Grant including: Institutional support, Landscape assessment, Hydromet, Agricultural insurance and urban resilience. Under the FIP, analytical studies have focused on involvement of private sector in wood and charcoal value chains. The results of these studies will be used to strengthen the design of the SPCR projects and will also be relevant to other stakeholders and project developers as they design adaptation and mitigation strategies over time.

165. Results from implementation of the projects developed with CIF and MDB support will be documented. All projects will be subjected to monitoring and evaluation and sharing of lessons learnt as well as best practices has been incorporated in knowledge management as componets of project coordination. The knowledge generated will be used to further strengthen the development of adaptation strategies and programs in the country. Evaluation exercises will stimulate reflection, adaptative programming and iterative learning about what works and what does not work by engaging with project managers and stakeholders as well as assessing outputs and outcomes. In particular, lessons and best practices arising from Phase 1 of this SPCR (2017-2025) will be highly relevant to the preparation of NDP III (2025 to 2030), Uganda's second NDC under the Paris Agreement and the follow up phase of the SPCR projects.

166. Links between projects will be further explored and developed in order to highlight multi-sectoral dimensions. For instance, charcoal and fuelwood production in rural areas provides employment and efforts to promote liquid and gaseous fuels in urban areas may reduce demand causing impacts on rural communities. The output from the hydro-met activities in Project 4 (hydromet) will contribute to the on-going project development and implementation of the other projects in the SPCR.

Table 14: Uganda SPCR: Links between vulnerabilities, priorities, pillars, activities and investment projects

Main vulnerability Factors	Priority themes	Pillars	Activities	Investment projects
<ul style="list-style-type: none"> • Prolonged droughts with negative impacts on crops and livestock production, water resources, and livelihoods • Severe floods causing major infrastructure damage, landslides, and loss of assets • Land degradation and human encroachment into forest, wetland, and sensitive ecosystems • Low institutional capacity and resources reflected in limited knowledge base, and weak coordination and policy implementation 	1. Promoting scale-up of climate resilient agriculture	Pillar 1 Catalyzing investments for improved rural resilience and food security	<ul style="list-style-type: none"> • Scale-up climate-smart agriculture in key agricultural value chains in 15 Districts • Support rangeland management (incl. livestock services and afforestation and agro-forestry in the Cattle Corridor) 	Project 1. Enhancing climate-resilient agriculture and food security (in key value-chains)
	2. Promoting climate resilience approaches to landscape and watershed management			
	3. Promoting climate resilient urban development and infrastructure	Pillar 2 Improving the resilience of urban communities & infrastructure	<ul style="list-style-type: none"> • Build rural community resilience through improved catchment protection and water resources management • Mainstream CC into IWRM in the five major basins 	Project 2a and b. Integrated and Sustainable Management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the Albertine and the Lake Kyoga and Upper Nile WMZ.
	4. Strengthening hydro-meteorological networks and services			
	5. Strengthening institutions to address climate change issues	Pillar 3 Strengthening the capacity to manage climate variability and change	<ul style="list-style-type: none"> • Support urban livelihoods through climate resilient infrastructure, land use planning, waste management services, and sustainable energy • Strengthen the capacity of hydro-met institutions to collect and analyze data, and provide climate/weather services • Support policy realignment and sector strategy for mainstreaming CC into development programs • Enhance the capacity of local governments for mainstreaming CC into local development plans, implementation and M&E • Strengthen coordination and networking among state and non-state actors • Strengthen the NCCRC, KMS, and M&R • Strengthen the financing and insure against climate risk (incl. micro-finance) 	Project 3. Strengthening climate resilience of communities and infrastructure in major urban centers
				Project 4. Strengthen climate information systems and services
				Project 5. Capacity building for climate risk management, strategic program support, and M&R

Table 15: Uganda SPCR: Program Results Framework

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
A. Transformational Impact: Increased resilience of communities most exposed to climate variability and change in Uganda				
A-R1. Increased resilience of highly vulnerable communities and assets through shifting to a climate-resilient and green growth development pathway	Indicator A-R1.1 % of households with improved annual income from climate dependent activities, disaggregated by gender	Baseline year: 2016 xx% Female/Male headed households with xx annual income from climate dependent activities	<ul style="list-style-type: none"> • 10% increase by end of 2025 	MWE-Climate Change Department/Ministry of Agriculture/Ministry of Gender, Labor, and Social Development
	Indicator A-R1.2 % of households that are food and nutrition secure, disaggregated by gender	Baseline year: 2016 xx% female/male headed households that are food and nutrition secure	<ul style="list-style-type: none"> • 10% increase by end of 2025 	MWE-Climate Change Department/Ministry of Agriculture/Ministry of Gender, Labor, and Social Development
	Indicator A-R1.3 Livestock losses in the cattle corridor due to recurrent droughts reduced	xx thousands per year (2017)	<ul style="list-style-type: none"> • Annual loss of livestock reduced by 5% in the cattle corridor (average over 2017-2025) • 	MAAIF/MWE
A-R2. Strengthened integration of climate change into planning for growth and poverty reduction, and increased	Indicator A-R2.1 Climate change issues integrated in national, sector, and local government planning	Baseline year: 2015 NAPA (2007), Vision 2040 (2010), and NDP II (2015-2020) SNC (2014) and	<ul style="list-style-type: none"> a) New policies & strategies • Climate Change Bill (2017) • Local Government Development Planning Guidelines (2025) • Agriculture Sector Specific 	MWE/CCD

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
and more effective institutional capacity		INDC (2015) to UNFCC National Climate Change Policy (2014) KCCA Climate change action plan	National Adaptation Plan (2016-2030) • 5 Urban Climate Change Action Plans adopted by urban authorities and implementation guidelines prepared (2 by 2019 and 3 by 2025) b) Maintreaming of Climate Change issues in at least 5 existing sectoral and 10 district plans by 2025.	
	Indicator A-R2.2 Budget allocation to support climate action (nationally and reflected in District budgets) increased	0.2% of GDP (2015) 1% of District budgets (2015)	• 0.5% GDP by 2025 • 3% of District budgets by 2025	District Gvts/MWE
B. Program Development Objective: Mainstream climate change into Uganda's vulnerable catchments, urban areas, and institutions				
Pillar 1: Catalyze investments for improved rural resilience and food security				
B1-R1 Scaled up adoption of climate-smart agricultural practices in key agricultural value chains and regions	Indicator B1-R1.1 Climate-smart agriculture incorporated in District extension service packages and delivered to farmers	10 Districts (2016)	30 Districts (2025)	MAAIF/MWE
	Indicator B1-R1.2 Number of farmers adopting climate-smart agricultural production practices	Base year: 2014 xx female farmers yy male farmers	• xx female/male farmers (2025) • xx female/male farmers (2025)	MAAIF/ MWE
	Indicator B1-R1.3 Area under climate-smart agricultural	Baseline year: 2015	• 10,000 hectares (2025)	MAAIF/ MWE

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
	practices in the Program targeted areas	xx hectares (2014)	<ul style="list-style-type: none"> 30,000 hectares (2025) 	
B1-R2 Improved rangeland management and livestock productivity	<p>Indicator B1-R2.1 Rangeland Policy and regulatory framework operationalized</p> <p>Indicator B1-R2.2 Productivity of livestock resources in target areas increased</p> <p>Indicator B1-R2.3 Productivity of plant biomass resources in selected landscapes increased</p>	<p>Current pastoral guidelines incomplete and outdated</p> <p>Baseline year: 2016</p> <p>xx livestock productivity</p> <p>xx ton/hectare</p>	<ul style="list-style-type: none"> New Pastoral Code and guidelines for rangeland management adopted (2025) Increase in milk productivity per livestock by xx% per year (average over 2017-2025) Segregated by gender yy ton/hectare (+10% by 2025) 	MAAIF/ MWE
B1-R3 Integrated land and water resources management in vulnerable catchments	<p>Indicator B1-R3.1 Area under improved soil conservation in landslide prone regions of Mt. Elgon, Rwenzori, and Agoro-Agu</p>	<p>Baseline year: 2016</p> <p>Hectares under SLM interventions (5,000 ha)</p> <p>xx hectares at risk from landslides and high erosion</p>	<ul style="list-style-type: none"> Hectares under SLM interventions (50% increase from baseline) – Segregated by gender xx ha of highly erodible area protected with high yielding biomass species 	MWE/ MAAIF
	<p>Indicator B1-R3.2 Increased water storage and water supply systems in targeted catchments</p>	<p>Baseline year: 2016</p> <p>Amount of water harvested and stored</p>	<ul style="list-style-type: none"> Amount of water harvested and stored <ul style="list-style-type: none"> (mc) by 2025 	MWE/ MAAIF

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
		(mc)	o (mc) by 2025	
	Area under irrigation increased	Baseline year: 2016 Hectares under irrigation	1,000 ha by 2025 2,000 ha by 2025	MWE/MAAIF
	Indicator B1-R3.3 Climate variability and change mainstreamed into IWRM plans of Lake Kyoga, Upper Nile, and Albertine Water Management Zones by DWRM	Baseline year: 2015 None?	<ul style="list-style-type: none"> • DWRMs revise their IWRM plans to explicitly account for climate risk <ul style="list-style-type: none"> o Albertine WMZ by 2025 o Lake Kyoga and Upper Nile by 2025 	MWE/MAAIF
Pillar 2: Improving the resilience of urban communities and infrastructure				
B2-R1 Improved climate-resilient urban planning	Indicator B2-R1-1 Capacity of urban management services to implement and monitor climate-resilient strategies upgraded (for the 8 urban centers)	Baseline year: 2015 Current number of staff of municipal planning units with climate resilient urban planning skills: xx	<ul style="list-style-type: none"> • Staff of municipal/urban planning units trained in climate resilient urban planning (managers, planning officers, and engineers) yy by 2025) 	MoLHUD/ Urban Centers/Municipalities/ MOLG
	Indicator B2-R1.2 Updated Urban plans that incorporate climate resilience, including natural hazards (e.g., flood prone areas)	Baseline year: 2016 Number of updated urban plans that incorporate climate resilience in place	<ul style="list-style-type: none"> • Climate resilient urban plans for 8 municipalities completed by 2023 • Updated drainage plans in 2 urban centers by 2025 	
B2-R2 Improved climate-proofing of key urban infrastructure	Indicator B2-R2.1 Standards and guidelines for climate proofing key urban infrastructure in place and applied by municipal	Baseline: National Urban development standards and	<ul style="list-style-type: none"> • Urban standards and guidelines (USGs) developed for roads, bridges, water supply and waste management systems, and public 	MoLHUD MoWT MoLG Municipalities

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
	governments.	guidelines.	and private buildings, by 2023. • USGs mandatory for all new infrastructure in major urban centers (2025)	
B2-R3 Increased adoption of alternative energy efficient and clean technologies (e.g. LPG and more efficient cookstoves)	<p>Indicator B2-R3.1 New alternative energy efficient clean technologies for households and public institutions in place.</p> <p>Indicators B2-R3.2 Number of households and public entities adopting new alternative energy efficient technologies</p>	<p>Baseline year: 2016 None</p> <p>Baseline year: 2016 Number of households and public entities adopting new alternative energy efficient technologies</p>	<p>• Technical and financial incentives guidelines for the adoption of alternative energy efficient clean cooking technologies widely disseminated (to households and the private sector) by 2025</p> <p>• Number of households and public entities adopting new alternative energy efficient technologies by 2022.</p>	MEMD/ Urban center/ MWE
Pillar 3: Strengthen the capacity to manage climate variability and change				
B3-R1 Strengthened capacity of hydro-met institutions to collect and analyze data, and provide quality and timely climate/weather services	Indicator B3-R1.1 Number of national observational/monitoring network (for climate and water resources) upgraded to international standards	<p>-Baseline year: 2016 -30 out of 121 Districts have a functional Automatic Weather Station (AWS). -Regulation and Operational guidelines.</p>	<p>• AWS enabled network of 121 hydro-met stations equipped and operational with trained 50 staff</p> <p>• ICT-enabled network of 20 hydro-met stations equipped and operational with 20 trained staff.</p> <p>• ICT-enabled network of 8 hydrological stations equipped and operational with trained 8 staff</p> <p>• New regulations and operational guidelines developed in line with</p>	UNMA

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
			modernized observation infrastructure and technologies.	
	Indicator B3-R1.2 Modeling, forecasting, and early warning systems in place and being utilized.	Baseline year: 2016 (Zero for modelling; 1 for forecasting)	<ul style="list-style-type: none"> • Increased representativeness, accuracy and timeliness (of 24 hours-2 months lead time) of basic weather and river flow forecasts (by 50% by 2025) • Seasonal forecasts and river flow issued at 2 months lead time • Monthly forecasts and river flow issued at 1 week lead time • 10 day forecasts and river flow issued 24 hours lead time • 5 day forecasts issued 24 hour lead time 	UNMA
	Indicator B3-R1-3 (a) Number of national/regional and sectoral climate change scenarios developed and utilized. (b) Communication and information dissemination capacity enhanced (c) Number of people accessing climate information.	Baseline year: 2014 (a) None (b) Type (web, TV/radio, report, sms, etc.) and frequency (weather forecast daily, weekly 10 day weather bulletins, monthly weather updates, quarterly seasonal forecasts)	(a) 3 by 2019; 5 by 2025 (b) 365 daily weather forecasts, 36 ten day weather bulletins, 12 monthly weather updates, 4 seasonal weather forecasts, 60 radio/TV talk shows per year. (b) Web portal for each of the 121 districts created to disseminate climate information by SMS and internet. c) 2 million users access climate information using mobile phones	UNMA

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
			(c) Each of the 121 District to have a climate information Center	
B3-R2 Effective mainstreaming of climate variability climate change into development programs	Indicator B3-R2.1 (a) Legislation to implement the National CC Policy (NCCP) is passed and operational (b) Number of national, sectoral, and local strategies which include specifically funded climate resilience measures adopted (c) Functioning cross-sectoral mechanism to effectively coordinate climate change issues	Baseline year: 2015 (a) CC Bill drafted (b) None (tbc) (c)) National level: NCCPC, NCCAC, and TPC setup (c) Local level: District Climate Change Coordination Committees	(a) NCCP) Bill passed and guidelines for its implementation prepared and shared with key stakeholders (b) 5 by 2022; 10 by 2025 (c) National level: NCCPC, NCCAC, and TPC meets regularly and decisions and minutes are made public (c) Local level: District Climate Change Coordination Committees review and approve climate change measures in plans/programs and annual budgets	
	Indicator B3-R2.3 Data collection and results monitoring and reporting capacity of the National CC Resource Center (NCCRC) and Knowledge management System (KMS) upgraded	Baseline year: 2014 • Capacity of NCCRC and KMS limited	<ul style="list-style-type: none"> • NCCRC and KMS capacities upgraded with equipment, staff training, and web resources • Number of Districts and CSO accessing CC information increased 20% by 2025 • Published quarterly reports on RF indicators (including PPCR 5 core indicators) 	
	Indicator B3-R2.4 Instruments to promote agricultural	Baseline year: 2014 • Weather-based	<ul style="list-style-type: none"> • Public-private insurance 	

Results/Outcomes	Indicators	Baseline	Target	Reporting responsibility
	risk management developed	insurance pilots funded by donor	scheme tested and market-ready (by 2020)	
B3.R3 Enhanced coordination and networking on climate action among state and non-state actors	Indicators B3-R3 Network of climate change actors exchanging climate information	ENR-CSO and CANU at present	<ul style="list-style-type: none"> • Network newsletter • Annual forum of CC stakeholders 	MWE/ENR CSO network and CANU

8. Proposed Investment Project 1: Enhancing Climate- Resilient Agricultural Production Food Security and Nutrition (Indicative cost: US\$ 55 million)

Responsible MDB:	AfDB (African Development Bank)
Total Project Cost:	USD 55 million:
PPCR request:	USD 8 million
Government of Uganda:	USD 2 million
Co-financing (to be sought):	AfDB: USD 25 million; GCF & Others: USD 20 million
Project Preparation Grant:	USD 250,000
MPIS fees:	To be determined

8.1 Background and Justification

167. In Uganda, 79% of the population is rural⁸⁵ and mainly engaged in agricultural production. However, the contribution of the agricultural sector to GDP has been declining; for example it declined from 25.4% in 2010 to 23% in 2014⁸⁶. This project has been designed to improve agricultural practices, production and productivity. This is in line with Uganda's Sustainable Land Management (SLM) Strategic Investment Framework (2010-2020), the Climate Smart Agriculture (CSA) Program (2015–2025), the Agricultural Sector Strategic Plan (2016-2020)⁸⁷, the second National Development Plan -NDP II (2016-2020)⁸⁸, the National Green Growth Strategy and the global Sustainable Development Goals. In many respects therefore, this SPCR is one of the first steps to implement Uganda's first NDC which specifically states that sustainable Land Management (SLM) and Climate Smart Agriculture (CSA) will be scaled up to increase community resilience to climate change and variability at the grassroots level. While land is owned by men, the people most involved in agriculture are women and the youth. During project preparation and project implementation a detailed gender analysis will be conducted for specific geographical areas. Following the analysis, gender gaps will guide the designing of appropriate interventions and thus enable gender mainstreaming. Efforts will be made to design gender responsive interventions to address the identified gaps as appropriate for each of the interventions. In collaboration with the mother ministry (MGLSD) and the Gender Working Groups, technical backstopping will be sought and project implementation will be started with a gender orientation/training of key implementers, particularly the lead agency and the partners (CSOs, Private sector, etc.). MDB E&S Safeguards and project specific ESIA will be undertaken in accordance with Uganda's environmental legislation.

168. The transformational attribute of this project lies in the farmers' change in mindset, practices as well as agricultural productivity in consonance with the climate change effects. The project will enhance adaptation and resilience to climate change through sustainable agricultural practices thereby ensuring food and nutrition security, sustainable livelihoods and increased opportunities for economic development.

169. The project will seek to develop and utilize the Adaptation Benefit Mechanism promoted by Government of Uganda to raise finance on a results based payment basis. This mechanism will work to encourage long term technology adoption by supporting the costs of operation and maintenance over a number of years until the benefits of the technology have been delivered and realized, the recipients voluntarily use the technology and they can pay for it.

⁸⁵ Uganda Bureau of Statistics (2016), National Housing and Population Census, 2014; Main Report.

⁸⁶ Uganda Government, 2016: Agriculture sector Strategic Plan for 2015/16-2019/20; Ministry of Agriculture, Animal Industry and Fisheries.

⁸⁷ Agriculture Sector Strategic Plan (ASSP) (2015-2020). 2016. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Government of Uganda

⁸⁸ Second National Development Plan II (NDP II) (2015/16–2019/20). National Planning Authority (NPA), Government of Uganda

8.2 Project Description

170. This investment project focusses on enhanced agricultural productivity and resilience of farmers in light of the prevailing climate change effects. The principle components of the project include scaling up climate smart agriculture practices, sustainable rangeland management, and sustainable management of fisheries and promotion of agricultural insurance. The project aim is to enhance food and nutrition security, improve household livelihoods and broaden income opportunities. It will augment on-going initiatives in the agriculture sector as guided by the relevant policy and legislation frameworks. Activities of this project will target a broad spectrum of stakeholders at community, local government and national levels. This project will benefit from the capacity building activities in projects 4 and 5. Specifically, the improved hydromet services in Project 4 will enhance adaptation to climate change effects for better agricultural planning and productivity. In addition, improved knowledge management from Project 5 will support implementation of climate smart agriculture activities.

8.3 Geographical Scope

171. The project is intended to be implemented initially in 15 districts within four agro-ecological zones. The detailed geographical coverage will be determined during project elaboration.

8.4 Project Objectives

172. The overall objective is to increase the integration and adoption of climate smart approaches and practices in the production, processing and marketing systems of key agricultural crops. Specific objectives are:

- a) Promote CSA practices in selected agro-ecological zones in Uganda to incorporate good and appropriate land management practices including afforestation, agro-forestry, soil and water conservation, proper cropping systems, etc.
- b) Strengthen rangeland management targeting improving livestock production systems through supporting improved pasture management, good grazing practices, water management, and supporting afforestation and agroforestry practices where possible,
- c) Promotion of agriculture insurance schemes to protect and cushion the farming communities while identifying support from micro-credit schemes for agricultural and pastoral production in Upper Nile, Kyoga and Albertine Basins (WMZs) to support availability of financial resources to farmers.

8.5 Project Components

173. **Component 1: Scaling up Climate Smart Agricultural approaches in specific areas in Uganda targeting key agricultural crops (*Grains, Oil Seed, Irish Potato, Coffee and Fruit trees*)** - (Government of Uganda co financing: USD 0.5 million; PPCR: USD 3 million; AfDB: USD 10 million; GCF and others: USD 10 million)

This component will be implemented through the following subcomponents:

Subcomponent 1.1: Integration of CSA into various agricultural value chains

Activities under this subcomponent will include:

- (i) Defining and developing guidelines for each agriculture enterprise value chain (*Grains, Oil Seed, Irish Potato, Coffee and Fruit trees*)
- (ii) Mainstreaming CSA and climate change approaches and practices in land management, production systems, handling and value addition of agricultural value chains.
- (iii) Support mechanisms/systems to increase stakeholder roles in facilitating supply of required CSA inputs, services and information for integration of CSA into agriculture value chains
- (iv) Scaling up CSA through joint action with relevant sectors particularly Ministries of Education, Works, internal affairs, disaster preparedness and other institutions.
- (v) Training and demonstrations of CSA practices, technology and infrastructure
- (vi) Facilitate adaptive research efforts and studies to test, validate and develop appropriate approaches to challenges in CSA integration into value chains.

Subcomponent 1.2: Capacity Building to improve agricultural production and creating enabling Environment for CSA integration including supporting availability of proper farm inputs. Activities to include:

- (i) Promote farming techniques and practices that improve land management and water use efficiency using the landscape approach to enhance agricultural production through enhanced extension services – public education and demonstrations
- (ii) Supporting availability and efficient use of proper and appropriate farm inputs
- (iii) Enhance public education to support integration of CSA in agricultural value chain systems.
- (iv) Facilitate participatory approaches to implement policies, guidelines, standards and measures for implementation of Uganda's CSA program and support development of monitoring and evaluation tools for the CSA while documenting and disseminating lessons learnt and best practices.

Subcomponent 1.3: Institutional development and stakeholder platforms for agriculture value chains. Activities to include:

- (i) Supporting institutional capacity to address climate change challenges in land productivity management and general development at local, regional and national levels.
- (ii) Support enterprise value chain specific stakeholder platforms with a gender perspective; to develop and implement action plans for specific value chain systems specifically targeting *Grains, Oil Seed, Irish Potato, Coffee and Fruit trees*.
- (iii) Support gender inclusive capacity building of producer organizations in organizational, financial and infrastructural development.
- (iv) Strengthen linkages between producer organizations and the private sector, research institutions and extension services in supporting the respective value chains.

174. **Component 2: Strengthening sustainable rangeland management and improved livestock production systems through: (a) Rangelands management, (b) Support for livestock production systems and services, (c) Promoting tree biomass production in targeted landscapes.** (Government of Uganda co financing: USD 0.5 million; PPCR: USD 2 million; AfDB: USD 10 million; GCF and others: USD 4.5 million).

This component will address issues of rangelands and livestock productivity, afforestation, reforestation and promoting tree planting Programs where possible. The sub-components will include:

Sub component 2.1: Rangelands management

Activities under this sub-component include:

- a. Capacity building to improve livestock production through improved pasture management Programs, improved livestock production services, enhanced value chain systems including marketing programs;
- b. Improved production systems and management programs of other rangeland products including wood and non-wood products (timber, fuel-wood, gum Arabica, medicinal products, etc.)
- c. Strengthening enabling environment (legislative, institutional and policy frameworks) for effective rangeland management; including to finalize relevant policies and legislative instruments for rangeland management such as the rangeland policy and the pastoral code.
- d. Institutional capacity building (National, district, local community, traditional and civil society) for sustainable rangeland management.
- e. Develop and strengthen measures to improve productivity of rangeland resources; including a value chain approach for rangeland products and sustainable management of pastures, fruits, gum arabica, water and wood products; as well as define and develop guidelines for appropriate rangeland use.
- f. Strengthen technical support, service delivery systems and infrastructure for increased production, value addition and marketing of pastoral and agro-pastoral products
- g. Promote integrated development of rangeland resources in particular integrating livestock and tourism management.
- h. Facilitate establishment of institutional, infrastructural and technical capacity for continuous monitoring of rangeland resources; including establishing a rangeland monitoring & training center; and undertaking rangeland inventories.

Sub component 2.2: Support for livestock production systems and services

Activities under this sub-component will include:

- (i) Supporting pasture management Programs and establishment of sustainable water resource systems for livestock production and domestic use.
- (ii) Rebuild and equip secondary markets and value chain systems to stimulate pastoral and agro-pastoral production systems.
- (iii) Build capacity of community-based animal healthcare systems and services.
- (iv) Promote public-private partnerships to develop modern infrastructure to process animal and animal products that meet international market standards
- (v) Promote crop and livestock integration management systems.
- (vi) Support establishment of livestock corridors to facilitate the right of entry to designated pastoral production resources
- (vii) Develop awareness and popularize the utilization of alternative feed resources such as crop residues, hay, silage and industrial by-products for livestock
- (viii) Explore possibilities for selective breeding for improved milk production and resilient breeds as a focus on resilience of livestock enterprises.

Sub component 2.3: Promoting biomass production in targeted landscapes

Biomass is the main source of energy in Uganda, contributing about 94% of all energy consumed, followed by petroleum and electricity⁸⁹. Mechanisms to address the high rates of

⁸⁹ MEMD, Ministry of Energy and Mineral Development, Strategic Investment Plan 2014/15 – 2018/19, 2014: p. page 101.

biomass loss may include increasing biomass levels of the country through various activities including:

- (i) Encouraging farmer managed regeneration of woodland resources and farm regeneration of wood resources in the targeted project areas in the country including rangelands;
- (ii) Support reforestation Programs through agroforestry and other tree planting programs, in agricultural landscapes, with multiple benefits including improved land productivity, poverty reduction, food security and sustainable economic growth (of particularly economic tree species including energy crops).
- (iii) Establishing tree nurseries aimed at promoting community forestry activities.

175. Component 3: Sustainable Management of Fisheries and Aquaculture for Food and Nutrition security (*Government of Uganda co financing: USD 0.4 million; PPCR: USD 1.5 million; AfDB: USD 3 million; GCF and others: USD 3 million*)

Fisheries play a critical role in the subsistence and livelihoods of many households Uganda. It contributes directly and indirectly to the quality of life among the dependent communities. More than 1.2 million people directly depend on the fisheries sector as the main source of income. Fish is a source of food to 17 million people (69% of total population) and a major source of protein. In addition fish exports continue to grow and contributes more than US\$ 143 million to the national incomes. It is the highest foreign exchange contributor to the economy of any commodity⁹⁰. This project will support on-going government efforts to promote the management of fisheries and production of fish through aquaculture. This component takes into consideration the adaptive responses of small scale fishers, fisheries resources fluctuations and uncertainties in the sector. The overall objective is to enhance production of fish, increase incomes of fish famers, and improve profitability while contributing to climate change adaptation and mitigation. The specific objectives are:

- i. To enhance farmers adaptation to climate change through climate resilient fish production practices.
- ii. To sustain the production of capture and aquaculture fish through adoption of innovative and appropriate technologies and practices.

The activities will include:

- a. Maintaining ecosystems integrity and water resources quality to support on-farm and capture fisheries.
- b. Application and monitoring of measures to regulate access to fish stocks e.g. boat or operator licenses, restrictions on vessel capacity, closed seasons, or closed fishing zones.
- c. Application and enforcement of measures that regulate use of fishing gears through devices such as minimum mesh size for nets and prohibition of certain types of gear.
- d. Introduction of regulations on total allowable catches (TACs) and limits on permissible by-catch proportions in single species fisheries.

176. Component 4: Promotion of Agriculture insurance schemes and micro-credit schemes for agricultural and pastoral production. (*Government of Uganda co financing: USD 0.3 million; PPCR: USD 1 million; AfDB: USD 1 million; GCF and others: USD 2 million*).

⁹⁰ Nyeko. Overview of Fisheries and Aquaculture Resources:
file:///C:/Users/BOB/Documents/PPCR%202nd%20Joint%20technical%20mission/Fisheries.pdf

Uganda has been experiencing changes in climatic conditions. These changes have had negative impacts affecting communities in different ways including reduction in crop yields and regular crop failures and yield losses. This Component targets to ensure minimized direct losses to farmers through risk transfers to insurance companies, and will be through two approaches:

(i) Agriculture Insurance

Whereas UNDP supported a pilot program for Weather Based Index Insurance (WBII) in two districts of Uganda in support for both crop and livestock, the pilot involved payment of the premium using a grant. A feasibility study is planned to fill up the existing gaps with regard to Agriculture Insurance⁹¹. In order to promote WBII the following activities will be undertaken:

- (i) Identify and select insurance companies with experience and willingness to participate in the scheme.
- (ii) Engage the insurance companies to create awareness amongst farmers and to register farmers/farmer groups to take part in the scheme.
- (iii) Undertake a further pilot in a few districts to assess the effectiveness of transferring risk from farmers in face of the climate change.
- (iv) Working through UNMA to provide agricultural forecasts to beneficiary farmers and schools through SMS alerts. It is more important for CSA, as farmers will be using costly seeds, and there needs to be some insurance system to protect the interest of farmers.
- (v) Implement WBII following on lessons from pilots undertaken earlier; especially tapping into commercial farmers to provide a jump start but also small scale farmers.
- (vi) Set up weather data infrastructure to enable WBII to effectively be implemented.
- (vii) Microcredit support to farmers to support initial premiums and expansion of agricultural investment.
- (viii) Develop an Agricultural Insurance policy.

(ii) Micro credit and banking support

In addition to traditional barriers such as poor infrastructure and limited markets, economic development at the local level through agricultural production is hindered by problems of accessing micro-finance to support the high risk production in both livestock and crop systems. Activities of the sub-component will include:

- a) Capacity building of the farmers regarding access and sources of micro-finance in Uganda;
- b) Identifying suitable micro finance institutions and products
- c) Linking farmers to Micro finance institutions
- d) Support to facilitate engagement and eventual credit to farmers and pastoralists.
- e) Organizing and facilitating insurance covers to minimize risks to micro-finance institution of any anticipated financial losses

⁹¹ There is a lot of internal discussions on the feasibility of agriculture insurance. This component will support that debate through facilitating a feasibility study. It is noted that there is now an Agriculture insurance consortium which deals with both WBII (for Small Scale farmers), and multiperil insurance (for commercial) i.e. multiple risks e.g. fire, floods, theft. It is still not clear whether the agriculture insurance is feasible where there is no subsidy from grants, and an analytical study has been proposed to assess feasibility. GoU is already giving 50% subsidy to agriculture insurance initiatives, and the private sector is actively engaged in popularizing the insurance. From the pilots undertaken, private sector was able to secure the subsidy from Ministry of Finance, to which the consortium reports. The MAAIF is seen as the lead institution to promote the insurance. The proposal is that the agriculture program should still be implemented as a pilot to be up-scaled in at least to 10 districts.

177. **Component 5: Project management including monitoring and evaluation.** (Government of Uganda co financing: USD 0.3 million; PPCR: USD 0.5 million; AfDB: USD 1 million; GCF and others: USD 0.5 million).

This component will provide a platform for knowledge management and sharing as an ongoing activity during both project preparation and implementation. Lessons learnt from the implementation of this project will be widely disseminated to stakeholders. Best practices will be shared through cross visits.

8.6 Project expected results and outcomes

Component	Activity	Outcome
Component 1: Scaling up Climate Smart Agriculture approaches in key agricultural approaches in specific areas in Uganda targeting key agricultural crops (Grains, Oil Seed, Irish Potato, Coffee and Fruit trees)		
Institutional Capacity building	a. Institutional capacity development to mainstream CSA and climate change challenges in land productivity management b. Scale up integrated initiatives in CSA and other relevant climate change adaptation measures at field level (15 Districts in 4 Agro-ecological Zones (AEZs))	a. 250,000 hectares of agricultural land under Climate Smart Agriculture practices, 1,000 km of soil and water conservation bunds/terraces, b. Development of mechanized Conservation Agriculture operations,
CSA implementation	a. Implement CSA as a major intervention in schools b. Support implementation of CSA by large institutions such as on prison farms and government farms	a. CSA practices scaled up in selected districts of the Lake Kyoga and Upper Nile water management zones of Uganda b. Measure/systems to improved input supply, produce markets and economic sustainability for CSA. c. Farmers skilled in CSA practices and post harvesting handling.
Policy strengthening /reforms	Support GoU to formulate seed policy, standards for agricultural inputs (seeds, fertilizers, pesticides)	9 zonal enterprise platforms established and sustained; Policy and Standards for agricultural inputs; and support private sector
Component 2: Strengthening sustainable rangeland management (a) Rangelands management, (b) Support for livestock services, (c) Promoting biomass production in targeted landscapes.		
Rangeland Management	-Research support on rangelands -Guidelines for range management -Pastoral code - Rangeland Policy and Byelaws	Improved management of rangelands and sustainability of range resources
Support for Livestock services	-Sustainable water sources -Markets development -Capacity for animal health care -Processing capacity for animal products	Improved productivity of livestock resources
Promoting biomass production in landscapes	Agroforestry, afforestation and Re-forestation in selected landscapes	Increased biomass resources in selected landscapes
Component 3: Sustainable Management of Fisheries and Aquaculture for Food and Nutrition security		
Promote sustainable Fish production	Enhancing ecosystem management and enforcement of regulations on fishing gear and allowable fish catches	Improved water quality and fish stocks.
Component 4: Promotion of weather-index based insurance schemes and micro credit schemes for agricultural and pastoral production.		

Weather based Index Insurance	Support Public-private partnership to implement insurance cover in Agriculture following lessons from earlier pilots	Mitigation of CC to agriculture and reduced agriculture risk to farmers.
Micro-credit schemes for agriculture	Link MDIs to farmers and support with initial seed money	Improved agricultural production
Component 5: Project monitoring and management.		
Project monitoring and management	a. Day-to-day management of the project by the project management unit b. Coordination & Knowledge dissemination	Effectively managed PPCR Project

8.7 Implementation Arrangements

178. The Ministry of Agriculture, Animal Industry and Fisheries together with the Ministry of Water and Environment (MWE), will be the lead government agency for the proposed project. As it has a multi sectoral approach, a PPCR Project Steering Committee comprising of representatives from lead agencies and other key players in the sector will be established to provide policy level guidance to project implementation. Each of the components of this project will be implemented by an institution with comparative technical capacity and mandate. Implementation will therefore be by both Government and the private sector.

Component	Implementation
Component 1: <i>Scaling up Climate Smart Agriculture approaches in key agricultural value chains (Grains, Oil Seed, Irish Potato, Coffee and Fruit trees)</i>	MAAIF (Lead), MWE, MGLSD, District local Governments, CSOs, CBO
Component 2: <i>Strengthening sustainable rangeland management (a) Rangelands management, (b) Support for livestock services, (c) Promoting biomass production in targeted landscapes.</i>	MAAIF (Lead), MWE, Private sector, DLGs, CSOs, CBO
Component 3: <i>Promotion of weather-index based insurance schemes and micro credit schemes for agricultural and pastoral production.</i>	MAAIF (Lead), MTIC, Private sector; DLGs and CSOs and CBOs
Component 4: <i>M&E</i>	Project Management Unit (MAAIF)

179. **Project Beneficiaries:** The project will benefit 200,000 smallholder farmers in 15 Districts in 4 Agro-ecological Zones – South Western Highlands (Irish potato and coffee), Central Lake Victoria crescent (coffee and grain), Eastern Lowlands (Grain, fruit trees and coffee), and Northern plains (oil seed, grain, fruit trees). More than 50% of beneficiaries will be women. Over 5,000 youth are to gain employment through servicing management needs of cooperative enterprises.

180. **M&E:** M& E will be carried by the project management; and will be part of the overall PPCR Results Framework. Project specific monitoring will be through project specific outputs and outcome indicators of project progress.

8.8 Financing Plan

SPCR Investment 1: Components	GoU (USD)	PPCR (USD)	FIP (USD)	GCF	WB	AfDB (USD)	Total (USD)
				and Others (USD)	(USD)		
Component 1: <i>Scaling up Climate Smart Agriculture approaches in key agricultural value chains (Grains, Oil Seed, Irish Potato, Coffee and Fruit trees)</i>	0.5	3	0	10	0	10	23.5
Component 2: <i>Strengthening sustainable rangeland management (a) Rangelands management, (b) Support for livestock services, (c) Promoting biomass production in targeted landscapes.</i>	0.5	2	0	4.5	0	10	17
Component 3: <i>Sustainable Management of Fisheries and Aquaculture for Food and Nutrition security</i>	0.4	1.5	0	3	0	3	7.9
Component 4: <i>Promotion of agriculture insurance schemes and micro credit schemes for agricultural and pastoral production.</i>	0.3	1	0	2	0	1	4.3
Component 5: <i>Project monitoring and management</i>	0.3	0.5	0	0.5	0	1	2.3
Total	2	8	0	20	0	25	55

8.9 Project Preparation Grant

181. MDBs request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

9. Proposed Investment Project 2: (a) Integrated and Sustainable Management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the Lake Kyoga and Upper Nile Water Management Zones (Indicative cost: US\$ 83 million)

Responsible MDB:	AfDB (African Development Bank)
Total Project Cost:	USD 83 million
PPCR request:	USD 16 million
FIP request:	USD 12 million
Co-financing (to be sought):	GoU: USD 5 million; AfDB: 20 million; GCF: USD 30 million
Project Preparation Grant:	USD 250,000
MPIS fees:	To be determined

9.1 Background and Justification

182. Landscapes in the two water management zones of Lake Kyoga and Upper Nile experience various challenges which exacerbate the effects of climate change. These challenges include drought and subsequent water scarcity, high rates of deforestation and forest degradation (especially on private land), declining ecosystems goods and services, increased vulnerability of the local people and reduced livelihoods due to declining land productivity and agricultural production, siltation of rivers as well lack of capacities for effective management of watersheds and inadequate technologies for efficient water harvesting, storage and utilization. Lake Kyoga and Upper Nile water management zones are particularly prone to persistent adverse effects of climate variability. In addition, the local communities experience continuous poverty because of the combined effects of climate variability and limited livelihood options. In fact, this is the region with the highest poverty prevalence in the country. Without interventions to address these challenges, the regions will remain in the poverty trap for the foreseeable future.

183. Uganda is well endowed with water resources with about 20% of the country (44,000km²)⁹² covered by water. However, despite the existence of the many water bodies, water scarcity challenges exist in each of the WMZs especially the L.Kyoga and Upper Nile zones. The long term sustainability of water resources depends on innovative interventions to enhance the management and utilization of the natural resources in key catchments especially Mt. Elgon and the Agoro-Agu Mountains catchments. Therefore, the aim of this investment project is to address the livelihoods, development needs of the local people and ecosystems protection concurrently.

184. Some parts of the country, for instance, the central region, have huge water supply while other regions such as the cattle corridor that extend from southern to north-eastern Uganda and receive an average annual rainfall that ranges from 510 mm in Karamoja to 1350 mm⁹³ experience acute water shortage. This unequal distribution of water creates two fundamental development challenges: firstly the need to harvest and conserve water that can be utilized when there is

⁹² NEMA, 2008. The State of Environment Report, 2008. Ministry of Water and Environment. A Government of Uganda Report

⁹³ Biophysical and social economic assessment report of the cattle corridor districts of Kamuli and Nakasongola, NARO, Kampala Uganda.

scarcity and secondly the need to put in place mechanisms for delivering water from areas of abundance to areas of scarcity. The purpose of this project is twofold: first to develop mechanisms for ensuring water conservation in areas of abundant supply and second to develop strategic approaches that will ensure sustainable water supply in times of and to the areas of scarcity. These will be achieved by enhancing overall catchment management through land use planning, addressing land degradation, inappropriate land use and inadequate water supply by promoting afforestation/reforestation and construction of rural water supply systems that will include rain water harvesting and storage systems and piped gravity flow schemes. In this case, the most appropriate and cost effective technologies will be selected, tested and used.

185. Deforestation and forest degradation are environmental challenges in the landscapes where both FIP and PPCR will undertake interventions. As already noted in Part 1 of this SPCR, wood energy demand is one of the drivers of deforestation and forest degradation and the two water management zones; Lake Kyoga and the upper Nile are major sources of wood energy supply to urban centers in the country.

186. The investments in this project are expected to contribute to climate change resilience and mitigation in the landscapes through an integrated approach. To that end, the investments shall include promoting other sources of energy supply – biogas or LPG in order to reduce the pressure on forests. This will be in addition to a variety of interventions aimed at enhancing agriculture-based livelihoods through improved land productivity and agricultural production of smallholder farmers, and increased access to water resources. These are issues that affect and are affected by gender. Accordingly, a detailed gender analysis will be conducted during project preparation and project implementation. Following the analysis, gender gaps will be identified to guide the designing of appropriate interventions and thus enable gender mainstreaming. Efforts will be made to design gender responsive interventions to address the identified gaps as appropriate for each of the project interventions. In collaboration with the mother ministry (MGLSD) and the Gender Working Groups, technical backstopping will be sought to ensure that gender concerns are addressed during implementation from project inception. The project implementation will be started with a gender orientation/training of key implementers, particularly the lead agencies and their partners (CSOs, Private sector, etc.). In addition, MDB E&S Safeguards and project specific ESIA will be undertaken in accordance with Uganda's environmental legislation to ensure appropriate mitigation measures are effectively addressed.

187. The expected outcomes of project interventions are: (i) enhanced livelihoods through improved land management practices, water harvesting, storage and utilization (ii) enhanced resilience of the ecosystems and conservation of biodiversity, and (iii) increased community resilience through improved land productivity.

188. The project is expected to achieve **transformational change** by implementing activities in different land use and tenure forms, and together with many stakeholders in selected sub catchments in collaboration with districts and coordinated by a regional entity, the corresponding WMZ office. Implementation of the project through WMZ structures will build their capacity to coordinate, guide and supervise landscape level interventions and will provide a sound foundation for later upscaling of the landscape approach across Uganda. Land use planning will combine top-down and bottom-up approaches. The successful development and implementation of this approach is likely to stimulate similar approaches elsewhere, replacing the current patchwork approach to land use planning. This project will also be a milestone in the implementation of global concepts such as the Forest Landscape Restoration Mechanism (FLRM), providing proof of concept and lessons learnt needed for further upscaling.

189. The project will seek to develop and utilize the Adaptation Benefit Mechanism promoted by Government of Uganda to raise finance on a results based payment system. This mechanism will work to encourage long term technology adoption by supporting the costs of operation and maintenance over a number of years until the benefits of the technology have been delivered and realized, the recipients voluntarily use the technology and they can pay for it.

9.2 Project Description

190. This is a joint investment project by FIP and PPCR in the three Water Management Zones, namely Lake Albert, Lake Kyoga and Upper Nile Water Management Zones. Both FIP and PPCR funding will be utilized to implement activities in the project landscapes. The project will apply an integrated landscape management approach in selected catchments and landscapes within each of the Water Management Zones aimed at increasing the resilience of communities in the landscapes while at the same time enhancing the potential to mitigate climate change impacts, increase ecosystem health and improve household livelihoods. Furthermore, the project aims at enhancing, demonstrating and strengthening the synergies between mitigation and resilience by both FIP and PPCR investment in Uganda. Activities will be targeting stakeholders at community and local government levels as well as management of forest reserves and wildlife protected areas. This project will benefit from the capacity building activities in projects 4 and 5. In particular, the improved hydromet services in Project 4 will enhance adaptation at landscape level including better planning for land restoration, agricultural productivity and water management and use. Further more, improved knowledge management from Project 5 will support coordination implementation of initiatives in the water management zones.

9.3 Project Objectives

191. The goal of the project is “To improve resilience to and mitigation of climate change in selected landscapes (catchments) in the Lake Kyoga and Upper Nile Water Management zones (WMZs)”. The overall objective is to promote effective management of the water catchments and improve the resilience of the local population and ecosystems to climate change. The Specific project objectives are:

- a) Rehabilitation, restoration and protection of ecosystems in the target water catchments;
- b) Supporting control and management of water flows aimed at protecting rural infrastructure and household assets,
- c) Support to Improving land productivity, and,
- d) Supporting development and expansion of water storage and water supply systems to address water scarcity and stress.

The project has five 5 components that will be implemented in the selected landscapes.

9.4 Geographical Scope

192. Within the two water management zones of Lake Kyoga and Upper Nile, specific landscapes will be selected taking into account their potential and need for climate change mitigation and adaptation/resilience, importance for biodiversity and representativeness of the different land uses, land tenure forms and socio-economic realities in Uganda. The boundaries of the individual project landscapes will be defined during detailed project design, taking into

account the available budget, priorities identified in a study⁹⁴ commissioned by MWE, and already ongoing and planned interventions in these landscapes.

9.5 Project Components

193. **Component 1: Strengthening integrated water catchment management** (PPCR: USD 1 million; FIP: 1 million; AfDB: USD 2 million; GCF and others: USD 4 million; Government of Uganda co financing: USD 1.5 million).

Under this component, PPCR and FIP investments will facilitate the MWE to scale up implementation of catchment-based Waters Resources Management Strategy in the three WMZ. Specific investments will include:

- a. Strengthening management capacities of Water Management Zone Offices in each WMZ in order to promote Integrated Water Resources Management (IWRM) approach and facilitate stakeholder engagement in catchment management.
- b. Support the development and implementation of select Catchment Management Plans in each Water Management Zone.

Activities include building capacity in the regional WMZ offices for planning, and stakeholder engagement and coordination for the implementation of integrated land use management projects. Specifically:

- Mapping, analysis and geospatial support at WMZ and catchment level
- Development and implementation of catchment management plans⁹⁵
- Establishment and operations of WMZ stakeholder forums
- Establishment and operations of sub-catchment management committees
- Support national and WMZ institutions and local stakeholders to deliver integrated water catchment management interventions

194. **Component 2: Strengthening forest management and conservation** (PPCR: USD 1.5 million; FIP: USD 2 million; AfDB: USD 2 million; GCF and others: USD 5million; Government of Uganda co financing: USD 1 million).

This component aims at protection and support for sustainable management of existing forest patches and corridors of remaining natural forests and woodlands in the target landscapes. Interventions will take place in gazetted forest reserves, game/wildlife reserves and on private land. Under this component, the investment will promote tree planting to increase tree cover in agricultural landscapes adjacent to the protected forests supported by PPCR through Climate Smart Agriculture interventions. Interventions will help to control floods and enhance ecosystem water storage capacities, and ensuring more reliable access to water and better water quality. Initial investments will focus on engaging stakeholders in the conservation of woodlands, national parks, and sustainable management of forest on private land. Indicatively, this will include support for:

- Biodiversity and ecological data collection and analysis and management
- Establishment and operations of multi-stakeholder processes for forestry governance
- Supporting management of central and local forest reserves
- Strengthening sustainable use of forest resources

⁹⁴ Climate resilient landscapes: Assessment of sites and opportunities for catchment-level investments for adaptation to and mitigation of climate change

⁹⁵ Include agriculture based interventions that address land productivity and agriculture resilience to climate change

- Up scaling collaborative management and benefit sharing initiatives between UWA and NFA, and communities

195. Component 3: Restoring land, forest and other ecosystems in key sub-catchments (PPCR: USD 3 million; FIP: USD 1 million; AfDB: USD 4 million; GCF and others: USD 15million; Government of Uganda co financing: USD 0.5 million)

Investments will focus on restoring ecosystems for the supply of goods and services: Indicatively, this will include support for:

- Up scaling successful forest and land restoration pilots
- Incentives for production forestry within forest reserves and on private land
- Incentives⁹⁶ for maintaining natural forest on private land
- Restoring forests and other critical ecosystems in key biodiversity corridors
- Promoting and developing resource management agreements, on-farm tree-agriculture based production systems

196. Component 4: Enhancing land productivity and promoting agriculture & forest resources-based livelihoods/ecotourism (PPCR: USD 1.5 million; FIP: USD 1 million; AfDB: USD 3.5 million; GCF and others: USD 2 million; Government of Uganda co financing: USD 0.5 million).

PPCR investment will increase smallholder agricultural land productivity through sustainable land management practices. Support will be provided for:

- a. Promoting agroforestry practices to increase tree cover in farming systems.
- b. Promoting conservation agriculture (soil and water conservation), and,
- c. Scaling up technologies for aquaculture in selected sub-catchments.

Under this component, investments will focus on long-term development of pro-poor, community orientated agriculture and forest-based enterprises. Indicatively, this will include support for:

- Promotion of soil and water conservation practices through scaling up Climate smart/conservation agriculture
- Enhancing crop production and support to value addition
- Improved efficiency in use of biomass fuel
- Strengthening wood and wood fuel value chains
- Up scaling collaborative management and benefit sharing initiatives between UWA and NFA, and communities
- Wildlife and forest based (eco) tourism management
- Support to increase community participation in nature-based tourism
- Strengthening effectiveness of revenue sharing schemes.

197. Component 5: Enhancement of access to water for domestic use and agricultural production including support to Water Harvesting, Storage and Utilization (PPCR: USD 8.5 million; FIP: USD 7million; AfDB: USD 8 million; GCF and others: USD 3.5million; Government of Uganda co financing: USD 1 million).

198. This component will support the control and management of water flows aimed at protecting rural, domestic and development infrastructures. The purpose is to mitigate the effects of climate change while promoting resilience of communities. Activities will include:

- a) Construction of flood control channels and check dams to store water for productive use.
- b) Capacity building and public education for soil and water conservation activities.

⁹⁶ Include land/forest tenure , PES,

- c) Promote efficient water use at households and for commercial uses (agriculture, aquaculture) and management of water sources (watershed) for sustaining supply of water. It will augment Government efforts to increase the proportion of people with access to safe drinking water within 1.0 km to 79% by 2020. It will be addressed through two sub-components namely rural water supply and water for production.

Subcomponent 5.1 Rural Water Supply. The focus districts for this subcomponent will be linked to water from the protected mountains and will include the districts on the lower slopes and within 100 km radius. Activities will include:

- a) Construction of water supply systems for domestic use.
- b) Rainwater harvesting and on-farm water harvesting for domestic use.
- c) Development of water delivery channels (pipes; canals etc.) to water stressed areas.
- d) Supporting development of sanitation facilities to improve sanitation and hygiene as part of improved livelihood resilience against outbreaks of water-borne diseases.

Subcomponent 5.2: Water for Production. From the climate change perspective, there is need to have water storage through dams for multi-purpose use including irrigation and rural industry. PPCR investments will support scaling up technologies for harnessing water resources from catchments/landscapes as well as provide support to improved agricultural practices. Specific investments will include scaling up technologies for irrigation by medium and large scale farming in selected sub-catchments. This subcomponent will address the following:

- a) Construction of dams and other water reservoirs for domestic and agricultural production.
- b) Pilot the use of solar pumps for irrigation in selected irrigation schemes which is environmentally friendly.
- c) Development of small to medium scale irrigation schemes (preferably drip) where there are dams and other reservoirs.
- d) Construction of water storage reservoirs and utilization of water in selected sites for agricultural and other uses as will be identified by MWE.

199. Component 6: Project monitoring and management (PPCR: USD 0.5 million; AfDB: USD 0.5 million; GCF and others: USD 0.5million; Government of Uganda co financing: USD 0.5 million).

This component will facilitate co-ordination of project activities at WMZ level and provide linkages with other PPCR and FIP interventions at the national level through Government and other MDBs. The component will facilitate:

- a. Fiduciary management of the project (including procurements), monitoring and evaluation of project activities.
- b. Coordination and knowledge management by documenting and sharing lessons learnt and best practices from FIP and PPCR projects, establish and implement a monitoring and evaluation framework for the FIP and PPCR program and build M&E capacity in government, civil society, private sector and local communities. The knowledge management and sharing will be an ongoing activity during both project preparation and implementation.

9.6 Expected Project Outcomes

200. The following outcomes are envisaged:

- a. Enhanced resilience of ecosystems in the project landscapes
- b. Greater resilience of communities and livelihoods to climate change impacts

- c. Reduced deforestation and forest degradation.
- d. Improved land management sustaining supply of ecosystem goods and services
- e. Increased access and utilisation of for domestic use and production.

The details of the outcomes are presented in the table below.

Component	Activity	Outcome
Component 1: Strengthening integrated water catchment management		
Strengthening management capacities of WMZ Offices in each WMZ	Build capacity in the regional WMZ offices for planning, and stakeholder engagement and coordination for the implementation of integrated land use management projects.	-The selected WMZs have the capacity to design, plan and coordinate land management projects at landscape level
Facilitate implementation of Catchment Management Plans in each Water Management Zone.	<ul style="list-style-type: none"> -Development of concepts and plans to increase connectivity between natural forests other natural vegetation forms (wetlands) within and outside gazetted areas. - Support to coherent land use planning at sub-watershed and micro water catchments, with the latter using participatory approaches 	<p>Detailed land use plans including biodiversity corridor plans) exist for the selected sub-watersheds and are accepted by all stakeholders</p> <p>-Roles and responsibilities for the implementation of plans are clear and finance to implement them is available/has been identified</p>
Component 2: Strengthening forest management and conservation		
Sustainable forest management in selected areas	Implementation of SFM in CFRs and NPs with a focus on joint management of buffer zones (Collaborative Forest Management and Collaborative Resources Management)	Sustainable Forest resources management with CFM and CRM in place and functional in the selected catchments
Component 3: Restoring land, forest and other ecosystems in key sub-catchments		
Catchment management and restoration of tree cover	<ul style="list-style-type: none"> -Re-forestation and afforestation -Sustainable land management practices -Capacity building and public education to mobilize communities for soil and water conservation activities 	<p>Lower risk of flooding and landslides in the mountainous regions.</p> <p>Improved environmental quality through enhancement of water retention and subsequent improvement of air and soil quality.</p>
Component 4: Enhancing land productivity and promoting agriculture and forest resources-based livelihoods		
Promoting agroforestry practices, conservation agriculture in selected sub-catchments.	<ul style="list-style-type: none"> •Promotion of soil and water conservation practices through scaling up Climate smart/conservation agriculture •Enhancing crop production and support to value addition •Improved efficiency in use of biomass fuel •Strengthening wood and wood fuel value chains 	Improved land productivity and livelihoods.
Integrated soil and water conservation	Promotion of agroforestry and conservation agriculture	<p>-Enhanced productivity in and resilience of farming communities</p> <p>-Reduced land degradation</p>
Component 5: Enhancement of access to water for domestic use and agricultural production including support to Water Harvesting, Storage and Utilization		
Water harvesting, storage and supply to communities	<ul style="list-style-type: none"> -Construction of dams and other water reservoirs for provision of water for domestic use and for agricultural production -Rainwater harvesting and on-farm water harvesting to increase provision of water for domestic use, -Development of water delivery channels (pipes; 	Improved availability and quality of water resources

	canals etc. to water stressed areas initially and explore options for an extensive grid of water delivery channels. -Supporting development of sanitation facilities to improve sanitation and hygiene as part of improved livelihood resilience against outbreaks of diseases from the effects of floods.	
Water for production	a) Pilot the use of solar pumps for irrigation in selected irrigation schemes b) Develop irrigation schemes (preferably drip and if necessary sprinkler) where there is already existing water storage facilities such as dams and other reservoirs c) Construction of water storage reservoirs in selected sites for agricultural and other uses.	Increased availability of water for production
Component 6: Program management, monitoring and Coordination.		
Project monitoring and management	Day-to-day management of the project by the project management unit Coordination & Knowledge dissemination	Effectively managed PPCR Project

9.7 Implementation Arrangements and Readiness

Implementation Arrangements

201. The Ministry of Water and Environment MWE (CCD, FSSD, NFA, DWD, DWRM and DEA), UWA, the National planning Authority and the Local Governments (Districts) will be the lead government agencies for implementation of this project. Partnership will be both with CSOs and private sector in implementation of specific investments/activities. The project will be jointly financed by FIP and PPCR grants.

MWE will be supported in the implementation of this project by the: i) Ministry of Finance, Planning and Economic Development (MoFPED), 2) National Environment Management Authority (NEMA) 3) Ministry of Energy and Minerals Development 4) Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) 5) Ministry of Land, Housing and Urban Development (MLHUD) 6) National Planning Authority (NPA) 7) National Forestry Resources Research Institute (NaFORRI), and, Nyabyeya Forest College.

The cohesive manner in which this project will be implemented will provide key lessons that can be utilized for future effectiveness of collaboration and partnerships between the participating agencies, both governmental and non-governmental and the MDBs.

Readiness

Uganda's implementation readiness for the proposed project is high as elaborated below.

- a. **Institutional capacity:** There are laws and policies on forestry, wildlife, agriculture, energy, land, water and the environment with institutional capacity to plan and implement policies, programs and projects. The lead ministries and government departments in energy, agriculture and land management will be utilized to support the activities. The participating institutions have a wealth of experience in implementing multi-donor and multi sectoral donor supported programs including World Bank, AfDB, UNDP and EU.
- b. **Institutional capacity (Districts):** Districts have mandate to manage Local Forest Reserves, forest resources outside forest reserves and wildlife conservation areas,

land, agriculture, water and sanitation, community development, and renewable energy. In addition, districts form Technical Planning Committee which will be valuable in this project.

- c. **Coordination/supervision:** The project will be implemented through existing government structures, led by the Water Management Zone offices. It will be coordinated and supervised by PCE, NCCAC, and WESWG at Central levels and by District Technical Planning Committee at District level.
- d. **Implementing Partners:** MWE and FSSD, NFA, UWA, DWRM, Districts, Non-Government/CSO (TBD), Private Sector players (TBD).

M&E: M& E will be part of the PPCR and FIP Results Frameworks. Project specific monitoring will be through project specific outputs and outcome indicators.

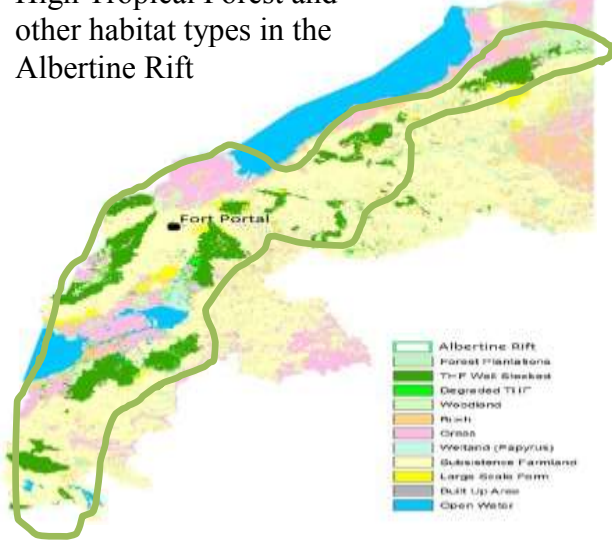
9.8 Financing Plan

SPCR Investment 2: Components	GoU (US D)	PPCR (USD)	FIP (USD)	GCF and Others (USD)	WB (USD)	AfDB (USD)	Total (USD)
Component 1: <i>Strengthening integrated water catchment management</i>	1.5	1	1	4	0	2	9.5
Component 2: <i>Strengthening forest management and conservation</i>	1	1.5	2	5	0	2	11.5
Component 3: <i>Restoring land, forest and other ecosystems in key sub-catchments</i>	0.5	3	1	15	0	4	23.5
Component 4: <i>Enhancing land productivity and promoting agriculture and forest resources-based livelihoods</i>	0.5	1.5	1	2	0	3.5	8.5
Component 5: <i>Enhancement of access to water for domestic use and agricultural production including support to Water Harvesting, Storage and Utilization</i>	1	8.5	7	3.5	0	8	28
Component 6: <i>Program management, monitoring and Coordination</i>	0.5	0.5	0	0.5	0	0.5	2
Total	5	16	12	30	0	20	83

9.9 Project Preparation Grant

202. **MDBs** request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

10. Proposed Investment Project 2 (b): Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift⁹⁷.

Investment Program Role	Institution		
Lead Implementing MDB	IBRD/World Bank		
Supporting MDB and Technical Agency(s)	African Development Bank Food And Agriculture Organisation		
Lead national entity	Ministry of Water and Environment, Uganda Wildlife Authority and Local Governments (Districts)		
Supporting national implementing entities	Ministry of Wildlife, Tourism and Antiquities National Forest Authority		
Status summary		Source	Contribution
Short Program Name	Albertine Rift Landscape Program	GCF funding and others	USD 45 million
Country/Region	Uganda, East Africa	FIP	USD 18 million
Type of funding	Grant	PPCR	USD 15 million
Status	CIF submission planned - June 2017	GoU	USD 1 million
Expected GCF Board	2017	Other funding	IDA– USD 50 million Trust Funds – TBD
		Total financing	USD 129 million
<p>High Tropical Forest and other habitat types in the Albertine Rift</p> 		<p>Summary</p> <p>This Investment Project will address rapidly degrading natural resources in the Albertine Rift in order to protect environmental services and enhance resilience to climate change. The IP will support catchment management, forest management, land restoration and nature-based tourism.</p> <p>GoU seeks to mobilize CIF, GCF, GEF and other sources for additional support. IDA loans and forest carbon financing are also potential source of funding.</p> <p>Uncertainty over the scale of the project and availability of financing requires the design of the IP to be ‘scaleable’ and phased.</p>	

⁹⁷ IP 1 will operate in the Albertine Rift, falling within the Lake Albert Water Management Zone

10.1 Background and Justification

203. Forest Resources: At national level, the rate of forest loss, at 120,000 ha per annum, is amongst the highest in the world. In the Albertine Rift deforestation is driven largely by expansion of smallholder agriculture. Despite high levels of loss and degradation, the Albertine Rift still holds extensive natural forests that sustain high levels of biodiversity (including globally-significant populations of Mountain Gorilla and Chimpanzee that are the foundation of Uganda's nature-based tourism sector). These forests also sustain and regulate supply of water for domestic and industrial consumption, irrigation and hydropower, provide wood fuels, timber and other resources central to local livelihoods, and are major carbon sinks.

204. Population and Poverty: The Albertine Rift supports rural population densities up to 1,000 people per km² leading to land shortages and fragmentation. During the 1990s, poverty declined from 56% in 1992 to 35% in 2000, rose during the early 2000s - attributed to a decline in agriculture and worsening of income distribution - and fell again in 2005/2006. People use natural forests, wetlands and savannas to supplement income from crop and livestock agriculture. In some communities living close to natural forests, access to and sale of forest products contributes up to 35% of household income, supporting families during the 'hungry period' when crops are not ready for harvesting. However, human-wildlife conflict is common, working against efforts to engage communities in conservation management.



205. **Economic growth:** The Albertine region is experiencing significant economic growth related to the developing oil sector, hydropower programs and commercial agriculture that are a threat – they increase pressure on natural resources – and an opportunity – they provide potential for compensation measures and PES approaches.

Land tenure: Gazetted forests (7% of the Rift area), wildlife areas (14.5% of the area) and wetlands are held in trust and managed by Government. Customary tenure (individual and communal) is the primary form of private land. Protected forests are either central forest reserves managed by the National Forest Authority (NFA) or local forest reserves managed by local government. National parks and wildlife reserves, some of which are forested, are managed by the Uganda Wildlife Authority (UWA). Forest on private land is managed by the owners under relevant regulations.

[illegible]

MDB E&S Safeguards and project specific ESIA will be undertaken in accordance with Uganda's environmental legislation to ensure appropriate mitigation measures are effectively addressed.

¹⁰⁰ 10 out of 22 national parks and wildlife reserves in Uganda, including Murchison Falls NP and Queen Elizabeth NP – two of Uganda's most visited parks – are located within the Albertine Rift

10.2 Project Description

206. The Investment Project aims to address the needs of communities for climate resilient livelihoods and the need for ecosystem protection concurrently. Broadly, it will protect environmental services and maintain and enhance resilience to climate change, establishing sustainable resource management strategies in the Albertine Rift, operating under the Lake Albert WMZ. Community-based models to reduce natural resource degradation, promote land, forest and wetland restoration and rehabilitation, and protect ecosystems and water catchments will be developed and supported.

The project will work with stakeholders at community, land owner, local government, sub-catchment and WMZ levels, and engage the management bodies of forests, wildlife areas and wetlands. Investments in nature-based tourism will focus on revenue generation and on re-investment in communities and management and will be defined with management authorities and private sector tourism operators.

The project will demonstrate and enhance synergies between climate change mitigation and resilience investments of FIP and PPCR in the same landscapes.

10.3 Project Goal and Objectives

Goal - To strengthen resilience of communities and ecosystems to the impacts of climate change while contributing to the mitigation of climate change.

Overall objective - To strengthen the management of water catchments, catchment forests and other catchment ecosystems.

Immediate objectives:

- e) Strengthen integrated water catchment management.
- f) Improve management of forest reserves, forested national parks and wildlife conservation areas.
- g) Enhance stakeholder participation in the management of water catchments and their natural resources
- h) Support nature-based tourism and forest-based livelihoods.

10.4 Geographical Scope

207. Sub-catchments will be selected on their potential to: i) reduce CO₂ emissions from deforestation and forest degradation; ii) demonstrate climate change mitigation and adaptation/resilience; iii) achieve biodiversity conservation; iv) enhance livelihoods; v) existing and planned interventions.

10.5 Project Components

Component 1: Strengthening integrated water catchment management (PPCR: USD 3 million; FIP: USD 2 million; GCF and others: USD 8million; Government of Uganda co financing: USD 0.2 million).

Investments will focus on improved planning, management and dialogue between stakeholders for water catchment management at national, WMZ, catchment and sub-catchment levels. Indicatively, this will include support for:

- Mapping, analysis and geospatial support at WMZ and catchment level

- Development and implementation of catchment management plans¹⁰¹
- Establishment and operations of WMZ stakeholder forums
- Establishment and operations of sub-catchment management committees
- Support national and WMZ institutions and local stakeholders to deliver integrated water catchment management interventions

Component 2: Strengthening forest conservation (PPCR: USD 4 million; FIP: USD 10 million; World Bank: USD 30million; GCF and others: USD 23million; Government of Uganda co financing: USD 0.4 million).

Investments will focus on engaging stakeholders in the conservation of forest reserves, forested national parks, and sustainable management of forests on private land. Indicatively, this will include support for:

- Management of five forested national parks¹⁰²
- Biodiversity and ecological data collection and analysis and management
- Conservation and restoration of forest/biodiversity corridors
- Establishment and operations of multi-stakeholder processes for forestry governance
- Up scaling collaborative management and benefit sharing initiatives between UWA and NFA, and communities
- Supporting management of central and local forest reserves
- Strengthening sustainable use of forest resources¹⁰³
- Capitalization of the Uganda Biodiversity Fund¹⁰⁴
- Combatting wildlife crimes and timber theft
- Promoting forest resources-based livelihoods
- Improved efficiency in use of biomass fuel
- Strengthening wood and wood fuel value chains

Component 3: Restoring land, forest and other ecosystems in key sub-catchments (PPCR: USD 6 million; FIP: USD 2.5million; World Bank: USD 10million; GCF and others: USD 12million; Government of Uganda co financing: USD 0.2million).

Investments will focus on restoring ecosystems for the supply of goods and services: Indicatively, this will include support for:

- Up scaling successful forest and land restoration pilots
- Incentives for production forestry within forest reserves and on private land
- Incentives¹⁰⁵ for maintaining natural forest on private land
- Restoring forests and other critical ecosystems in key biodiversity corridors¹⁰⁶
- Promoting and developing resource management agreements, on-farm tree-agriculture based production systems

¹⁰¹ Include agriculture based interventions that address land productivity and agriculture resilience to climate change

¹⁰² National parks that could be supported include Mgahinga, Bwindi, Rwenzori, Semliki, Kibale. Forested components of Queen Elizabeth and Murchison Falls NPs will be incorporated.

¹⁰³ Central Forest Reserves in the Lake Albert WMZ that could be supported: Echuya, Kasyoha-Kitomi-Maramagambo, Itwara, Budongo, Matiri, North Rwenzori, Kalinzu, Mpanga, Nkera, Bundikeke, Kabongo. Support could also extend to Local Forest Reserves and forest on private/community land.

¹⁰⁴ The Uganda Biodiversity Fund, recently established with support from USAID and the Wildlife Conservation Society, will employ GEF funding to support conservation activities

¹⁰⁵ Include land/forest tenure, PES,

¹⁰⁶ Forest blocks that could be supported include: Budongo-Bugoma- Kangole-Itwara-Semliki; Kibale-Kasyoha-Kitomi-Maramagambo; Bwindi-Echuya-Mgahinga

Component 4: Nature-based tourism development (PPCR: USD 1.5 million; FIP: USD 3 million; World Bank: USD 10 million; GCF and others: USD 2million; Government of Uganda co financing: USD 0.1 million).

Investments will focus on long-term development of pro-poor, community orientated nature-based tourism. Indicatively, this will include support for:

- Marketing and promotion of Uganda's nature-based tourism
- Wildlife and forest based (eco) tourism concession management
- Investments in key infrastructure to 'unlock' wildlife and nature based tourism potential
- Support to increase community participation in nature-based tourism
- Strengthening effectiveness of revenue sharing schemes

Component 5: Project monitoring and management (PPCR: USD 0.5 million; FIP: USD 0.5million; Government of Uganda co financing: USD 0.1 million).

Investments will focus the efficient and timely delivery of the program. Indicatively, this will include support for:

- Project management and implementation team
- Program operations
- Monitoring, evaluation and reporting

10.6 Expected Outcomes

The following outcomes are envisaged:

- Enhanced resilience of ecosystems and conservation of biodiversity
- Greater resilience of communities and livelihoods to climate change impacts
- Reduced poverty and direct dependence on natural resources use
- Increased incomes from nature-based tourism
- Improved land management sustaining supply of ecosystem goods and services
- Reduced GHG emission from deforestation and forest degradation
- Pilot projects for results based payments

Project activities	Project outcomes	Transformational change
Component 1: Strengthening integrated water catchment management		
Mapping, analysis and geospatial support at WMZ and catchment level	The selected WMZs Offices have the capacity to design, plan and coordinate land management projects at landscape level	<ul style="list-style-type: none"> ▪ Reduced pressure on natural forest resources through improvements in land use, restoration of forest lands and corridors. ▪ Demonstration of the ecological and aesthetic values to the economy and livelihoods. ▪ Capacities and processes for forest management and
Development and implementation of catchment management plans ¹⁰⁷	Districts have capacity for forests sector coordination, forestry resources management and forest revenue management.	
Establishment and operations of WMZ stakeholder forums	Roles and responsibilities for implementation of plans are clear and finance to implement them is available or has been identified	
Establishment and operations of sub-catchment management committees	Availability of data and information on water resources.	
Support national and WMZ institutions and local stakeholders to deliver integrated water catchment management	Catchment based Water resources	

¹⁰⁷ Include agriculture based interventions that address land productivity and agriculture resilience to climate change

interventions	management processes (IWRM) adequately addressing land based interventions <ul style="list-style-type: none"> Increased knowledge on water resources potential in the targeted sub catchments Increased funding /funding opportunities for Catchment management plans 	catchment management within and among Government, NGOs/CSO, Communities, land owners and private sector players
Component 2: Strengthening forest conservation		
<ul style="list-style-type: none"> Management of five forested national parks Biodiversity and ecological data collection and analysis and management Conservation and restoration of forest/biodiversity corridors Establishment and operations of multi-stakeholder processes for forestry governance Up scaling collaborative management and benefit sharing initiatives between UWA and NFA, and communities Supporting management of central and local forest reserves Strengthening sustainable use of forest resources Capitalization of the Uganda Biodiversity Fund Combatting wildlife crimes and timber theft Promoting forest resources-based livelihoods Improved efficiency in use of biomass fuel Strengthening wood and wood fuel value chains 	<p>Business models for the rehabilitation of natural forests, SFM and sustainable use of timber and non-timber forest resources from natural forests have been developed and implemented in pilot projects</p> <p>Degraded and sensitive areas on private land have been reforested by land owners/users alone or in public-private partnership.</p> <p>Availability of data and information on forests, wildlife resources.</p> <p>Degraded forest areas within PAs have been restored.</p> <p>Markets for diversified and improved forest products, including green charcoal</p> <p>CFM and CRM is in place and functional in the selected gazetted areas</p> <p>Stakeholders engaged in management of targeted forest reserves (participatory forest management processes)</p> <p>Enhanced resilience of ecosystems and status of biodiversity</p> <p>Reduced GHG emission from deforestation and forest degradation.</p> <p>Reduced threats to forested national parks</p> <p>Increased contribution of forest resources to national economy and livelihoods</p> <p>Increased incomes from forest/wood products.</p> <p>Increased biodiversity funding opportunities</p>	<ul style="list-style-type: none"> Multi-stakeholder processes supporting integrated landscape and catchment management processes across the WMZ
Component 3: Restoring land, forest and other ecosystems in key sub-catchment		
Up scaling successful forest and land restoration pilots Incentives for production forestry within forest reserves and on	Restored forest lands and forest and biodiversity corridors Private land with natural forests Production forest in PAs and on	

private land Incentives for maintaining natural forest on private land Restoring forests and other critical ecosystems in key biodiversity corridors Promoting and developing resource management agreements, on-farm tree-agriculture based production systems	private land Enhanced resilience of ecosystems and livelihoods to effects of climate change. Improved livelihoods of the households in the project areas.	
Component 4: Nature-based tourism development		
Marketing and promotion of Uganda's nature-based tourism Wildlife and forest based (eco) tourism concession management Investments in key infrastructure to 'unlock' wildlife and nature based tourism potential Support to increase community participation in nature-based tourism Strengthening effectiveness of revenue sharing schemes	Increased contribution of tourism to national economy and livelihoods Increased incomes from tourism to private sector and PA agencies	
Component 5: Project monitoring and management		
Project management and implementation team Program operations Monitoring, evaluation and reporting	Effectively managed IP	

10.7 Implementation

208. IP1 implementation will be in Lake Albertine Water Management Zone by the Ministry of Water and Environment and Uganda Wildlife Authority with the IBRD/WB as the Lead MDB. The AfDB and FAO will actively participate in the project as participating MDB and Technical Agency respectively.

209. Readiness

Institutional capacity: Capacity to implement the Investment Program is based on laws and policies on forestry, wildlife, wetlands, agriculture, land, water and the environment. The Catchment based Water Resources Management Strategy and Water Management Zones are central to institutional readiness. NFA and UWA have offices in forest reserves and wildlife protected areas and management and operational plans. The participating institutions have a wealth of experience in implementing multi-donor and multi sectoral donor supported programs of World Bank, AfDB, UNDP and EU.

District capacity: Districts have the mandate to manage Local Forest Reserves, forest resources outside forest reserves, wildlife conservation areas, wetlands, land, agriculture, community development, and renewable energy initiatives. Districts function through Technical Planning Committees responsible for planning and coordinating implementing multi-sector Programs at district levels.

Monitoring and Evaluation: Program specific monitoring will be undertaken against FIP and PPCR output and outcome indicators.

210. Implementation arrangements and Readiness

Implementation Arrangements

IP1 implementation will be led by three entities: (i) the Ministry of Water and Environment (MWE) (through the National Forestry Authority (NFA), Forest Sector Support Department (FSSD) and Directorate of Water Resources Management (DWRM/WMZ)), (ii) Uganda Wildlife Authority (UWA) for investment in forests in national parks and wildlife reserves, and, (iii) District Local Governments (DLGs) for investment in local forest reserves and landscapes outside protected areas. Implementing entities will collaborate with CSOs, private sector, research and academic institutions and other stakeholders.

Implementing institutions will be supported by the: (i) Ministry of Finance, Planning and Economic Development (MoFPED), (ii) National Environment Management Authority (NEMA), (iii) Ministry of Energy and Minerals Development, (iv) Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), (v) Ministry of Land, Housing and Urban Development (MLHUD), (vi) National Planning Authority (NPA), and (vii) National Forestry Resources Research Institute (NaFORRI).

The cohesive manner in which this project will be implemented will provide key lessons that can be utilized for future effectiveness of collaboration and partnerships between the participating agencies, both governmental and non-governmental and the MDBs.

Readiness

211. **Uganda's** implementation readiness for the proposed project is high as elaborated below.

- i. **Institutional capacity:** There are laws and policies on forestry, wildlife, agriculture, energy, land, water and the environment with institutional capacity to plan and implement policies, programs and projects. The MWE developed a Catchment based Water Resources Management Strategy (CbWRM) (2013) and created Water Management Zone offices and structures for implementing the Strategy. These Offices are pillars for the Integrated Catchment Management approach envisage under this project. The UWA and NFA have management presence and facilities in each of the targeted protected areas as well management plans and strategies and operational plans. The participating institutions have a wealth of experience in implementing multi-donor and multi sectoral donor supported programs including World Bank, AfDB, UNDP and EU.
- ii. **Institutional capacity (Districts):** Districts have mandate to manage Local Forest Reserves, forest resources outside forest reserves and wildlife conservation areas, land, agriculture, community development, and renewable energy Programs and initiatives. In addition, districts function through Districts Technical Planning Committees whose function, among others, is planning and coordinating implementing multi-sector Programs at district levels.
- iii. **Coordination/supervision:** The project will be implemented through existing government structures, led by the Water Management Zone offices, Local Governments/Districts and field offices of UWA and NFA. It will be coordinated and supervised by PCE, NCCAC and WESWG at Central levels and by District Technical Planning Committee at District level.
- iv. **Implementing Partners:** MWE and FSSD, NFA, UWA, DWRM, Districts, Non-Government/CSO (TBD), Private Sector players (TBD).

- v. **M&E:** M& E will be part of the PPCR and FIP Results Frameworks. Project specific monitoring will be through project specific outputs and outcome indicators.

10.8 Financing Plan

Proposed Investment 2(b): Components	GoU (USD)	PPCR (USD)	FIP (USD)	GCF	WB	AfDB (USD)	Total (USD)
				and Others (USD)	(USD)		
Component 1: <i>Strengthening integrated water catchment management</i>	0.2	3	2	8	0	0	13.2
Component 2: <i>Strengthening forest conservation</i>	0.4	4	10	23	30	0	67.4
Component 3: <i>Restoring land, forest and other ecosystems in key sub-catchments</i>	0.2	6	2.5	12	10	0	30.7
Component 4: <i>Nature-based tourism development</i>	0.1	1.5	3	2	10	0	16.6
Component 5: <i>Project Monitoring and Evaluation</i>	0.1	0.5	0.5	0	0	0	1.1
Total	1	15	18	45	50	0	129

10.9 Project Preparation Grant

212. **MDBs** request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

11. Proposed Investment Project 3: Strengthening Climate Resilience of Urban Communities and Infrastructure in Greater Kampala and selected Municipalities in Uganda (Indicative cost: US\$ 60 million)

Responsible MDB:	AfDB (African Development Bank)
Total Project Cost:	USD 60 million
PPCR request:	USD 2.5 million
Government of Uganda:	USD 2.5 million
Co-financing (to be sought):	AfDB: USD 25 million; GCF: USD 30 million
Project Preparation Grant:	USD 250,000
MPIS fees:	To be determined

11.1 Background and Justification

213. Uganda's urban population is currently estimated to be 21% of the total country's population but rapidly increasing with the capital city of Kampala having a population of 1.5 million people¹⁰⁸ and Greater Kampala metropolitan area estimated at 3.5 million people¹⁰⁹ growing at 3.5% per year. The number of developing urban centers has been on the increase in the recent times. By March 2016, there were 259 urban centers in Uganda. These included the Capital City of Kampala, 33 Municipalities, 163 Town Councils and 62 Town Boards. The urban population has increased overtime from about 1.7 million in 1991 to 7.4 million (21%) in 2014¹¹⁰. The growth is partly due to an increase in the number of urban centers as well as expansion in the geographical area of already existing urban centers and towns.

214. The main challenges facing residents of these urban areas (including Kampala) is poorly planned physical facilities and inadequate public infrastructure all of which are not climate proofed hence increasing their vulnerability and risks to the impacts of climate change. The residents also face a huge infrastructure deficit in terms of road infrastructure, energy supply infrastructure, water supply facilities and infrastructure, sewerage facilities, unplanned settlements; environmental pollution and degradation, destruction of natural resources and ecosystems; human encroachment into wetlands, destruction of forests and blockage of water draining systems. These challenges, especially the inadequacy of climate proofed basic infrastructure (including poor drainage, lack of flood protection, and, poor roads) with inadequate basic services (electricity, potable water, sanitation and waste management) enhance the vulnerability of urban communities to many climate and non-climate related risks with extensive negative social, economic and environmental impacts. Regular flash Floods, drought, water storms and wind storms are common climate change risks facing many residents of Uganda's urban centers besides inadequate services. Urban flooding has particularly been most devastating especially in Kampala and has progressively increased over time, mainly driven by natural climate dynamics and exacerbated by poor land use (which generates high runoff after even limited rains) and poor planning over the years. The impacts vary with gender and therefore a detailed gender analysis will be conducted during project preparation and implementation.

¹⁰⁸ Uganda Bureau of Statistics 2016, The National Population and Housing Census 2014 – Main Report, Kampala, Uganda.

¹⁰⁹ Kampala Climate Change Action Strategy

¹¹⁰ Uganda Bureau of Statistics 2016, The National Population and Housing Census 2014 – Main Report

Following the analysis, gender issues/gaps will be identified to guide the designing of appropriate interventions and thus enable gender mainstreaming. Efforts will be made to design gender responsive interventions to address the identified gaps as appropriate for each of the interventions. In collaboration with the mother ministry (MGLSD) and the Gender Working Groups, technical backstopping will be sought to ensure that gender concerns are addressed during implementation from project inception. The project implementation will be started with a gender orientation/training of key implementers, particularly the lead agency, the MLHUD, and the partners (CSOs, Private sector, and the LGs). In addition, MDB E&S Safeguards and project specific ESIA will be undertaken in accordance with Uganda's environmental legislation to ensure appropriate mitigation measures are effectively addressed.

215. Strengthening Climate Resilience of Communities and Infrastructure in Major Urban Centers in Uganda Project is targeting urban centers that were selected according to the following criteria: a) Vulnerable population of the urban centers; b) Strategic Regional location of the urban centers to act as learning centers for the interventions in order for eventual scaling up of activities, c) Potential of the selected centers to act as a catalyst for regional social-economic transformation and development, i.e. accelerating growth towards a middle income status within the target regions; and, d) newly created urban administrative units to help minimize compensation costs arising from existing infrastructures and replacement costs of existing service facilities. Accordingly, 8 urban centers are proposed for this initial support namely: Greater Kampala metropolitan area, Mbarara, Fort portal, Hoima, Arua, Gulu, Mbale and the greater Jinja Municipal area.

216. The transformational elements in this project include the improvement in infrastructure for drainage systems and change in the focus on sustainable energy use. The improved drainage system will result in durability of roads that will enhance transportation and access to markets and services. In terms of energy, affordable and sustainable sources of energy will be made available that contributes to improved livelihoods. Furthermore, the project promote learning and facilitate scaling up interventions for urban climate resilience across the country.

11.2 Project Description

217. This project focusses on standards and guidelines for climate proofing of urban infrastructure, alternative energy efficiency technologies and climate resilient urban planning and management. The overall goal is to enhance the resilience of urban communities to the effects of climate variability. This project will benefit from the capacity building activities in projects 4 and 5. Improved hydromet services in Project 4 will enhance adaptation to climate change effects in urban centers. In addition, improved knowledge management from Project 5 will support information sharing and planning for infrastructure development, management and maintenance.

11.3 Geographic scope

218. This project will cover eight urban centers of Uganda distributed in all the regions. The eight urban centers include; the greater Kampala metropolitan (3.5 million people), Mbarara (0.3 million); Fort Portal (0.2 million people), Gulu (0.3 million people) Hoima (0.2 million people), Mbale (0.2); the greater Jinja Municipal area (0.3 million people) and Arua (0.2 million people)¹¹¹. These urban centers are inhabited by a population of close to 5 million people which constitutes more than half of the country's urban population.

¹¹¹ Urban population estimates based on the 2014 National Population and Housing Census plus 3.5% average growth rates.

11.4 Project Objectives

219. The overall objective of this project is to strengthen community resilience in selected urban centers of Uganda. The specific project objectives are to:

- a) Develop and support implementation of standards and guidelines for Climate proofing of key urban infrastructure (roads, bridges, water supply systems, waste management systems, public/private buildings, sewerage systems, etc.),
- b) Investment in alternative energy efficient technologies such as LPG, solar and renewable forms of energy in major urban centers in Uganda, and,
- c) Promote Climate resilient urban planning systems;
- d) Support policies and legal frameworks that facilitate resilient urban development.

220. This project will therefore include three components; development of standards for climate proofing key urban infrastructure including demonstrative implementation of the guidelines in select vulnerable places; promoting investment in alternative energy efficient technologies; and promoting climate resilient urban planning.

221. **Component 1: Standards and guidelines for Climate proofing key urban infrastructure (roads, bridges, water supply systems, waste management systems, public buildings, etc.)** (Government of Uganda co-financing: USD 0.3 million; PPCR: USD 0.5 million; AfDB: USD 13 million; GCF and others: USD 10 million).

222. This component is aimed at developing a framework for effective management of the urban environment. It will constitute three subcomponents; (i) Physical infrastructure (Roads, bridges and public buildings), (ii) waste management systems, (iii) improvement of drainage management systems. Each of the urban centers will be supported to develop a climate change action plan. Kampala has already developed a climate change action plan and the ambition enshrined in the action plan is to reduce emissions by 22% from the “business as usual scenario,” and reduce the future cost of adaptation and the number of vulnerable communities¹¹².

Sub component 1.1 Physical Infrastructure including Roads, Bridges, Public buildings and water supply systems. Urban centers targeted for interventions under this subcomponent will mainly be the Greater Kampala and the 7 regional urban centers. Activities include:

- a) Develop city specific urban climate resilient action plans.
- b) Support development of an integrated public transport system
- c) Support to designing climate proof infrastructure
- d) Improved drainage systems
- e) Improved lighting systems

Subcomponent 1.2: Waste management systems. Waste management is a major issue in most of the developing urban centers in Uganda and efforts will be made to address waste treatment; including developing systems to address the waste management problem, and designing waste management mechanisms. Activities will include:

- a) Development of a waste management strategy for the select urban centers. Focus will be particularly on developing the legal and institutional framework (standards for collection and disposal; roles of national and district governments as well as the private sector; and, development of waste management capacity).

¹¹² Kampala Capital city Climate Change Action Plan

- b) Support establishment of some pilots to demonstrate “reduce, reuse and recycle approaches”.
- c) Provide management support to help reduce the amount of waste generated, conserve natural resources, landfill space and energy, through efficient waste management systems and some critical infrastructure (Support to waste compositing for manure, recycling waste to meet the needs of users, support to waste collection and landfill operations etc.),

Sub component 1.3 improvement of drainage management systems. This sub component is specifically to support liquid waste (mainly sewage) management systems. There is inadequate evidence that there are drainage master plans in the target urban centers and these need to be developed. In addition there is need to demonstrate effective drainage systems in the urban environment. Activities under this subcomponent will include:

- a) Development of drainage master plans for the selected urban centers
- b) Increase awareness for public health
- c) Ensure existing drainage networks are re-aligned to the drainage master plans.

223. Component 2: Up-scaling alternative energy efficient technologies (LPG, solar, etc.) (*Government of Uganda co financing: USD 1.5 million; PPCR: USD 1.2 million; AfDB: USD 7.5 million; GCF and others: USD 11 million*).

224. This component is to support the development and implementation of alternative energy efficient strategies. The choice of urban centers to be targeted by this component is determined by population as the major criteria. Awareness on climate change issues has improved in most urban administration units. Kampala Capital City Authority (KCCA) has prioritized energy efficiency in its maiden climate change action plan. This component is to build on existing initiatives and promote innovations. Activities will include:

- a) Promoting communication and information dissemination to end users on energy efficiency; and this will include support to information platforms.
- b) Promoting alternative energy sources, especially LPG. A study is being commissioned to assess the feasibility of LPG use in Uganda’s major urban centers and the information from the study will inform the detailed elaboration of this component. The project will support standardization of gas releasing regulators applicable to all gas containers in Uganda such as the case in Kenya. May also consider policies such as tax zero-rating of LPG in the country as a way of encouraging the use of clean and healthy LPG similar to the situation in Kenya.
- c) *Promotion of and support to installation and use of solar energy for public, institutional and house hold use.* This is already a priority in the Kampala city Climate change action Plan. Currently only 15% of the city is lit!
- d) Support for development of a regulatory framework; Energy efficiency standards and guidelines for new buildings and retrofitting old ones; and, incentives structures. Specific attention will also be given to the promotion of more efficient improved cook stoves (institutional and households) and other forms for use in Uganda. This addresses one of the priority NAMA’s for Uganda and, therefore, the project will support up-scaling of such Programs.

225. Component 3: Climate resilient urban planning. (*Government of Uganda co-financing: USD 0.5 million; PPCR: USD 0.5 million; AfDB: USD 4 million; GCF and others: USD 8 million*).

226. This component will support more climate change resilient land use planning for urban centers in Uganda. Activities include:

- a) Development of an urban resilience strategy for the selected urban centers (except Kampala whose strategy has been developed) with well-developed residential mapping and management plans;
- b) Plan for and support development of organized infrastructural services such as water and communication systems, waste treatment facilities, and social amenities that require cabling specifically providing for advance road crossover points of such services.
- c) **Support to urban Land use planning** – This will start with studies to develop plans for the identified urban centers. The planning will include plans for restoration of degraded lands; restoration of wetlands and drainage pathways, improvement of drainage systems, urban greening systems to restore the urban parks and other green areas especially in Kampala and the adjoining peri-urban areas. The current urban centers are developing without plans and these need to be supported so that the future developments follow planned zones.

227. **Component 4: Project Management including Monitoring and Evaluation.** (Government of Uganda co financing: USD 0.2 million; PPCR: USD 0.3 million; AfDB: USD 0.5 million; GCF and others: USD 1 million).

This component will provide a platform for knowledge management and sharing as an ongoing activity during both project preparation and implementation. Lessons learnt from the implementation of this project will be widely disseminated to stakeholders. Best practices will be shared through cross visits.

11.5 Project Results and Outcomes

Component	Activity	Outcome
Component 1: Standards and guidelines for Climate proofing key urban infrastructure (roads, bridges, water supply systems, waste management systems, public buildings, etc.)		
Guidelines and standards for physical infrastructure	a) Develop urban resilient action plans b) Support to designing climate proof infrastructure c) Improved drainage systems d) Improved lighting systems	Climate resilient physical infrastructure in major urban centers in Uganda
Waste management		
Support to improvement of waste management systems	a) Support to development of waste management strategies b) Support to establishment of waste management systems (Support to waste compositing for manure, recycling waste to meet the needs of users, support to waste collection and landfill operations etc...), c) Development of drainage master plans	Cleaner cities with improved health and sustainable waste management systems.
Component 2: Up-scaling alternative energy efficient technologies (LPG, solar, etc.).		
Alternative energy	-Promoting alternative energy	Reduced pollution and an efficient urban

sources and technologies	sources, especially LPG. - Promotion of and support to installation and use of solar energy for public, institutional and household use -Promotion of and support to institutional and household cook stoves.	energy balance.
Component 3: Climate resilient urban planning.		
Development of urban resilience strategies for major urban centers in Uganda	-Development of urban land use plans -Develop Urban resilience strategies -Plan for and Development of organized infrastructural support services	Well planned climate resilient cities
Component 4: Program management including monitoring and evaluation.		
Project monitoring and management	c. Day-to-day management of the project by the project management unit d. Coordination & Knowledge dissemination	Effectively managed PPCR Project

11.6 Implementation Arrangements and Readiness

Implementation Arrangements

228. The Ministry of Water and Environment (MWE), and, the African Development Bank will respectively act as the lead government agencies and the lead Multilateral Development Bank (MDB) for the proposed project. As it has a multi sectoral approach, a PPCR Project Steering Committee comprising of representatives from lead agencies and other key players will be established to provide policy level guidance to project implementation. Each of the project components will be implemented by institutions with comparative technical expertise. The Ministries of Local Government, and, Lands, Housing and Urban Development will be major players to ensure sustainability of interventions.

Component	Implementation
Component 1: <i>Standards and guidelines for Climate proofing key urban infrastructure (roads, bridges, water supply systems, waste management systems, public buildings, etc.)</i>	MLHUD (Lead), MWE, MGLSD, MoLG, District local Governments, CSOs, CBO
Component 2: <i>Up-scaling alternative energy efficient technologies (LPG, solar, etc.).</i>	MLHUD (Lead), MWE, MoLG Private sector, DLGs, CSOs, CBO
Component 3: <i>Climate resilient urban planning.</i>	MLHUD (Lead), MTIC, MOLG, Private sector; DLGs and CSOs and CBOs
Component 4: <i>Program Monitoring and Coordination</i>	Project Management Unit (MLHUD)

Readiness

229. Uganda's implementation readiness for the proposed project is developing:

- a. **Institutional capacity:** There is need for further capacity building but the enabling legislation; mainly the Physical planning guidelines, Renewable energy policy and climate change policy are a good starting point. There is also a wealth of experience in implementing multi-donor and multi sectoral donor supported programs in Uganda.
- b. **Coordination/supervision:** The MWE will offer overall supervision and guidance.
- c. **Implementing Partners:** Government Implementing agencies: Lead: MWE, MoLG, MoLHUD, MEMD, Urban Authorities, Non-Government-CSO/Private Sector players.

230. **Project Beneficiaries:** The project will be national but the initial will be the regional urban centers namely: Greater Kampala metropolitan area, Mbarara, Fort portal, Hoima, Arua, Gulu, Mbale and the greater Jinja Municipal area.

231. **M&E:** M& E will be carried by the project management; and will be part of the overall PPCR Results Framework. Project specific monitoring will be through project specific outputs and outcome indicators of project progress.

11.7 Financing Plan

SPCR Investment 3: Components	GoU (USD)	PPCR (USD)	FIP (USD)	GCF and Others (USD)	WB (USD)	AfDB (USD)	Total (USD)
Component 1: <i>Standards and guidelines for Climate proofing key urban infrastructure (roads, bridges, water supply systems, waste management systems, public buildings, etc.)</i>	0.3	0.5	0	10	0	13	23.8
Component 2: <i>Up-scaling alternative energy efficient technologies (LPG, solar, etc.).</i>	1.5	1.2	0	11	0	7.5	21.2
Component 3: <i>Climate resilient urban planning.</i>	0.5	0.5	0	8	0	4	13
Component 4: <i>Program management monitoring and evaluation</i>	0.2	0.3	0	1	0	0.5	2
Total	2.5	2.5	0	30	0	25	60

11.8 Project Preparation Grant

232. MDBs request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

12. Proposed Investment Project 4: Strengthening Climate Information Systems and Services (Indicative cost: US\$ 32 million)

Responsible MDB:	IBRD (World Bank)
Total Project Cost:	USD 32 million:
PPCR request:	USD 5 million
Government of Uganda:	USD 1 million
Co-financing (to be sought):	GCF and others: USD 26 million
Project Preparation Grant:	USD 250,000
MPIS fees:	To be determined

12.1 Summary

233. The Project supports priorities identified in the Uganda's Modernization Plan for Meteorological Services (2013)¹¹³. The plan identifies investment priorities to meet the need of a wide range of different user groups for meteorological services and information. As assessment of implementation progress of this plan was undertaken as part of SPCR preparation and this found that UNMA has been systematically working through the plan and that there is strong demand from differentiated user groups for future support improved climate services and information. For example, aviation is eager for radar and radio-sounding; forestry and agriculture for better-resolved, longer-outlook, more-accurate numerical weather prediction as well as restoration of the basic network.

234. The Project will build climate resilience by improving weather-water-climate information systems and services. The approach will be threefold: (i) strengthen climate and water-resources monitoring networks through completion of national radar mosaic, densification of automatic weather and water monitoring networks and reinforcement of communications links; (ii) strengthen national capacity in climate modeling, forecasting and early warning systems through training and strengthening of dedicated forecaster workstations; (iii) strengthening generation, dissemination, communications and utilization of weather information by end users through using various channels such as communications with end users by using local FM Radio, SMS messaging, web site, and regional user-training centers.

12.2 Development Objective

235. The objective of SPCR Project 4 is to enhance weather, water and climate information generation, dissemination and utilization to enhance adaptation to changing climate, with a focus on early warning services and information support to the agriculture, aviation and water

¹¹³ UNMA (2013) *A Modernization Plan for Uganda's Meteorological Services*. Submitted as the Final Report of the Feasibility Study for the Uganda Department of Meteorology Modernization, funded by the United States Trade and Development Agency

resources management sectors. Weather information availability, access and utilization has strong gender focus, and a detailed gender analysis will be conducted during project preparation and project implementation. Following the analysis, gender gaps will be identified to guide the designing of appropriate interventions and thus enable gender mainstreaming in each of the components. In collaboration with the mother ministry (MGLSD) and the Gender Working Groups, technical backstopping will be sought to ensure that gender concerns are addressed during implementation right from project inception. The project implementation will be started with a gender orientation/training of key implementers, particularly the lead agency, UNMA and the partners in this project including MDAs, CSOs, Private sector, and the Local Governments. In addition, MDB E&S Safeguards and project specific ESIA will be undertaken in accordance with Uganda's environmental legislation.

236. The project strong focus is service delivery by UNMA and thus it will offer services to aviation, agriculture, forestry, water resources and community-level natural resources as well as the Climate Change Department. Training in weather models is a key component to support agriculture; atmospheric sounding for aviation; while the last mile connectivity in service delivery is also envisioned within the scope of partnerships with the Ministry of Agriculture and the aviation sector. Service delivery is the guiding principle of the investment but capacity building is also needed to deliver the services especially in relation to operation and maintenance of instrumentation.

237. This project will contribute to the transformation of the meteorological services in the country leading to improved delivery and utilization of meteorological data. In addition the capacity of the meteorological institutions will be strengthened to provide timely, quality and adequate data for planning management activities that are influenced by the effects of climate variability. Enhanced planning will contribute to more efficient and effective design and utilization of early warning systems. The level of awareness about climate variability will be enhanced, including the preparedness to respond.

12.3 Project Description

238. This project encompasses three components namely; Strengthening climate and water resources monitoring networks; capacity in modelling, forecasting and early warning system; and, communication and information dissemination. The purpose of the project is to build capacity for climate data generation, storage and use. The project builds on existing initiatives on water resources management; and, climate forecasting and early warning systems. The outcome of this project will be increased capacity of the institutions, generation of quality and reliable meteorological data as well as timely sharing of the data. This project will support the implementation of activities and enhance outputs of Projects 1, 2 and 3.

12.4 Geographic scope

239. This is a nationwide intervention and will address both national level and region specific requirements for meteorological data collection, storage and use.

12.5 Components and Activities

240. The following project components are designed to both build capacity as well as deliver services to the Uganda public.

241. Component 1: Strengthening climate and water resources monitoring networks
(PPCR: USD 1.5 million; GCF and others: USD 15 million)

This component is to enhance data exchange and networking. There is limited capacity for data sharing and the institutional and regulatory framework is in a process of change. (i) Data sharing between hydrology and meteorology will be made even more effective; (ii) UMMA's new status as an agency implicates new regulations concerning data delivery, which are now undergoing clarification. (iii) The Government is committed to meeting its international obligations, and in this area there are technical constraints. Against this background, the data sharing constraint is that aligned with international obligations and accordingly the project has called for investment to resolve technical glitches that constrain such sharing. This component will therefore support procurement of equipment and capacity for data collection including:

- (a) **Radar mosaic.** Radar is needed if Uganda is to undertake real time monitoring of its frequent severe weather. There is no substitute. This will be coupled with building national capacity to utilize the instrumentation. Investment in two additional S-band radars would complete the three-radar network that would monitor most of Uganda. Radar is the only system capable of “now-casting” rainfall (among other hazardous environmental phenomena) from all event types. It would provide warnings with useful lead time, and with spatial resolution enabling targeted warnings. There is no equivalent: all other instrumentation is prone to delay, or low spatial resolution, or misses some rainfall/severe weather events, or provides unrepresentative coverage. Besides that, radar data can identify where rain is falling and can roughly estimate rainfall, driving hydrological models to provide timely flood forecasts. This is the most important early-warning instrumentation in a country so prone to erratic rainstorms and flooding as Uganda.
- (b) **Monitoring networks and IT.** A lightning detection network being already in place, next in importance is densification of the networks of weather and water monitoring stations equipped with telemetry systems for real-time data transmission to forecasters. The 2015 Water and Environment Sector Report estimates that the water resources monitoring network is 87% functional; by contrast, it reports that most of the important weather equipment is either grounded or not available. 43 ADCON AWSs have been received from GIZ and from GEF/UNDP that will monitor weather along Lake Kyoga and Lake Victoria, but otherwise the overall picture is that from year to year, the weather observing station network has continued to seriously deteriorate due to frequent breakdown of equipment without replacement. A robust AWS network (at least one per 240 km²) would help in assessment of daily fire risk index, would aid farmers to observe the accumulation of solar radiation and precipitation in the growing season, and would accumulate climate information as an investment to help the next generation identify emerging anomalies. The radiosonde program (covering stations at aerodromes including; Soroti, Kasese, Arua, Gulu, Pakuba, Kisoro,

Bukasa and Kidepo) would benefit from a backup hydrogen generator and a soil moisture network would help in identification of landslide and drought risks.

Advanced IT capacities would be required for optimal operations. During the preparatory phase of the project, UNMA would test the use of cloud computing to determine whether it would suit their requirements. Based on that finding, the Government/PPCR/Bank team would select an optimized mix of cloud computing and conventional high-capacity computing and bandwidth.

- (c) **Communications links for data collection.** To reinforce the links that bring data from outside, or share data in return for which Uganda receives forecasts from outside, it is necessary to repair the communications glitch with Nairobi; reinforce other communications glitches as at project inception, checking e.g. satellite data reception and other specialized modems and receivers. The project would finance an equipment workshop for reinforcement of data-related communications links.
- (d) **Establishment of a calibration workshop and training.** National capacity repair and calibration of the various makes of weather stations and sensors now deployed in Uganda would support continuous operations. The project would coordinate with GIZ on a program of training of calibration technicians, and equipment management and establishment of a workshop capable of infrastructure repairs.
- (e) **Archives.** Strengthen the data processing Centre through training, provision of hard and soft ware for digitization and archiving of existing and incumbent data which is still in analogue form that would extend and densify the climate record. The denser the data the more-resolved climate reconstructions can be. Further, observations that establish the distribution of past rainfall and weather extremes support a rigorous approach to setting insurable exceedance levels.
- (f) Strengthening the National Meteorological training school through acquisition of a permanent home for the school, training of the Lecturers/trainers, establishing a research laboratory for generation and validation of products/information, study tours and participation in Climate Change processes to inform policy.
- (g) Strengthen capacity to establish and maintain Quality management system (QMS) across UNMA.

242. Component 2: Strengthening capacity in modeling, forecasting and early warning systems. (Government of Uganda co-financing: USD 0.3 million; PPCR: USD 15 million; GCF and others: USD 5.5 million).

This component require Advanced IT expertise and equipment but there are challenges around maintaining an advanced IT center which would be a constraint that must be considered, as staff able to maintain first-class computing resources will be hard to employ, and because the region is subject to severe weather. In this proposal, cloud computing is to address those issues in full and at an affordable cost. Cloud computing has provided such a

revolution in this respect that one may say capacity in NWP is less seen as highly specialized today than it formerly was. However, training is important to ensure capacity is available in the country. Accordingly, this investment provides for:

- (a) **Staff training and strengthening forecaster workstations.** This component aims at meeting the demand for staff training across all the value chain in modern methods, and providing staff with IT support to enable use of new approaches. To that end the first priority is a broad program of staff capacity building and modernization of skills, addressing both meteorology and hydrology. Forecaster workstations would be required corresponding to the information support required.
- (b) **Modeling.** This component would also include implementation of Statistical and dynamical modelling including Numerical Weather Prediction model such as WRF or equivalent, and the climate model such as PRECIS, hydrological models, and training to make the most of these. For the case of the NWP model, training would include such topics as maintaining a database of model bias statistics and incorporating these to tune daily forecasts, data assimilation, seasonal crop yield modelling and forecast, downscaling techniques, climate change projections and research of past events. Cloud computing is proposed as a means of rapidly provisioning UNMA and DWRM with high-capacity virtual IT centers, which would be robust to Uganda's severe weather and the difficulty of retaining very high level IT staff. However, there still being internet challenges, cloud computing needs to be backed up with robust ground/station-based computing facilities. Specialized model training should be offered to UNMA, DWRM and the Climate Change Department (CCD), in separate sessions (NWP is more relevant to UNMA but DWRM and CCD may opt for other more relevant models).

243. Component 3: Strengthening communication and information dissemination capabilities, data, and products to end users. (*Government of Uganda co-financing: USD 0.5 million; PPCR: USD 1.5 million; GCF and others: USD 4.5 million*)

Last-mile connectivity. This component would strengthen generation, dissemination and utilization of products and information such as forecasts by UNMA and DWRM, especially as they face new challenges such as dissemination of very short-term warnings based on lightning detection, or dissemination of the new radar imagery, or work with the river basin networks by DWRM. This activity would be formulated as a complement to work undertaken under SMEPS. To that end it would finance participatory processes to develop strategies for last mile connectivity tuned to the different information types; website as a specific useful outreach; development of permanent regional presence as a training center for Ugandan user community in various sectors¹¹⁴;

¹¹⁴ In order to ensure effective regional presence, UNMA's structure provides for Zonal Offices (Central, Eastern, Western and Northern). The Zonal Officers are already recruited but based at the headquarters at the moment because of lack of offices at the regional level. Under this intervention, offices could be initiated together with regional resource

Local FM Radio and SMS system to communicate with farmers; support for public-private partnerships to extend dissemination, such as IFC investment in capacity at cellular service companies to serve selected specialized customers such as road transport.

244. Component 4: Project Management including Monitoring and Evaluation

(Government of Uganda co financing: USD 0.2 million; PPCR: USD 0.5 million; GCF and others: USD 1 million).

This component will provide a platform for knowledge management and sharing as an ongoing activity during both project preparation and implementation. Lessons learnt from the implementation of this project will be widely disseminated to stakeholders. Best practices will be shared through cross visits.

12.6 Implementation arrangements

245. UNMA will lead the implementation of the project, through a project management unit with relevant expertise in financial management, procurement, safeguards, and monitoring. DWRM, working with other departments in the relevant ministries such as the MAAIF, MEND, will prepare bidding packages for the procurements that are specific to it: water measurement instrumentation, training, dissemination studies. UNMA, as the lead implementing agency will maintain coordination with MAAIF, MEND, District local governments, CSOs, CBOs, media and the private sector in implementing the activities defined in the project.

12.7 Expected results

246. Ugandans will receive emergency warnings of heavy rainfall and thunderstorms in time to mitigate damage. Flood forecasting will improve on the basis of rainfall-runoff modeling from the radar data. Large-scale drought will be noted sooner with the aid of soil moisture sensors that will measure it remotely. Forecasts in Uganda will be provided at higher resolution and will be tuned to the requirements of the economic sectors. They may be weak at first but will improve over time with use of the bias information. Uganda will begin to collect a dense, representative climate dataset that will help the next generation to identify emerging anomalies. Forecasts provided to Uganda from external sources will improve as more data makes its way to external modelers. Weather information will be made available to Uganda's farmers and fishers, promoting gradual but steady productivity improvements. Aviation will benefit from a steady radiosonding program.

Component	Implementation
Component 1: <i>Strengthening climate and water resources monitoring networks</i>	Lead: UNMA, DWRM
Component 2: <i>Strengthening capacity in modeling, forecasting and early warning systems</i>	Lead: UNMA, DWRM, MEND, Research institutions, Academia

centers (where farmers can continuously be empowered with planning information) and spare parts warehouses/stores for maintaining the weather stations in the respective zones. One opportunity is the already established Water Management Zones with basic infrastructure. Where possible, UNMA infrastructure could extend the existing Water infrastructure.

Component 3: <i>Strengthening communication and information dissemination capabilities to end users</i>	Lead: UNMA, DWRM, MEND, CSO, CBO, Media, Private sector, Research institutions, Academia
Component 4: <i>Program Monitoring & Coordination</i>	Project Management unit, UNMA

Project Beneficiaries: The project impact and beneficiaries will be national.

M&E: M&E will be carried by the project management; and will be part of the overall PPCR Results Framework.

12.8 Financing Plan

SPCR Investment 4: Components	GoU (USD)	PPCR (USD)	FIP (USD)	GCF and Others (USD)	AfDB (USD)	IBRD/ IFC- WBG (USD)	Total (USD)
Component 1: <i>Strengthening climate and water resources monitoring networks</i>	0	1.5	0	15	0	0	17.5
Component 2: <i>Strengthening capacity in modeling, forecasting and early warning systems</i>	0.3	1.5	0	5.5	0	0	9.3
Component 3: <i>Strengthening generation, communication dissemination and application of information dissemination capabilities to end users</i>	0.5	1.5	0	4.5	0	0	8.5
Component 4: <i>Program management, monitoring and Coordination</i>	0.2	0.5	0	1	0	0	1.7
Total	1	5	0	26	0	0	32

12.9 Project Preparation Grant

247. **MDBs** request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

13. Proposed Investment Project 5: Enhancing Institutional Capacity in Climate Change Coordination and Mainstreaming (Indicative cost: US\$ 20 million)

Responsible MDB:	AfDB (African Development)
Total Project Cost:	USD 20 million:
PPCR request:	USD 3.5 million
Government of Uganda:	USD 5 million.
Co-financing (to be sought):	PPCR: USD 5 million; GCF: USD 10 million
Project Preparation Grant:	USD 250,000
MPIS fees:	To be determined

13.1 Background and Justification

248. The Climate Change Department (CCD) is the Focal Climate Change Institution for Uganda under the Ministry of Water and Environment (MWE) which plays a national coordination function bring together various actors, both state and non-state institutions. Other Key Coordinating Ministries and Authorities include: Ministry of Finance, Planning and Economic Development (MoFPED), National Planning Authority (NPA) and the Ministry of Local Government. In addition, the Climate Change Policy provides for the formation of the National Climate Change Policy Committee (NCCPC), a cross sectoral inter-ministerial committee chaired by the Prime minister, which offers guidance on climate change issues in the country at the cabinet level. The policy also establishes the National Climate Change Advisory Committee (NCCAC) that brings together a broad range of stakeholders that discuss and plan activities to address climate change concerns.

249. These structures review/provide input to sector strategies; offer advice on priorities and budgetary issues; and monitor and evaluate climate change issues in the country. There are also climate change inter-institutional desk officers to ensure effective coordination of climate change issues at central the Government level. This same structure is replicated at local government level through District Environment committees and the Natural resources Department as the focal points. Climate change is a cross sectoral issue and capacity building is necessary to enhance coordination. One of the key issues with regard to climate change is information sharing and dissemination to the different stakeholders. This project proposes to enhance climate change information availability across sectors for effective planning and decision making at all levels of national operations. Moreover, in order to address, gender needs, a detailed gender analysis will be conducted during project preparation and project implementation. Following the analysis, gender issues identified will guide the designing of appropriate capacity building needs and thus enable gender mainstreaming. In collaboration with the mother ministry (MGLSD) and the Gender Working Groups, technical backstopping

will be sought to ensure that gender concerns are addressed during implementation. The project implementation will be started with a gender orientation/training of key implementers, particularly the lead agency, the Climate change Department and partners including MDAs, CSOs, Private sector, and Local Governments.

250. It has been noted that climate change information is yet to be integrated in various economic sectors and development plans especially at the local government levels. Development projects in key sectors are yet to consider incorporating climate change risks and as such there are no modalities to facilitate such transformational change in development planning at local Government level, a situation pertaining mainly due to limited knowledge and availability of climate change information. Most district officials are unfamiliar with tools for climate change vulnerability and risk assessments as well as approaches for mainstreaming climate change in their plans. Public awareness of climate change is increasing but remains low in local government agencies. District local governments, civil society organizations and farmers lack adequate knowledge to support the implementation of climate change adaptation measures to deal with common challenges such as droughts and floods as well as challenges such as diseases resulting from changes in climatic conditions.

251. As a result, district plans do not prioritize necessary considerations for climate change adaptation and resilience. This situation is made worse and is especially critical in situations where poor farmers' and women's access to climate information is poor, and information is often provided in formats and modalities not appropriate for such segments of the society, notwithstanding that women are the major stakeholders in Uganda's subsistence agricultural landscape. It is anticipated that through this project, information centers at district level will be equipped and supported to become more accessible sources of information for the local communities and will guide and support appropriate decision making processes at local levels.

252. This project will contribute to the transformation of institutional capacity for climate change coordination, national level information sharing and utilization, as well as district level knowledge management. In addition the capacity of the various sector desk offices for climate change will be strengthened to provide timely, quality and adequate data for planning and coordination of climate change related initiatives. The enhanced capacity will contribute to improved resilience of the country to climate change and variability.

13.2 Project Description

253. This project has three components namely; strengthening the coordination function for climate change at national level, capacity of local governments in climate change management; and, strengthening knowledge management system and information sharing. The purpose of the project is to enhance climate change information availability in order to promote climate resilience. The outcome of this project will be increased capacity of the institutions, generation of quality and reliable data as well as timely sharing of information. This project will support the coordination of activities and enhance outputs of Projects 1, 2 and 3.

13.3 Geographic scope

254. This is a nationwide intervention and will address both national level and district specific requirements for effective climate change coordination.

13.4 Project Objectives

255. This project is designed to strengthen Uganda's institutional framework for climate resilience and to improve the adaptive capacity of vulnerable communities in the Lake Kyoga, Victoria, Upper Nile and Albert Nile water management zones. It is expected that some 34.6 million¹¹⁵ Ugandans across 120 district LGs will benefit directly and indirectly from this project because of its significant contribution to increased access to reliable and timely climate change information and knowledge to inform government policy, local development planning and budgeting, public awareness and participation, and enhanced reporting to UNFCCC. The proposed project's specific objectives are:

- a) Strengthen the coordination function of the CCD and National Climate Change Resource Centre (NCCRC) and Knowledge Management System (KMS),
- b) Develop CC information management systems and build capacity across all the districts in Uganda and link them to the National CC knowledge management system, and facilitate access by state and non-state actors.
- c) Strengthen the capacity of Ministries, Departments and Agencies (MDAs) and Local Governments in coordination, management and mainstreaming climate change into their planning, implementation and monitoring of climate resilience actions;
- d) Support availability and accessibility of climate related information in a manner appropriate for use by stakeholders at the lowest level possible.

256. These objectives will be achieved through three project components. The first component is a strategic national program support and the aim is to strengthen the coordination role of the CCD and the National Climate Change Resource Centre and Knowledge Management System in Uganda. The second is scale up Climate Change knowledge management systems nationally to all districts and the third is to build capacity at national and district levels to strengthen inter sectoral coordination and mainstreaming of CC planning.

13.5 Project Components

257. **Component 1: Strengthening the Coordination function of the CCD, National Climate Change Resource Centre and Knowledge Management System (KMS) (PPCR:**

¹¹⁵ Uganda Bureau of Statistics 2016, The National Population and Housing Census 2014 – Main Report, Kampala, Uganda

USD 1 million; AfDB: USD 1.3 million; GCF and others: USD 2.5 million; Government of Uganda co financing: USD 0.3 million).

258. This component is aimed at strengthening access to climate change information. The component is in line with the country's second National Development plan (NDPII) which commits the country, through its national climate change policy, to provide direction for key sectors that will be affected by the impacts of climate change including facilitating adaptation and strengthening sectoral coordination efforts. In addition, this project is aligned with the Sustainable Development Goal (SDG) 13 that urges stakeholders to take urgent action to combat climate change and its impacts. Uganda's Intended Nationally Determined Commitments- INDC (2015) document also reaffirms the need to take action on adaptation priority actions at local community level in sectors including agriculture, forestry and the environment. Therefore, this project will enhance planning capacity for climate change adaptation at local levels and facilitate local governments to address the vulnerable populations. Activities will include:

- Enhance the capacity of and facilitate the National Climate Change Coordination committees (the NCCPC and NCCAC) roles to ensure appropriate (simplified climate information for various levels) and free flow of climate related information; and enable overall national coordination, monitoring and management of climate change resilience activities, through equipment support (transport and IT, etc.).
- Training, development and dissemination of simplified information education and communication (IEC) materials.
- Expansion and equipping of the National Climate Change Resource Centre and building linkages with other existing resource centers nationally, regionally and globally.
- Support and Facilitate training and benchmarking visits for CCD staff and other relevant stakeholders especially CC desk officers and select LG staff to enhance learning and knowledge sharing on operationalization of KMS.
- Provide support to desk officers to develop, implement and monitor climate change resilience action plans within their areas of mandate.

259. **Component 2: Up-scaling of Climate Change Information Management Systems (IMs) to LG staff and linking them to the National Climate Change Knowledge Management System** (PPCR: USD 1 million; AfDB: USD 1.8 million; GCF and others: USD 5 million; Government of Uganda co financing: USD 0.3 million).

260. This component on up-scaling Information and Knowledge Management will support local governments to put in place an online and offline knowledge centers that provide reliable and readily available climate change information to guide planning and decision making at both the district and national level. It is planned as a direct linkage to the Hydro-met project which will provide climate and weather forecast information to both government entities and end users (e.g., farmers). Basic geo-referenced (socio-economic and natural resource management) data, as well as M&E and analytical studies undertaken in the districts on vulnerability and risk assessments will provide the primary set of local/district climate change information to be accessed from the knowledge centers. The knowledge centers will

be linked to the national climate change information center at the CCD. Being an agriculture based economy, Information from the district knowledge centers will also be used by District farmers associations (DFAs) to demonstrate adaptation technologies in agriculture for learning and scale-up in order to increase resilience. Similarly, the climate information will be linked with health information to generate seasonal disease calendars to inform the health sector preparedness. Activities will include:

- Design and establish district knowledge and information management systems incorporating data from various sectors.
- Build capacity of the district and where possible sub-county level climate change focal points on management of KMS and its linkage to the National CC KMS.
- Training, development and dissemination of simplified IEC materials.
- Purchase of IT equipment (for each district) for data storage, sharing and management.
- Develop localized communication strategy for continuous sharing of climate change information

261. Component 3: Enhancing the capacity of Local Governments in coordination and mainstreaming of climate change into their planning, and implementation and monitoring of climate resilience actions. (PPCR: USD 1 million; AfDB: USD 1.8 million; GCF and others: USD 2 million; Government of Uganda co financing: USD 0.2 million).

262. This component for capacity building will focus on learning, acquisition and application of skills in planning for climate change adaptation across various sectors at district level such as agriculture, water, infrastructure, natural resources, health and education among others. Information will be obtained from conducting district level vulnerability and risk assessments using customized simplified tools (user guides and manuals) and trainings. The local governments will be supported to apply the skills obtained to conduct local vulnerability and risk assessments. The Local Governments will also be equipped with skills to plan and mainstream climate change in their rolling plans and budgets but also develop local level performance measurement indicators that feed into the national ones. Activities include:

- Facilitate district level climate change coordination committee meetings
- Train local level stakeholders in conducting climate change vulnerability and risk assessments
- Support districts to develop localized tools and conduct district and sub-county level climate change vulnerability and risk assessment to facilitate climate change resilience planning.
- Support districts and if possible sub-counties to develop climate change resilient action plans.
- Facilitate development of district level climate change performance indicators and reporting framework.

263. Component 4: Project management including monitoring and evaluation. (PPCR: USD 0.5 million; AfDB: USD 0.6 million; GCF and others: USD 0.5million; Government of Uganda co financing: USD 0.2 million).

Under this component, there will be a deliberate focus on knowledge management and sharing as an ongoing activity during project preparation and implementation. Lessons

learnt from the implementation of this project will be widely disseminated to stakeholders. Best practices will be shared through cross visits.

13.6 Project Results and Outcomes

Component	Activity	Outcome
Component 1: <i>Strengthening coordination function of the CCD, National Climate Change Resource Centre and Knowledge Management System</i>		
Institutional Capacity building	Provision of equipment support	Increased access to reliable climate change information at the National level and enhanced reporting to UNFCCC.
	Strengthen national / CCD, MWE Knowledge management	Increased capacity and more effective dissemination of information
Component 2: <i>Up-scaling of Climate Change Information Management Systems (IMSs) to new Districts and linking them to the National Climate Change Knowledge Management System.</i>		
Setting up knowledge centers in 106 Districts across the country	Equipment and training support	Increased access to reliable climate change information by the districts and CSOs
Component 3: <i>Enhancing the capacity of Local Governments in mainstreaming climate change into their planning, and implementation and monitoring of climate resilience actions.</i>		
Mainstreaming CC planning at DLGs	Capacity building at Local Government level	Climate change issues mainstreamed into district annual work plans and their respective budgets.
Component 4: <i>Program monitoring and Coordination.</i>		
Project monitoring and management	Day-to-day management of the project by the PMU; Coordination & Knowledge dissemination	Effectively managed PPCR Project

13.7 Implementation Arrangements and Readiness

Implementation Arrangements

264. The Ministry of Water and Environment (MWE), and, the African Development Bank will respectively act as the lead government agencies and the lead Multilateral Development Bank (MDB) for the proposed project. As it has a multi sectoral approach, a PPCR Project Steering Committee comprising of representatives from lead agencies and other key players in the sector will be established to provide policy level guidance to project implementation.

Component	Implementation
Component 1: <i>Strengthening the coordination function of the CCD and the National Climate Change Resource Centre and Knowledge Management System</i>	MWE (CCD), MoLG, District local Governments
Component 2: <i>Up-scaling of Climate Change Information Management Systems (IMSs) to new Districts and linking them to the National Climate Change Knowledge Management System.</i>	MWE (CCD), MoLG, Private sector, DLGs

Component 3: <i>Enhancing the capacity of Local Governments in mainstreaming climate change into their planning, and implementation and monitoring of climate resilience actions.</i>	MWE (CCD), MoLG, Private sector; DLGs and CSOs
Component 4: <i>Program Monitoring and Coordination</i>	Project Management unit

Readiness

265. Uganda's implementation readiness for the proposed project is developing:

- Institutional capacity:** There is need for further capacity building but the enabling legislation; mainly the climate change policy is a good starting point. There is also a wealth of experience in implementing multi-donor and multi sectoral donor supported programs in Uganda.
- Coordination/supervision:** The MWE will offer overall supervision and guidance.
- Implementing Partners:** Government Implementing agencies: Lead: MWE (CCD) DISTRICTS, Non-Government-CSO/Private Sector players.

266. **Project Beneficiaries:** The project will be national and benefit 106 district Local Governments.

267. **M&E:** M& E will be carried by the project management; and will be part of the overall PPCR Results Framework. Project specific monitoring will be through project specific outputs and outcome indicators of project progress.

13.8 Financing Plan

SPCR Investment 5: Components	GoU (USD)	PPCR (USD)	FIP (USD)	GCF	WB	AfDB (USD)	Total (USD)
				and Others (USD)	(USD)		
Component 1: <i>Strengthening the coordination function of the CCD and the National Climate Change Resource Centre and Knowledge Management System</i>	0.3	1	0	2.5	0	1.3	5.1
Component 2: <i>Up-scaling of Climate Change Information Management Systems (IMs) to new Districts and linking them to the National Climate Change Knowledge Management System.</i>	0.3	1	0	5	0	1.8	8.1

Component 3: <i>Enhancing the capacity of Local Governments in mainstreaming climate change into their planning, implementation and monitoring of climate resilience actions.</i>	0.2	1	0	2	0	1.8	5
Component 4: <i>Program management, monitoring and Coordination</i>	0.2	0.5	0	0.5	0	0.6	1.8
Total	1	3.5	0	10	0	5.5	20

13.9 Project Preparation Grant

268. **MDBs** request a project preparation grant of USD 250,000 to develop and elaborate this project. These resources will be used to design the project in detail, and prepare documentation to apply for funding from multiple sources, leading to the effective and efficient delivery of the project outcomes. If the CIF is able to support the project with implementation funding, MDBs will also request MPIS fees.

Annexes

Annex 1: Project Preparation Grant Request

PPCR INVESTMENT PROGRAM Project/Program Preparation Grant Request			
1. Country/Region:	UGANDA- EAST AFRICA	2. CIF Project ID#:	(Trustee will assign ID)
3. Project name	STRATEGIC PROGRAM FOR CLIMATE RESILIENCE: UGANDA		
4. Tentative Funding Request (in USD million) for project:	Grant: USD 80 million from CIF, USD 379 million for the entire plan	Non-Grant	
5. Preparation Grant Request (in USD million)	USD 1.5 million, (USD 0.25 for each of six projects)		
6. Implementing MDB	African Development Bank and World Bank		
7. National/[Regional] Executing Agency	Climate Change Department		
8. MDB PPCR Focal Point and Project/Program Task Team Leader (TTL):	<i>Headquarters</i> AfDB: Gareth Phillips World Bank: Kanta Kumari Rigaud	<i>Country-Level</i> AfDB: Siham Mohamed Ahmed World Bank: Ross Hughes	
Description of activities covered by the Preparation Grant			

S/N	SPCR Investment Projects	Project Preparation Grant Request (USD)	
		AfDB	World Bank
1	Enhancing climate-resilient agriculture and food security (in key value-chains)	250,000	0
2	Integrated and Sustainable management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the L. Kyoga and Upper Nile WMZs	250,000	0
	Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift	0	250,000
3	Strengthening climate resilience of communities and infrastructure in major urban centers.	250,000	0
4	Strengthen hydro-met monitoring networks, data, and advisory services.	0	250,000
5	Capacity building for climate risk management, strategic program support, and M&R.	250,000	0
	TOTAL (\$ Million)	1,000,000	500,000

The project preparation grant is needed for conducting technical, economic, financial and social due diligence for the proposed Climate Resilient Infrastructure Improvement in Coastal Zone Project. The major activities of the preparation grant are as follows:

- Reviewing available reports and literature, gap analysis and stock assessment on the climate resilient rural infrastructure.
- Conducting climate risks and vulnerability assessment; and identifying all potential adaptation solutions, including soft and hard measures.
- Evaluating technical, economic and financial viability of the interventions.
- Conceptualizing the project including the design and monitoring framework including baseline data.
- Organizing a series of stakeholders' workshop to present findings and discuss innovative options.
- Assessing financial management, procurement, anticorruption measures, policy and legal, capacity, and other institutional issues and mechanisms.
- Conducting poverty reduction, gender and social impact assessment; and safeguards assessments (environment, involuntary resettlement, and indigenous peoples).
- Preparing selection criteria for subprojects, implementation arrangements and project administration manual.
- Undertaking an assessment of information gaps and development of a knowledge
- Other project preparation activities.

Outputs:

Deliverable	Timeline
Final Project Proposals	2017 – 2018

Budget (indicative) : \$1,500,000	
Expenditures	Amount (USD) - estimates
Enhancing climate-resilient agriculture and food security (in key value-chains)	USD 250,000
Integrated and Sustainable management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the L. Kyoga and Upper Nile WMZs	USD 250,000
Climate Resilient Landscapes, Integrated Catchment Management and Nature-Based Tourism in Uganda's Albertine Rift	USD 250,000
Strengthening climate resilience of communities and infrastructure in major urban centers.	USD 250,000
Strengthen hydro-met monitoring networks, data, and advisory services.	USD 250,000
Capacity building for climate risk management, strategic program support, and M&R.	USD 250,000
Other contributions:	
Government	Staff time in kind
MDB	Staff time in kind
Private Sector	TBC
Others (please specify)	TBC
Timeframe (tentative) –milestones Project documents for each of the six projects throughout 2017 and 2018	
If applicable, explanation for why the grant is MDB executed MDBs will prepare the project documentation in consultation with the GoU	
Implementation arrangements (incl. procurement of goods and services) MDBs will use their standard procurement procedures	

Annex 2: Additional Tables

Table 16: List of Civil Society Organizations consulted during the preparation of the SPCR

Serial No	Civil society organization
1	World Conservation Union (IUCN)
2	World Wide Fund for Nature (WWF)
3	Participatory Ecological Land Use Management (PELUM)
4	CARITAS Uganda
5	SEATINI Uganda
6	Abuka Development Trust Uganda
7	GRAMEEN
8	VECO- East Africa
9	Uganda Intercultural Development
10	National Organic Agricultural Movement of Uganda (NOGAMU).
11	Youth Association for Rural Development
12	Agricultural and Biodiversity Conservation Africa
13	SWAE-Support for Women in Agriculture and Environment
14	Arocha Uganda
15	Self Help Africa
16	Mbarara District Farmers Association
17	Parliamentary Forum on Climate change
18	Sustainable Agriculture Trainers Net Work
19	Kampala Province of Caritas
20	The Farmer Media
21	Phoebe Education For Orphans And Vulnerable Children
22	Agricultural Innovation
23	Farm Concern International
24	Lutheran World Federation
25	Voluntary Action for Development
26	Biodiversity International
27	Mpigi District Farmers Association
28	Training On Education And Empowerment
29	For Neighbourhood Sustainability
30	Mityana-Mudende District Famers Association
31	Uganda Forestry Association
32	National Association of Professional Environmentalists
33	Oxfam in Uganda
34	Civic Response on Environment And Development
35	Climate Action Network Uganda
36	Uganda Coalition For Sustainable Development
37	IITA-transforming African agriculture
38	Uganda Environmental Education Foundation
39	Global Water Operator's Partners Alliance
40	Environmental Alert
41	ABANTU for Development Uganda
42	New Horizons WEC
43	African Center for Trade and Development

44	Green watch
45	PACSA Uganda/ Food network
46	Feed the future Uganda enabling environment for agriculture
47	BNB Advocates
48	Urban Authorities Association for Uganda

Table 17: Private sector actors and projects to promote climate resilience

Private Sector Entity	Project	Details of business in relation to climate change	Location
Private Sector Foundation Uganda (PSFU)	Business Uganda Development Scheme Energy for Rural Transformation (BUDS-ERT), and, Uganda Clean Cooking Supply Chain Expansion Project (UCSEP)	Electrical Energy Efficiency Improvement for Industries. Activities include Early investment studies for mini hydro power development; and Promotion of solar water heater uptake especially by the hospitality sector (Village pico hydro power development)	National level initiative
China Nanjing (CNOOC)	Environmental protection management as a Corporate Social Responsibility and investment into energy efficiency	As an energy producing and supplying company, CNOOC Limited is targeting energy conservation in the process of its production and commercial activities. Natural gas is a clean energy resource, and the recycling and reuse of oilfield-associated gas can not only save precious energy, but can also reduce carbon emissions. CNOOC Limited has formulated a pollutant discharge management system that covers all subordinate entities.	Oil fields in Western Uganda
MTN Mobile platform service provider	Environment management activities as part of CSR	Relaying climate information to farmers	National level
Private Timber growers – The Uganda Timber Grower’s Association	Investment in commercial tree farming	The establishment of now over 40,000 ha of commercial plantations is expected to relieve pressure off the natural forests and also provide the much needed wood resources for both energy and timber supplies	National level
Various Agro-business enterprises	Livestock feeds and dairy products	Processing and value addition to crop and livestock products and so improving productivity	National level
Lion Insurance	Weather Based Index insurance	Have piloted Weather Based Index Insurance in two districts of Kamuli and Nakasongola and are looking forward to scaling up the business by forming an agriculture insurance consortium	National level
The Uganda Carbon Bureau	Development of Carbon markets for communities	Facilitating private sector investments into carbon sales	
Bugisu Cooperative Union	Coffee processing and sale	BCU is owned by coffee farmers who are organised in primary societies and focusses on processing and sale of Arabica coffee. This provides a ready market for the farmers and thus promotes improvement of	Based in Eastern Uganda in Mbale.

		their livelihoods and thus better coping to climate change impacts.	
Banyankore Kweterana Cooperative Society	Coffee processing and trade	The Union mainly deals in Coffee Advisory Services, Processing and Marketing Members Coffee both locally and internationally. Main activities are improved production and productivity enhancement; Strengthening the farmers (Members primary societies) institutional leadership capacity and Purchase, Agro-processing and marketing of farmers (member primary societies) coffee.	Works in 10 districts of Ankole region: Mbarara, Sheema, Ntungamo, Kiruhura, Isingiro, Mitooma, Bunyarugura, Bushenyi, Rubirizi and Buhweju.

Table 18: Synopsis of strategies and policies in relation to climate change

Strategy/ policy	Relation to climate change
Strategies, plans	
Uganda Green Growth Development Strategy (UGGDS) (2015-2030)	<ul style="list-style-type: none"> The strategy aims to achieve holistic and inclusive growth by incorporating mitigation and adaptation measures, whilst contributing broader positive impacts to the economy in line with Vision 2040. It prioritizes 5 sectors of agriculture, forestry, energy, transport and waste It has 3 core objectives: to (i) <i>Guide national policy and planning in an integrated way</i>; (ii) <i>Mainstream climate change in key sectors of the economy</i>; and (iii) <i>Position Uganda to access international funding to achieve low-carbon development, adaptation and green growth</i>.
Agriculture Sector Strategic Plan (ASSP) (2015-2020)	<ul style="list-style-type: none"> The ASSP (2015-2020) is the successor to the former Agricultural Development Strategy and Investment Plan (Ag. DSIP) (2010-2015), and incorporates lessons learnt, emerging issues and development priorities of the NDP II. The Plan's mission is "<i>Transforming the sector from subsistence farming to commercial agriculture</i>". It has 4 priorities of <ul style="list-style-type: none"> Priority 1: <i>Increasing agricultural production and productivity</i> Priority 2: <i>Increasing access to critical farm inputs</i> Priority 3: <i>Improving access to agricultural markets and value addition</i> Priority 4: <i>Institutional and enabling environment strengthening</i>
MoWT Climate Change Strategy	<ul style="list-style-type: none"> The Ministry of Works and Transport is developing a climate change strategy in the transport sector and requires the Uganda National Roads Authority to ensure that road projects are climate proof through climate change adaptation and mitigation strategies. Indeed, most of the projects supported by the World Bank (WB), Japanese International Co-operation Agency (JICA) and African Development Bank (ADB) require that climate change issues are considered when carrying out environmental impact assessments. However, the level of awareness on climate change issues in the sector is very low. Only a few members of staff have been exposed to climate change issues.
Policies	
National Adaptation Programs of Action (NAPA) (2007)	<ul style="list-style-type: none"> The Uganda NAPA endorsed in 2007, identifies priority interventions to be implemented in order to address urgent needs and concerns brought arising from adverse effects of climate change. The prioritized 9 adaptation intervention projects were: (i) <i>Community tree growing</i>, (ii) <i>Land degradation management</i>, (iii) <i>Strengthening meteorological services</i>, (iv) <i>Community water and sanitation</i>, (v) <i>Water for production</i>, (vi) <i>Drought adaptation</i>, (vii) <i>Vectors, pest and disease control</i>, (viii) <i>Indigenous knowledge and Natural resources management</i>, and (ix) <i>Climate change and development planning</i> – with a

Strategy/ policy	Relation to climate change
National Environment Management Policy (NEMP) (2014)	<p>total implementation budget of \$ 39.8 m for 3 – 5 years.</p> <ul style="list-style-type: none"> • The NAPA was replaced by the Climate Change Policy (2015) • The NEMP (2014) is a revision of the first NEMP (1994), which provides a framework for addressing environmental management and a strategy for integrating environment into the national socio-economic development process. The overall policy goal is <i>sustainable development which maintains and promotes environmental quality and resource productivity for socio-economic transformation</i>. • It incorporates the current national initiatives like the Uganda Vision 2040, the NDP I (2010-2015); regional efforts such as East African Community (EAC) policy initiatives and protocols on cross-border natural resources and environment management, climate change and socio-economic aspects; and global commitments like the Rio+20 outcome and commitments, the MDGs; the Sustainable Development Goals (SDGs) and the Green Economy concepts in the context of sustainable development. • The National Environment Act (1995) and the National Environment Management Authority (NEMA) as the principal government agency for the management of the environment are major instruments of the policy. NEMA is mandated to coordinate, monitor and supervise all activities in the field of the environment.
National Agriculture Policy (2013)	<ul style="list-style-type: none"> • The vision of the policy is “<i>a competitive, profitable and sustainable agricultural sector</i>”, while its mission to: “<i>transform subsistence farming to sustainable commercial agriculture</i>”. The overall policy objective is to achieve food and nutrition security and improve household incomes through coordinated interventions that focus on enhancing sustainable agricultural productivity and value addition; providing employment opportunities, and promoting domestic and international trade. • The policy recognizes that ensuring sustainable use and management of agricultural resources requires among others, developing capacity (at all levels) for planning and implementation of activities to address climate change and its impacts on agriculture. Nonetheless, it does not comprehensively mainstream climate change. There is therefore need to review the policy and climate proof it, so as to guide climate smart agricultural systems. The Policy review should also address agro-ecological zoning; to encourage farmers to grow specific crops, based on the suitability of the agro-ecological zones they live in. In addition, the zoning should be reviewed to take into account the current and future impacts of future climate change on the agro-ecological zones and their suitability to specific crops/animals.
Fisheries Policy (2004)	<ul style="list-style-type: none"> • The policy goal is <i>sustainable management and development of the fisheries sector</i>. It specifies that fisheries will be managed and developed to promote socially, economically and environmentally sustainable use and development of the resources so as to meet the needs of present generations without compromising the ability for future generations. • The adaptation issues are implied in the policy though it does not mention climate change as a principle to guide its planning.
Disaster Preparedness and Management Policy (2010)	<ul style="list-style-type: none"> • The policy mission is to <i>create an effective framework through which Disaster Preparedness and Management is entrenched in all aspects of development processes, focusing on saving lives, livelihoods and the country's resources</i>. It aims to <i>establish institutions and mechanisms that: (1) reduce vulnerability to disasters; (2) manage existing risks; and (3) enhance preparedness and response capabilities to likely disasters</i>. • It promotes the development of climate change adaptation and mitigation measures to reduce the causes and negative impacts of climate change.
Water Policy (1999)	<ul style="list-style-type: none"> • The policy aims at managing and developing water resources of Uganda in an integrated and sustainable manner so as to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations. It establishes responses to emergencies such as droughts and floods

Strategy/ policy	Relation to climate change
	<p>therefore integrating adaptation to climate change in the policy.</p> <ul style="list-style-type: none"> The Water Act, the Water Action Plan (1995) and the Water Statute (1995) form the framework for development, management and wise use of water resources and sustainable provision of clean and safe water to the population.
Water for Production Strategy and Investment Plan (2010-2035) and the Draft National Irrigation Master Plan;	<ul style="list-style-type: none"> These are aimed at promoting the use of water in agricultural production through supporting farming system diversification, private investment in bulk water infrastructure; service delivery and more Public-Private Partnerships. These two plans are relevant to climate change as they enhance resilience to droughts.
Forestry Policy (2001)	<ul style="list-style-type: none"> The policy aims to conserve Uganda's rich forest biodiversity to meet the needs and aspirations of present and future generations. The National Forestry and Tree Planting Act (2003) executes the policy and commits government to protect and sustainably manage the Permanent Forest Estate (PFE), which is set aside permanently for conservation of biodiversity and environmental services and sustainable production of forest products. Uganda has developed a National Forest Plan (2011-2022) (2013) aimed at: (i) increasing forest cover to the 1990 levels (24% of Uganda's land area), (ii) raising incomes for households through forest-based initiatives, and (iii) restoring and improving ecosystem services derived from sustainably managed forests. Although the policy does not specifically take account of climate issues, there is scope to review and possibly update the policy with specific reference to climate and climate risk.
Policy for the Conservation and Management of Wetland Resources (1995)	<ul style="list-style-type: none"> The policy's overall aim is to promote the conservation of Uganda's wetlands in order to sustain their ecological and socio-economic functions for the present and future wellbeing of the people. There are four goals of Uganda's National Wetland Policy that are in consonance with the Climate Change Policy. These are:- <ul style="list-style-type: none"> <i>To establish the principles by which wetland resources can be optimally used now and in the future.</i> <i>End practices which reduce wetland productivity.</i> <i>Maintain the biological diversity of natural or semi-natural wetlands.</i> <i>Maintain wetland functions and values.</i>
Energy Policy (2000)	<ul style="list-style-type: none"> The policy aims to manage energy related environmental impacts by promoting the use of alternative sources of energy and technologies which are environmentally friendly and by establishing and ensuring the acceptance of broad targets for the reduction of energy related emissions that are harmful to the environment. The policy recognizes the need to mitigate both the physical and social environmental impacts. One of its key objectives is to manage energy related environmental impacts. The Energy Act and the Atomic Energy Act emphasize environmental conservation and human protection though they do not highlight the linkages to climate change.
Renewable Energy Policy (2007)	<ul style="list-style-type: none"> Promotes the utilization of the country's abundant clean energy resources; contributing to mitigation of climate change. The policy vision is to <i>make modern renewable energy a substantial part of the national energy consumption</i>. The overall policy goal is to <i>increase the use of modern renewable energy from the current 4% to 61% of the total energy consumption by year 2017</i>. One of its key objectives is to promote sustainable production and utilization of bio-fuels.
Meteorology Policy	<ul style="list-style-type: none"> Its mandate is to promote the monitoring of weather and climate, maintain a climate database, provide regular advice on the state of weather and climate and provide accurate and timely climate and weather information to various stakeholders. The policy is climate change compliant, since it recognizes the need to improve the

Strategy/ policy	Relation to climate change
	<p>accuracy and reliability of weather forecasts and advisory services to customers, through the development of climate predictions and short-term weather forecasting capacities.</p> <ul style="list-style-type: none"> The Uganda Meteorology Act (2012) led to the creation of the Uganda National Meteorological Authority (UNMA). UNMA was established to improve service delivery through mitigation of social and economic impacts of natural disasters, promotion of the use of meteorological data and information for social and economic activities, promote and enhance quality of the environment, and monitor and provide warnings about adverse weather conditions.
Land Policy (2011)	<ul style="list-style-type: none"> The policy's overall goal is to <i>ensure sufficient, equitable and sustainable utilization and management of Uganda's land and land based resources for poverty reduction, wealth creation and overall socio-economic development</i>. Under the land use and land management framework, the issue of climate change is highlighted. Climate change is fairly mainstreamed in the Land policy. For example, the policy prioritizes (i) the need for sustainable utilization, protection and management of environmental, natural and cultural resources on land for socio-economic development; ii) supporting planned, environmentally friendly, affordable and orderly development of human settlements for both rural and urban areas, including infrastructure development; iii) promoting integrated land use planning and management, with a view to achieving coordination among various sectoral land use activities; iv) recognizing that climate variability and change impacts (droughts, desertification and floods) hamper the realization of Uganda's development goals; (v) planning for adapting and mitigating of climate change and complying to international climate change agreements.
Gender Policy (2007)	<ul style="list-style-type: none"> Emphasizes the reduction of gender inequalities to move out of poverty and achieve improved and sustainable livelihoods. The REDD+ gender strategy has been put in place.
The revised Decentralization Policy (2003)	<ul style="list-style-type: none"> Gave rise to the Local Government Act, which transferred planning, financial, administrative, political, legislative and judicial powers from the Central Government to Local Governments. Natural resource management is one of the sectors that were decentralized. However, the act does not elaborate how Local Governments shall address climate change issues. At the moment there is no specific strategy put in place to mainstream climate change in local governments.
Education Policy	<ul style="list-style-type: none"> States the laws and rules that govern the operations of the education systems. The Ministry of Education is integrating climate change into research and is developing a curriculum for Climate Change for primary and post- primary levels.

Table 19: Other Government institutions involved in climate change management and implementation

Ministry/ Department/ agency	Function
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	<ul style="list-style-type: none"> Responsible for coordination of and support to the Agriculture, Fisheries and Animal Industry Sectors and is a focal point for UNCCD
Uganda National Meteorological Authority (UNMA) under the MWE	<ul style="list-style-type: none"> UNMA is a semi-autonomous government authority (UNMA Act, 2012) under the Ministry of Water and Environment responsible for monitoring weather and climate and providing forecasts and advisories to government and other stakeholders for use in sustainable development. UNMA is responsible for weather and climate services, and is a focal institution to Inter-Governmental Panel on Climate Change (IPCC).
Department of Disaster Management and Refugees (DDMR), under the Office of Prime Minister (OPM)	<ul style="list-style-type: none"> Responsible for multi-sectoral coordination and collaboration in disaster risk reduction
National Environment Management Authority (NEMA) under the MWE	<ul style="list-style-type: none"> Responsible for ensuring sound environmental management and biodiversity conservation in Uganda
National Forestry Authority (NFA)	<ul style="list-style-type: none"> Responsible for management of Central Forest Reserves and has promoted different REDD interventions.
Forest Sector Support Department (FSSD), under the MWE	<ul style="list-style-type: none"> Responsible for coordination, monitoring, and supervision of the forest sector and a Focal Point for REDD+ interventions
Wetlands Management Department (WMD) under the MWE	<ul style="list-style-type: none"> Responsible for sustainable management and conservation of wetland resources in Uganda
Directorate of Water Resources Management (DWRM) of the MWE	<ul style="list-style-type: none"> Responsible for assessing the vulnerability of water resources and dependent activities, and has prepared adaptation responses to climate risk
Directorate of Water Development (DWD) of the MWE	<ul style="list-style-type: none">
Ministry of Lands, Housing and Urban Development (MoLHUD)	<ul style="list-style-type: none">
Ministry of Energy and Mineral Development (MEMD)	<ul style="list-style-type: none">

Table 20: Summary of some of the Development Partner supported climate resilience projects

Donor	Name of Project	Focus
AfDB, Nordic Development Fund	Farm Income Enhancement and Forest Conservation Project (FIEFOC)	Agricultural enterprise development; Soil management, small-scale irrigation, and crop development
GEF,UNDP, GoU, Norway,	GEF-Enabling Environment for SLM in the Cattle Corridors Districts of Uganda	Sustainable Land Management, Land Tenure, Sustainable Charcoal Production Pastoralist Livelihood and Range Lands Management; Water; forestry and meteorology
GEF,UNDP, COMESA GoU, Norway	Up scaling Conservation Agriculture in Uganda.	Sustainable Land Management; Food Security; Water conservation
GEF,UNDP, GoU, Norway	Mainstreaming SLM Activities in 6 Cattle Corridor Districts	Sustainable Land Management, Sustainable Charcoal Production; Pastoralist Livelihoods and Range Lands Management; and capacity building
ODA; Climate finance	Uganda Climate Smart Agriculture Program (UCSAP)	Strengthen the enabling environment for efficient and effective scaling up of climate smart agriculture.
GoU, Water Supply and Sanitation Collaborative Council (WSSCC)	The Uganda Sanitation Fund (USF)	Water Supply and Sanitation, surveillance and environmental health.
DFID, MoFPED, NPA	Climate Development and Knowledge Network (CDKN)	Research, Capacity building, knowledge management
ACCRA consortium members (CARE International, World Vision Uganda, Oxfam & Save the Children)	Translation and dissemination of the seasonal forecasts	Improving access to seasonal forecasts in simple formats, translated in Local languages and with advisories to aid farmers in planning and decision making
DANIDA	Support to Mainstreaming of Climate Change Adaptation	Support integration of climate change programming in development planning and implementation of the NAPAs
GIZ, KCCA; Coca-Cola; NWSC	Catchments management support	Flood Risk Management; water supply, and sanitation.
EU, Norway, GoU	Saw log Production Grant Scheme (SPGS III)	Support private sector to establish commercial timber plantations and bridge the supply gap of wood products by increasing private sector quality production.
Delegation of the European Union, UEDCL/KfW	Fostering Access to Modern Energy services in Rural Uganda- Investment Program West Nile.	Provide access to sustainable and affordable modern energy services to west Nile
GoU, UNDP/GEF	Improved Charcoal in the Cattle Corridor	Energy efficiency and renewable energy; Sustainable Land Management
GoU, IFAD, Adaptation for Smallholder Agriculture Program (ASAP) grant and beneficiaries	Project for the Restoration of Livelihoods in the Northern Region (Uganda) (PRELNOR)	Adaptation (particularly livelihood resilience); Upscale CSA activities through strategic policy and development partnerships, including a CSA AR4D pathway that collaborates directly with IFAD.
UNDP, DANIDA	TACC – Territorial Approach To Climate Change in Mbale	Support low-carbon and climate change-resilient local development; focusing on local decision-makers and planners to design integrated climate change policies, strategies and formulate concrete actions and investment plans
GoU, The World Bank	Environmental Management and Capacity Building	Municipal Solid Waste Compost Project (carbon trade in emissions reductions; Cross-cutting issues as integral part of NEMA regular activities.
GoU, UNDP, EU, Federal	Low Emission Capacity Building	Developing a robust national system for preparation of

ministry for environment nature conservation and nuclear safety Supported by the GOU and GEF grant administered by the World Bank	Program (low carbon development path)	GHG emission inventories; Design MRV systems to support identified NAMAs and linked to GHG inventory system
GoU, NWSC	Gulu Water and Sanitation Project	Agriculture (food security); Agriculture (SLM); and Renewable energy (biomass). Enhancing the environmental sustainability and resilience of agricultural production to land degradation and climate risks. Intensifying advisory services on water harvesting; watershed management; small-scale irrigation and agro- forestry
GoU, NWSC, AfDB, KfW;	Kampala Sanitation Program, Phase I	Replacement of inefficient pumps and fittings, and old/faulty or undersized pipes, construction of new more efficient treatment and storage facilities
GoU, NWSC	Energy Efficiency Program	Design and construction of a new sewer network and Waste Water Treatment Plant (WWTP) for Nakivubo Catchment: the WWTP shall have biogas digesters to reduce on methane emissions, and electricity shall be generated from the biogas
NWSC, GIZ, WBS, UN Habitat	Catchment/Source Protection through afforestation (MWE)	Replacement of all inefficient electro- mechanical equipment in NWSC: Replacement of inefficient pumps and re-alignment of delivery headers for pumps
GoU and various donors as per specific road contracts (EU, AfDB, WB)	UNRA-Ensuring that road projects are climate proofed through climate change adaptation and mitigation and tree planting	Planting of trees in the water abstraction areas
Government of Uganda	Incorporation of climate change issues into Strategic plan and General management plans of UWA	Detailed Engineering Design and Preparation of Environmental and Social Impact Statements; Road Sector - Disaster Preparedness –floods etc. and mitigation through tree planting
GoU, The World Bank, The Royal Norwegian Embassy FCPE, and EU.	National REDD-plus Process (R- PP) –MWE	Climate change incorporated into the Strategic plan and Protected Area General Management Plans
GoU, FAO, EU; GCCA	Agricultural Adaptation to Climate Change in the central cattle corridor.	National REDD-plus Readiness; Implementation of a CDM Reforestation Project; and
World Food Program	-The Northern Uganda Social Action Fund in Karamoja -Safe Access to Firewood and Fuel -Northern Uganda Early Recovery Project (Lango) -Automatic Weather Stations (Karamoja and Teso)	Local knowledge and capacities for climate change adaptation strengthened; Better access of livestock and crops to water through water for production; Resilience of agriculture production systems in the cattle corridor.
The World Bank	Lake Victoria Environment Management Project (LVEMP II)	Disaster preparedness, agriculture, Environment, energy and water resources management. At national level including support to national CC policy development, support to development of a national CC research agenda, establishment of web-based lessons learned platform for sharing best practices.
AfDB, KfW/ EU	Kampala Sanitation Program;	Integrated water resources management; wetlands restoration and management; reforestation of degraded catchments; supporting alternative livelihoods to reduce pressure on / destruction of natural resources.
AfDB	Lakes Edward & Albert Integrated Fisheries & Water Resources Management Project	Final refurbishment of the old sewerage treatment plant at Bugolobi; and, Constructing a sewer plant at Lubigi in the city suburbs
		Fisheries Resources Development and Management; and Integrated Water Resources Management

AfDB/DANIDA/EU/German Cooperation; Austrian Development Cooperation	Joint Water and Sanitation Sector Program Support (JWSSPS) Catchment-based integrated water resource management for climate change adaptation in Uganda	Support institutional and human capacity building in water resource use, development and management; including designation of water management zones. River Rwizi, Mpanga, Upper River Aswa catchments; Elaboration of integrated catchment management plans; and Implementation of pilot projects for the integrated catchment management plans
Belgian Technical Cooperation (BTC)	Capacity Building & Support to CDM Projects	Strengthens technical capacity on CDM project development among individuals and institutions (both government and private) and creates awareness of investment opportunities under the CDM
European Union	Karamoja Livelihoods Project (KALIP)	Build resilience of agriculture productions systems to CC and variability; adaptation
USAID	-Uganda Education and Research to Improve Climate Change Adaptation -Reinforcing climate change expertise	Building a hub for excellence in academia; professional development; Research in climate science, climate adaptation and related disciplines Training students, staff and external stakeholders Communicating with external stakeholders on climate change adaptation
ACTED- Agency for Technical Cooperation And Development	Strengthening Adaptive Capacity of Agro-Pastoral communities and the Local Government to Reduce Impacts of Climate Risk on Livelihoods in Karamoja	Improved strategic planning and response to climate risks/ shocks, and specifically, Early Warning, Preparedness and Contingency Planning & Response Systems.

Table 21: Some of the civil society climate resilience activities

Civil Society Name	Project	Activities	Location
A. International NGOs			
World Wide Fund For Nature (WWF – UCO)	Strengthening sustainable environment and natural resource management, climate change adaptation and Mitigation (SENRM CAM)	Strengthen the efforts and capacities of Local Governments (LGs), Civil Society Organizations (CSOs) and communities to sustainably manage and utilize natural resources, integrate climate change adaptation and mitigation in their activities and build climate change resilient societies.	Moroto, Kotido, Abim, Wakiso, Masindi, Kasese, Rubirizi, Mitooma, Isingiro, Manafwa and Bududa districts
	Sustainable Financing of the Rwenzori Mountains National Park Project” (SFRMNP)	Arabic coffee growing and other community empowerment interventions	Ruwenzori and other selected areas targeting to work with over 30,000 farmers around the country to help them improve their agricultural practices.
	Earth hour; Light Up A Village; Mobilize global support for 600 families living around forests	Help more than 50% of the 1,200 families living around forests to use the power of many to support communities with Clean Energy technologies in an initiative dubbed, “Light up a village.”	National and around selected forest neighboring villages
Water Aid – Uganda	Expand the provision of safe water and sanitation services to impoverished communities in Uganda.	Water-Aid Uganda are involved in four main areas: 1) Rural areas - integrated water, sanitation and hygiene projects, 2) Urban areas - integrated water and sanitation projects targeting poor communities in Kampala. 3) Small town areas – pro-poor service delivery; research, learning and regulation, and, 4) Post-Conflict WASH Project - conflict transformation approaches	WaterAid-Uganda manage 10 projects across eight districts: Amuria, Kampala, Katakwi, Kotido, Masindi, Nakapiripirit, Napak and Pallisa.
World Vision	Africa Climate Change Resilience Alliance (ACCRA) -research and advocacy	-Climate change adaptation and resilience - Capacity Building, Research and advocacy	The project operates at the National level as well as districts such as, Kotido, Gulu, Kitgum and Otuke (consortium members’ work in more districts in the country).
	Northern Uganda Social Action Fund 2	Supporting Training on improved agri-technologies & IGAs. Adoption of improved drought resistant seeds varieties; Apiary, Construction of water points, rural access roads; and Reforestation.	Kotido District – Nakapelimoru & Panyangara Sub counties
	Uganda Water and Sanitation Project	Increased access to sustainable and safe water supply; as well improved sanitation for poor and vulnerable communities and school children.	Gulu, Oyam, Buliisa, Hoima, Amuru, Nakasongola, Buhimba, and Mukono.
	Northern Karamoja Growth, Health and Governance (GHG) Program	Improve productivity and market access among male and female agriculturalists, agro-pastoralists, and pastoralists; and reduce inter-ethnic conflicts.	Abim, Kotido and Kaabong districts.
	Northern Uganda Improved Nutrition and Livelihood Project	Contribute to reduced micronutrient malnutrition and increase dietary intakes among 105,000 households from four districts of Northern Uganda	Lira, Oyam, Kole and Gulu
	Long term Investment for Food and Economic empowerment project	To increase household food security through support to improved productivity, post-harvest handling and marketing.	Amuria, Nakasongola, Mpigi, Kiboga and Kamwenge.
International Union for	Integrated natural resources management	The IUCN’s activities are organized into several theme-based programs ranging from business	Site specific areas in the country

Conservation of Nature (IUCN)	projects	and biodiversity to forest preservation to water and wetlands conservation	
Care International in Uganda	Global Water Initiative East Africa	Action research on water management technologies for improving smallholder farm productivity	Otuke District
	Climate Proof Disaster Risk Reduction (PFR)	Building community resilience through promotion of IGAs, diversify livelihood options, VSLA, supporting community based forest and wetland management.	Otuke District
The Climate Action Network (CAN)	Information exchange and the coordinated development of NGO strategy on international, regional, and national climate issues	The Climate Action Network (CAN) is a worldwide network of over 950 Non-Governmental Organizations (NGOs) in more than 110 countries, working to promote government and individual action to limit human-induced climate change to ecologically sustainable levels.	National
African Centre for Trade and Development (ACTADE)	Private Sector Forum	- High level dialogues on climate change and private sector engagement. Research around the impact of climate change on small scale trade	National
B. National NGOs			Kagadi & Hoima districts
Straight Talk Foundation	Integrated Approach to Natural Resources Management	Improvement in attitude and skills by communities to sustainably harness environment and natural resources for improved livelihoods; empower communities with skills for improved natural resources management, increased agricultural productivity and better quality of life.	Adjumani, Amuru, Nwoya, Gulu, Kitgum, Lamwo, Pader and Agago Districts
Uganda Red Cross Society	Emergencies and disaster risk response	Uganda Red Cross Society has volunteers on standby throughout Uganda, and Uganda Red Cross are immediate responders in times of disaster.	National
Kulika Uganda	Sustainable agriculture trainings and livelihoods improvement Programs	Improved livelihood of woman farmers in Northern Uganda through market-led development	Pallisa and Soroti district in eastern Uganda, Mpigi and Sembabule district
Uganda Environment Education Foundation	Awareness and advocacy on climate change.	UEEF uses a range of proven methodologies and practical tools, based on indigenous knowledge and participatory approaches to create awareness on climate change issues	Through CBOs and individuals throughout Mukono District and other parts of Uganda
Environmental Conservation Trust of Uganda (ECOTRUST)	Trees for Global Benefits	A cooperative community carbon offsetting scheme linking small holder farmers to the voluntary market for increasing carbon stocks on their land. By 2014 over 2700 hectares was under improved land-management.	Kasese, Mbale, Manafwa, Bududa, Hoima, Masindi, Rubirizi, Mitooma, Gulu, Kitgum, Adjumani
	Solvatten, Solar Water Heating Technology	Promotion of Solvatten which is a water purifying system that uses Solar energy (sun shine) to treat the water and make it safe for use (drinking and other house household uses). It can treat 10 litres of water in 2-6 hours, depending on the sunlight.	Mbale, Kampala, Hoima, Masindi, Kasese
	Mayi Sitovu– Saving Money and Nature with Clean Fast Cooking	Mayi Sitovu improved cook stoves (ICS) carbon scheme has been developed through a consultative process led by the Local Governments of Mbale, Manafwa and Bududa, facilitated by The Environmental Conservation Trust of Uganda (ECOTRUST).	Mbale, Manafwa, Bududa District Local Government
Nature Palace Foundation (NPF)	Waste-to-energy: Recycling bio-waste into fuel briquettes	Recycling of solid waste into fuel briquettes utilizes an appropriate technology that present a number of environmental, economical and social benefits. It addresses deforestation, health	Jandira/Luwule, Katende-Kasanje Rd, off Kampala–Masaka highway.

		related problems, food insecurity, unemployment, and domestic violence.	
	The Farm-lands rehabilitation and Community carbon stocks (Biochar Project)	The project is responding to the ever increasing vulnerability of small-scale farmers due to soil exhaustion resulting from land degradation and climate change which has resulted into poverty; food insecurity of many households and increased deforestation in search of productive land.	Mpigi, Wakiso & Mukono Districts
Nature Uganda	Ecosystem conservation for climate change adaptation in East Africa	Awareness of EbA and implementation capacity within government and civil society. Improved information and quantitative evidence of the benefits to be	Echuya Forest Reserve
Volunteer Efforts For Development Concern (VEDCO)	Empowering Youth for sustainable livelihoods through equitable utilization of natural resources” in Lango Sub Region	Capacity building advocacy and lobbying for climate change adaptation and mitigation issues.	19 districts in west Nile, Karamoja region, central and Eastern region
Environmental Alert (EA)	Towards Pro-Poor REDD+ (Phase II)	Promoting Pro-Poor REDD+ Principles and Rights-Based Approaches to Strengthen the Conservation, Governance and Sustainable Management of Mt. Elgon and Agoro-Agu Landscapes in Uganda	Mt. Elgon and Agoro-Agu Landscapes in Uganda
Environmental Management For Livelihood Improvement Bwaise Facility (EMLI)	Deepening Citizen Climate change Policy Advocacy	Policy advocacy and awareness creation on climate change issues	Eastern, Northern and Central regions
	Reducing Green House Gas Emissions through scaling renewable energy efficient technologies in rural and urban communities	Increased use and adoption of selected energy saving technologies (briquettes and cook stoves) Selected energy saving technologies standardized.	Luweero, Buikwe and Kampala Districts.
Save The Children International-Uganda	Improving Food Security And Diversification Of Livelihood Opportunities For Communities In Karamoja	Develop viable farmer institutions as production units and increase crop production levels among APFS. Also support for increased Livestock health.	Karamoja region
Uganda Coalition For Sustainable Development (UCSD)	Lake Victoria Environmental Management Project (LVEMP II) Civil Society Watch	Assessing compliance of the key sectors of water supply and sanitation; agriculture and food security; rural energy supply.	Katonga River Catchment
National Association of Professional Environmentalists (NAPE)	Community Ecological Governance Project	Raise awareness on climate change and to carry out tree planting activities around the degraded environment surrounding Lake Katwe in Katwe Kabatoro Town Council in Kasese district; Kamwenge and Fortportal	Kasese, Kamwenge and Fort Portal
C. Faith Based Organizations			
Ecological Christian Organization (ECO)	Integrated Community Managed DRR, CCA and EMR (ICMDCE) Project	Disseminate Climate change policy issues related to district plans; national plans and strategies	(Nakapiripirit District; Nabilatuk & Lolachat).
Bunyoro Kitara Diocese- Church of Uganda	Bunyoro Kitara mitigation of climate change Project	Restoration and conservation of the environment in Bunyoro region	Bunyoro region

Table 22: List of Technical Planning Committee for the Uganda SPCR

No.	Institution/ Organization	Name of the representative(s)	Email	Phone
1	Climate Change Department (CCD, MWE)	Bbosa Henry	henrybbossa@gmail.com	0701-823482
2	Department of Environment Support Services (MWE)	David Mugabi	mugabisd@gmail.com	
3	Ministry of Finance, Planning and Economic Development (MOFPED)	Andrew Masaba	Andrew.Masaba@finance.go.ug	
4	Ministry of Lands, Housing and Urban Development	Byendaimira Vincent	vbateenyi@mldhud.go.ug ; ateenyivin@yahoo.com ; byendaimira@gmail.com	0772-447262
5	Ministry of Transport and Works	Charles Mutemo	Mutemocharles1972@gmail.com	0772-315061
6	Ministry of Gender, Labour and Social Development	Annet Kabarungi	akabarungi@yahoo.com	0703-205353
7	Ministry of Health	Didacus Namanya	didamanya@yahoo.com	0772-484771
8	Ministry of Energy and Mineral Development	John Tumuhibise	tumuhimbise@energy.go.ug	
9	Office of Prime Minister	Catherine Ahimbisibwe	ahimbika@yahoo.com	0772-565109
10	Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	Muwaya Stephen		
11		Hakuza Annunciata	maaifewu@yahoo.com	0772-479309
12	National Forestry Authority (NFA)	Tom Rukundo	rukundotn@yahoo.com	0772-591205
13	National Environment Management Authority (NEMA)	Francis Ogwal	fogwal@nemaug.org ; sabinofrancis@gmail.com	
14	Uganda Wildlife Authority.	Richard Kapere	rkapere@yahoo.com ; rufurich1968@gmail.com	0772-688875
15	Uganda National Meteorological Authority (UNMA)	Paul Isabirye	paul.isabirye@unma.go.ug ; paul_isabirye@yahoo.com	0772-592032
16	National Planning Authority (NPA)	Ronald Kagwa	kagwaronald@gmail.com ; rkaggwa@nemaug.org	
17	Directorate of Water Development (DWD, MWE)	Eng. Richard Cong	Richard.cong@mwe.go.ug ; richard.cong@mwe.go.ug	0772-500697
18	Directorate of Water Resources Management (DWRM, MWE)	Dr. Callist Tindimugaya	Callist.Tindimugaya@mwe.go.ug ; callist.tindimugaya@yahoo.com	0772-521413
19	Department of Renewable Energy, MEMD	Justine Akumu		
20	Local Government (Districts (one for each region))	District Natural Resource Officers – Mbarara, Kitgum, Bududa, Kalangala		

		<i>Districts</i>		
21	Private Sector (UTGA)	C Ogwang		
22	International Civil Society (ACCRA)	Margaret Barihaihi	Margaret_barihaihi@wvi.org Margaret.Barihaihi@oxfamnovib.nl	
23	National Civil Society (CHAI)	Patrick Kibayat		
24	Special interest groups Cultural institutions	Karo (Buganda Kingdom)		
25	Development Partners		Sent to EU to nominate from CC donor thematic working group	
26	Ministry of Local Government	Ida Koma Stephen	skidhaa@yahoo.com	
27	Kampala Capital City Authority (KCCA)	Najib Lukooya Bateganya	nbateganya@kcca.go.ug	

Table 23: List of the National Climate Change Advisory Committee

No.	Name	Institution	Designation
1.	Alfred Okot Okidi	Ministry of Water and Environment	Permanent Secretary (MWE) and Chair CCPC
2.	David Okwi	Ministry of Finance, Planning and Economic Development	Senior Economist
3.	Koma Stephen	Ministry of Local Government	Principal Inspector
4.	Komujuni Pamela	Office of the Prime Minister	Senior Disaster Management Officer
5.	Namanya B. Didacus	Ministry of Health	Geographer
6.	Sunday Mutabazi	Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	Commissioner, Farm Development
7.	Rachel Rwomushana	Ministry of Justice	State Attorney
8.	James Baanabe	Ministry of Energy and Mineral Development	Commissioner, Energy Department
9.	Edith Kateme-Kasajja	National Planning Authority (NPA)	Deputy Executive Director
10.	Charles Mutemo	Ministry of Works and Transport	Senior Environmentalist
11.	Festus Luboyera	Uganda National Meteorological Authority	Executive Director
12.	Chebet Maikut	Climate Change Department	UNFCCC National Focal Point
13.	Muhammad Semambo	Climate Change Department	Senior Climate Change Officer-Adaptation
14.	Sanyu Jane Mpagi	Ministry of Gender, Labour and Social Development	Director for Gender and Community Development
15.	Stephen Kavuma	UTGA	General Manager
16.	Margaret KJ	Indigenous groups	
17.	Ofwono Opondo	Uganda Media Centre	Executive Director
18.	Ambrose Agona (PhD)	National Agricultural Research Organization (NARO)	Director General
19.	Andrew G. Seguya	Uganda Wildlife Authority (UWA)	Executive Director
20.	Mr. Vicent Byandamera	Ministry of Lands, Housing and Urban Development	Climate Change Desk officer
21.	Onesmus Muhwezi	ENR /CC Donor Partners subgroup/UNREDD	UNDP
22.	Tom Okurut	NEMA	Executive Director
23.	Michael Mugisa	National Forestry Authority (NFA)	Executive Director
24.	Margaret Adata	Forestry Sector Support Department (FSSD)	Commissioner
25.	Paul Mafabi	Directorate of Environmental Affairs (DEA), MWE	Director
26.	James Lutalo	Ministry of Tourism Wildlife and Antiquities	Commissioner Wildlife Conservation
27.	David Duli	CSO (International)	WWF
28.	Susan Nanduddu	ACTADE	Executive Director
29.	Achilles Byaruhanga	CSO (Local)	NU
30.	Phillip Gwage	LCD	Director
31.	Robert Bakika	EMLI	Deputy Executive Director
32.			
33.			

Annex 3: Uganda's Agriculture and the economy

Agriculture is the backbone of Uganda's economy, contributing 24.7% to the national GDP (*crops -13.7%, livestock - 4%, fisheries - 1.2% and forestry - 4.1%*), contributing 80% to the total export earnings and employing 72% of the work force¹¹⁶. Agricultural production is dominated by smallholder subsistence farmers engaged in production of food and cash crops, horticulture, fishing and livestock farming, and contributing 75 - 80% of the total agricultural output and marketed agricultural produce.¹¹⁷

The NDP II (2015-2020) identifies agriculture as one of its three priority growth sectors¹¹⁸, and considers it central to the country's economic growth, wealth creation strategy, and industrialization (through agro-processing and light manufacturing). The Plan prioritizes investments in 12 agricultural commodity value chains (Cotton, Coffee, Tea, Maize, Rice, Cassava, Beans, Fish, Beef, Milk, Citrus and Bananas¹³), including production, transportation, storage, processing as well as marketing and distribution.

These specific commodity enterprises were selected because of their high potential for food security (*maize, beans, cassava, bananas*); high contribution to export earnings (*e.g. in FY 2014/2015, coffee earned export revenue of US\$ 410 m, fish – US\$ 134 m, tea – US\$ 84 m, maize – US\$ 43 m, cotton – US\$ 22m*¹²). While the Plan aims to significantly increase productivity and also improve the sector's contribution to GDP, it also **focuses on employment generation and increasing female labor force participation in cash crop production**. However, budgetary allocations to the sector (averaging 3% of annual budgetary resources over the past 5 years) have not been commensurate with commitments, and greatly constrain the growth potential of the sector.

National agriculture sector strategies and plans

The development of the agriculture sector is guided by the Agriculture Sector Strategic Plan (ASSP) for the period of 2015/16 to 2019/20. The aim of the ASSP is to “*achieve an average growth rate of 6% per year over the next 5 years*¹¹⁹,” for improved household income and food and nutrition security.

Moreover, the Government of Uganda has prepared a ***Climate Smart Agriculture (CSA) Program (2015-2025)***¹²⁰. The Program aims to build resilience of agricultural farming systems for enhanced food and nutrition security through six result areas: (i) *Improved Productivity and incomes*; (ii) *Building resilience and associated mitigation co-benefits*; (iii) *Value Chain Integration*; (iv) *Research for Development and Innovations*; (v) *CSA Knowledge, Extension and Agro-weather Services*; and (vi) *Improved Institutional Coordination*. The Program's estimated budget is US\$ 334 million over 10 years, but its

¹¹⁶ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

¹¹⁷ Second National Development Plan II (NDP II) (2015/16–2019/20). National Planning Authority (NPA), Government of Uganda

¹¹⁸ The NDP II prioritizes investment in three key growth opportunities of: *Agriculture; Tourism; Minerals, Oil and Gas*, as well as in two fundamentals: *Infrastructure and Human Capital Development*.

¹¹⁹ Agriculture Sector Strategic Plan (ASSP) (2015-2020). 2016. Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Government of Uganda

¹²⁰ Uganda Climate Smart Agriculture Program (2015-2025). Ministry of Agriculture, Animal Industry & Fisheries (MAAIF) and Ministry of Water and Environment (MWE). Government of Uganda

implementation has been through a projects approach as funding is not readily available. This SPCR is one of the strategies to implement the Program and investment area 1 is focused on enhancing climate smart agriculture (Section 8).

The crop sub-sector and vulnerability to climate change

Uganda's crops sub-sector contributed 13.7% to national GDP in FY 2014/15¹²¹. The last 2008/09 Uganda Agricultural Census (UCA)¹²² reported that 16 major food crops were grown in the country including: Cereals (*Maize, Millet, Sorghum, Rice*); Root crops (*Cassava, Sweet potatoes, Irish potatoes*); Pulses (*Beans, Cow peas, Field peas, Pigeon peas*); and Oil crops (*Groundnuts, Soya beans, Simsim*), Plantains; and Coffee. Uganda's traditional cash crops are coffee, tea, cotton and tobacco; with coffee and tea specifically contributing 15% and 3% to total export revenues respectively.

Crops in Uganda are grown according to the the different agro-ecological zones (AEZs)^{123,124}, which are characterized by different farming systems determined by soil types, climate, and socio-economic and cultural factors. The crops are grown alongside livestock production. Crop farming is predominantly subsistence-based and rain fed, with limited irrigation. With an increasing population there has been an expansion of farming in wetlands, forests and other fragile areas. Whereas crop production has increased over the years, this increase is attributed to area expansion rather than increase in productivity. Low crop yields and yield deficits (from agronomic potential) greatly impede the sub-sector's potential. The low crop productivity and low returns are tied to climate related impacts (droughts, floods, rainfall variability), poor quality agro-inputs, diminishing soil fertility, poor land management and agronomic practices, disease and pests, coupled with high harvest and post-harvest losses.

The impact of weather-related disasters on crops has been reported by Kaggwa *et al.* (2009)¹²⁵. The report indicates that 800,000 hectares of crops are destroyed annually resulting in economic losses of more than US\$ 120 billion (US\$ 71 million). Rainfall deficits during 2010-2011 led to damage and production losses of US\$ 565 million in the crops sub-sector¹²⁶.

A report of the climate change vulnerability assessment in Uganda¹²⁷ by USAID in 2013 that focused on *Arabica coffee, Robusta coffee, rice, maize, East African Highland Banana (matooke), beans, sorghum, sweet potatoes, and cassava* is summarized in Table 24. The findings indicate the extent to which the above crops are vulnerable to climate change effects. This SPCR will help to address the risks faced by the crops sub sector.

¹²¹ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

¹²² UBOS (2010). Uganda Census of Agriculture 2008/2009. Uganda Bureau of Statistics (UBOS) and Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Government of Uganda

¹²³ Increasing Incomes through Exports – A Plan for Zonal Agricultural Production, Agro-processing and Marketing. 2014. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Government of Uganda

¹²⁴ An Agro-Ecological Zone (AEZ), as defined by FAO is a broad area with similar socio-economic background and in which ecological conditions, farming systems and practices are fairly homogeneous. In one AEZ, the same type of crops can be cultivated and the same livestock can be raised.

¹²⁵ Kaggwa, R., Hogan, R., and Hall, B. (eds). (2009). Enhancing the Contribution of Weather, Climate and Climate Change to Growth, Employment and Prosperity. UNDP/NEMA/UNEP Poverty Environment Initiative: Uganda.

¹²⁶ OPM, DDM (2012). The 2010–2011 Integrated Rainfall Variability Impacts, Needs Assessment and Drought Risk Management Strategy. Department of Disaster Management (DDM) of the Office of the Prime Minister (OPM), Government of Uganda

¹²⁷ USAID (2013). Uganda Climate Change Vulnerability Assessment. Main Report. Prepared by Tetra Tech ARD for the USAID, under the African and Latin American Resilience to Climate Change (ARCC) Project

Table 24: Key climate change vulnerability findings for some key crop commodities in Uganda

Crop	Key vulnerability findings
Arabica coffee	<ul style="list-style-type: none"> • Arabica coffee is Uganda's commodity most vulnerable to climate change (in form of rising temperature). Its production and suitability area is expected to reduce with rising temperatures. It is also better suited to high altitudes • Climate related impacts of erratic rainfall due to continued high inter-annual variability, and rising temperatures will greatly reduce productivity and substantially increase the likelihood of diseases and pests (e.g. coffee berry and leaf rust diseases)
Robusta coffee	<ul style="list-style-type: none"> • Robusta can grow in much warmer temperatures than have previously been experienced in Uganda largely because Robusta in Uganda grows at a higher altitude than elsewhere in the world. • Rising temperatures are likely, however, to result in increasing pest and disease pressure (e.g. red-berry disease), which may have significant negative impact
Banana (<i>Matooke</i>)	<ul style="list-style-type: none"> • It is projected that increased temperatures will favor banana production • However, the rising temperature may increase the pest and disease incidence
Maize	<ul style="list-style-type: none"> • Maize can be produced under a wide range of climatic conditions and is not likely to be significantly affected by predicted temperature changes • The greatest impact of climate change on maize is due to continued high inter-annual variability and amount of precipitation • Maize is greatly affected by short-term water stress or hail • It is vulnerable to water stress during poor rains, as well as aflatoxin contamination when the harvesting period coincides with off-season rains. Aflatoxin contamination represents a serious threat to the marketing and consumption of maize and will likely worsen if dry season rainfall increases
Beans	<ul style="list-style-type: none"> • Beans can be produced under a wide range of climatic conditions and are not likely to be significantly affected by predicted temperature changes • The greatest impact of climate change on beans is due to continued high inter-annual variability and amount of precipitation • Excessive rainfall received during critical growing periods of flowering and pod formation favour occurrence of fungal and viral diseases • Beans are also often attacked by aphids in times of water stress
Rice	<ul style="list-style-type: none"> • Current growing conditions of rice in Uganda are not optimal for rice production largely because of high rainfall variability and a lack of closely controlled irrigation systems • The production of highland rice faces significant water stress due to intermittent short-term dry periods, while rain-fed lowland rice, which has increasingly intruded into Uganda's extensive wetlands, is frequently subjected to unseasonal flooding • Unpredictable precipitation and an increase in extreme events that result in flooding and hail damage, will increase crop failure • Temperature increases do not pose a significant threat to rice production because existing varieties prefer warmer climates • Two major rice diseases (blast and bacterial leaf blight) affect rice yields and are significantly aggravated by weather conditions; such as higher temperatures, air humidity, or soil moisture
Cassava	<ul style="list-style-type: none"> • It grows well at temperatures much higher than the current, but is also vulnerable to pests and diseases (especially the cassava mosaic virus, brown streak virus and aphids). It is also highly vulnerable to water logging. • Cassava grows well at temperatures higher than those that could result from climate change over the next 30 years. • Productivity is fairly resilient, with little chance of complete failure due to climate variability

(Source: Uganda Climate Change Vulnerability Assessment Report, 2013. USAID)

A study conducted by CDKN in 2015 examined the economic impacts of climate change¹²⁸ on five sectors namely agriculture and livestock, energy, water, human settlements, and transport infrastructure. The key findings of the study in relation to the crops sub-sector were:

- a. **Food crops:** By 2050, the overall losses due to climate change for staple food crops (*of cassava, groundnuts, maize, millet, pigeon peas, potatoes, rice, sorghum, soybean, sugar cane and sweet potato*) are estimated at US\$ 1.5 billion, which would be equivalent to 0.2% of the GDP;
- b. **Export crops:** Climate induced yield losses for coffee could be in the order of 50-75% by 2050, due to mainly a reduction in suitable growing areas coupled with yield decline. In particular, Arabica coffee growing areas are projected to significantly reduce by 2050, due to climate change. These impacts would significantly and negatively impact on the economy's foreign revenues, since coffee is Uganda's principal export representing 15%¹²⁹ of total export earnings. Estimated impacts of climate change on tea will be a 50% decline in production by 2050. Potential loss in cotton productivity will be 60-77% by 2050. The potential losses for export crops will be US\$ 134-196 million by 2025 and US\$ 641-938 million by 2050, which are very significant to the economy's foreign export earnings.

The above statistics confirm the dire need to build a climate-resilient crop sub-sector through boosting productivity of both cash and food crops. This will be achieved through a number of interventions including building capacity of smallholder farmers to increase yields, and better understanding of the impact of climate variability on key crops.

The livestock sub-sector and vulnerability to climate change

The livestock sub-sector contributed 4% to the GDP in FY 2014/15¹³⁰. In recent years while the total livestock population was increasing, productivity was still low.¹³¹ A livestock census of 2008¹³² projected average milk production per cow per week at about 8.5 litres and egg production per week at 4 and 5 for exotic layers and indigenous chicken, respectively. The low productivity was mainly attributed to the dominance of indigenous breeds estimated at 93.6% and 87.7% of the total population of cattle and chicken, respectively. Other challenges responsible for low livestock productivity include poor feeding and nutrition due to seasonal availability of feed resources, health care and water scarcity. These challenges are likely to be exacerbated by climate change and variability.

Pastoralism is the dominant form of livestock-keeping in Uganda, especially in the "cattle corridor". The corridor covers an estimated area of 84,000 km² which is about 43% of the

¹²⁸ CDKN (2015). Economic assessment of the impacts of climate change in Uganda: Final Report. By Climate and Development Knowledge Network (CDKN) and UK Department for International Development (DFID), for the Government of Uganda

¹²⁹ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

¹³⁰ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

¹³¹ Livestock estimates for 2014: 13.6 million cattle; 3.8 million sheep; 14 million goats; 3.6 million pigs; and 45 million chicken (UBOS 2015: Annual Statistical Abstract)

¹³² UBOS (2010). The National Livestock Census Report 2008. Uganda Bureau of Statistics (UBOS), Government of Uganda.

country's total land area, and is home to 13.3 million people, which is 38.4% of the country's total population of 34.6 million people (UBOS, 2016).

The increased frequencies of extreme weather events (mainly droughts) resulting from climate change and variability adversely affect the pastoralists' livelihoods. The growth in population and corresponding increase in the number of livestock have extended grazing into marginal lands and forests thereby causing severe land degradation, vegetation loss and reduced livestock productivity.

Prolonged drought in livestock grazing systems causes severe water shortage, leading to loss of animals, low production of milk and meat, food insecurity, increased food prices, and a general negative effect on the economy. For example, the prolonged drought of 1999/2000 caused severe water shortage, leading to loss of animals, low production of milk in Uganda¹³³. Heat distress suffered by animals reduces the rate of animal feed intake and results in poor growth performance and low meat and milk production. Climate change also influences incidence of livestock vectors and diseases thereby reducing livestock productivity in the country.

The fisheries sub-sector and vulnerability to climate change

Uganda's fisheries sub-sector contributes to Uganda's national economy; for example in FY 2014/15, fisheries contributed 1.2% to GDP and 5% of total export earnings. The water resources sub sector is critical for sustainable fisheries in the country. About 94% of the total fish catch comes from Lakes Victoria, Albert and Kyoga. About 15 percent¹³⁴ of Uganda's total surface area is open water mainly comprising five major lakes (Victoria, Albert, Kyoga, Edward and George), which are main contributors to capture fisheries. In addition, there are also over 160 minor lakes and rivers, flood plains and swamps that partly contribute to fish production¹³⁵. The most common fish caught are Nile perch (primarily for export), and Nile tilapia and Silver fish (*mukene*) for domestic and some regional consumption. The quantity and diversity of fish species in most aquatic ecosystems in Uganda has gradually declined, mainly due to over fishing, introduction of alien species like the Nile Perch, using illegal gear to catch immature fish, pollution and eutrophication, water hyacinth proliferation which affects fish breeding sites and recruitment¹³⁶. The predicted climate change and variability are likely to reduce water levels in lakes and this will negatively affect fish production. Studies conducted on inland lakes in Uganda, including Lake Victoria which is shared by three East African countries, indicate that indigenous fish species have shrunk in size due to an increase in temperatures in the water bodies¹³⁷.

Aquaculture production on the other hand has grown exponentially over the last 10 years, with an annual growth rate of over 300% – production was 285 tons in 1999 and reached 73,000 tons in 2003³⁰. Aquaculture in Uganda is promoted as a promising commercial venture to meet consumer demand for fish and support community livelihoods. Aquaculture could be

¹³³ Uganda Climate Smart Agriculture Program (2015-2025). MAAIF and MWE. Government of Uganda

¹³⁴ 2015 Annual Statistical Abstract. Uganda Bureau of Statistics (UBOS), Government of Uganda

¹³⁵ Uganda Agriculture NAP (2016-2030). MAAIF, Government of Uganda

¹³⁶ MWE, DWRM (2013). Uganda National Water Resources Assessment. Ministry of Water and Environment, Directorate of Water Resources Management, Government of Uganda

¹³⁷ <http://www.ipsnews.net/2015/08/climate-change-shrinking-ugandas-lakes-and-fish/>

used as one of the adaptation measures to help communities that have depended on fish to supplement capture fisheries. However, the development of aquaculture in Uganda similar to most Eastern African countries is constrained by low adoption of appropriate technologies, inadequate investment in research and inadequate aquaculture extension services.

Fisheries and aquaculture are vulnerable to climate change, variability and additional non-climate related drivers of change, in particular, rapid human population growth. The impacts of climate change and variability on the fisheries sub sector in Uganda result from extreme weather events¹³⁸ such as storms and high winds on the lakes. Fisheries and aquaculture value chains are affected by climate change and variability. For instance, climate change affects Silver fish (Mukene) and Nile perch value chains stages such as production, processing and transport¹³⁹.

Vulnerability and impacts on agricultural infrastructure

Uganda's agricultural sector heavily depends on physical infrastructure such as roads, bridges, communication networks, storage and market places that are essential to support the production of goods and services, the distribution of finished products to market, and access to basic social services. Such critical infrastructure boosts rural incomes for better access to markets, increased agricultural productivity and socio-economic development. With Uganda's already significant infrastructure deficit and sometimes poor quality infrastructure, negative impacts of projected climate change (flooding, landslides and droughts) disproportionately fall on poor smallholder farmers whose livelihoods are already precarious as a result of numerous factors including weak markets and high transaction costs¹⁴⁰.

Climate change hazards already mentioned in the above paragraph can destroy critical infrastructure, cutting off agricultural communities from potential markets and agro-input suppliers. This results into high transport costs and increases transaction costs along the commodity value chains. On the other hand, post-harvest losses and sale of raw produce (with limited value addition) deprive the farmers of better incomes, food security and other socio-economic benefits.

A case for strengthening of rural agricultural infrastructure: Building climate resilience into critical agricultural infrastructure (access roads, storage facilities, markets, agro processing facilities, etc...) that directly supports community agro-enterprises and livelihoods, would greatly unlock rural development potential. It will have a multiplier effect of boosting farmers' incomes through higher farm gate prices, increasing the share of agricultural production that goes to market, and creating on-farm and off-farm employment¹⁴¹.

¹³⁸ WorldFish Center (2012). Impacts of climate change and variability on fish value chains in Uganda: Project Report 2012-18. Climate Change, Agriculture and Food Security Program of the CGIAR.

¹³⁹ WorldFish Center (2012). Impacts of climate change and variability on fish value chains in Uganda: Project Report 2012-18. Climate Change, Agriculture and Food Security Program of the CGIAR.

¹⁴⁰ USAID (2014). An Overview of Climate Change and Agricultural Infrastructure in Uganda. African and Latin American Resilience to Climate Change (ARCC) Project, USAID

¹⁴¹ AfDB (2005). Uganda: Community Agricultural Infrastructure Improvement Programme, Project -1 (CAIIP-1). The Beacon for Sustainable Income Generation and Rural Growth

Land degradation

Land degradation is a major impediment to agriculture, natural resources productivity and sustainable national economic development. Natural resources comprising land, forests, wetlands, soils, minerals, fisheries, climate, etc., contribute over 50% of the GDP¹⁴². Around 36% of Uganda is affected by severe land degradation and 10% by very severe land degradation. Based on biophysical factors, four distinct land degradation zones^{143,144} (landscapes) across the country were delineated and profiled – the Cattle Corridor, Southwestern and Eastern Highlands, Lake Victoria Crescent Region, and Eastern and Northern Uganda (Table 25). In these areas it is estimated that soil nutrients such as nitrogen, potassium and phosphorus are lost at the rate of 85, 75 and 10 kg/ha/year respectively. Soil erosion is estimated at above 5 tons/ha/year¹⁴⁵.

Table 25: Summary profiles of the four land degradation zones

1. Cattle corridor (Uganda's drylands)	2. Eastern and Northern Uganda
<ul style="list-style-type: none"> Covers approximately one third of the total land area in Uganda Holds over 80% of the national cattle herd Livestock production contributes 7.5% to the GDP and 38% of the agricultural GDP 	<p>Eastern and Northern Uganda are characterized by high population density, high market access, and high agro-ecological potential. Generally, the eastern region has inherently low soil fertility and nutrient depletion is extreme where there is agricultural intensification. Land use trends show reduced fallow periods, deforestation, and extensive drainage of wetlands. Sustainable Land Management (SLM) trends indicate very low adoption. Northern Uganda experienced a two-decade insurgency which seriously impacted land management and resulted in unprecedented poverty levels. Currently, the area is undergoing resettlement with rapid ecosystems dynamics where conflicts in land use is increasing and environmental degradation is enhanced. Eastern and Northern Uganda contain the poorest households in Uganda, yet poor households have less ability to invest in soil and water conservation measures.</p>

¹⁴² UBOS (2015). Statistical Abstract.

¹⁴³ NEMA (2010). State of the Environment Report (SOER). Uganda

¹⁴⁴ World Bank (2012). Uganda Country Environmental Analysis (CEA)

¹⁴⁵ NEMA (2010). Uganda State of the Environment Report (SOER)

3. Uganda's Highlands (Southwestern & Eastern Highlands)

The highlands are characterized by high population density, high market access, and high agro-ecological potential. Land scarcity is extreme in the densely populated region. Land use trends show a substantial increase in cultivated areas but given the fragile ecosystem of the highlands, this has led to increased soil erosion. Settlements are also on the increase. SLM trends on the other hand indicate declining fallow periods, destruction of fallow strips and soil bunds. High population density has led to extensive land fragmentation; a problem for sustainable land management. High population areas are also often associated with poverty and the need for improved management systems to increase food security.

4. Lake Victoria Crescent/ Basin

The Lake Victoria Crescent is characterized by high population density, high market access, and high agro-ecological potential. High temperatures and intense rainstorms subject the soils in the region to climate induced degradation. Land use trends show an increase in area under cultivation but with unsustainable land management practices e.g. continuous cultivation due to increasing population pressure; deforestation; and decreasing wetlands.

(Source: Uganda Strategic Investment Framework for SLM, 2010 – 2020)

These land degradation zones experience a myriad of climate related pressures and risks, coupled with other human pressures, like deforestation, wetland encroachment, etc. Of these, the Cattle Corridor is considered as the most degraded because it is water stressed and the ecosystems are fragile.

*Agriculture Sector-specific National Adaptation Plan (Agriculture NAP) (2016-2030)*¹⁴⁶:

The Agriculture NAP is premised on the realization that the agricultural sector is most vulnerable to climate change impacts and risks, and yet piecemeal and oftentimes incoherent efforts are deployed in addressing its climate resilience deficits. Most development initiatives have predominantly been designed with the primary purpose of increasing production, instead of protecting the natural resource base and building climate resilience. This SPCR has been developed to respond to the concerns articulated in the Agriculture NAP and will contribute to the achievement of its objectives. The NAP's estimated implementation budget is US\$ 522 million over a 15 year period (about US\$ 35 million per annum). This SPCR will play a catalytic role in the implementation of the Agriculture NAP.

¹⁴⁶ Uganda Agriculture Sector-specific National Adaptation Plan (Agriculture NAP) (2016-2030). Ministry of Agriculture, Animal Industry & Fisheries (MAAIF), Government of Uganda

Annex 4: SPCR performance monitoring matrix

Objectives/Component Investments	Results/Outcomes	Indicator	Means of Verification	Responsibility
PROGRAM GOAL	OUTCOME			
To ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda.	Coordinated sector planning and budgeting for climate resilience	❖ Number of sectors/ institutions issued with certificate of compliance for climate change integration in their plans and budgets from 2018- 2025	❖ Ministry of Water and Environment Annual reports and Minutes of the NCCAC. ❖ Sector/ institutional certificate of compliance	❖ MWE/Climate Change Department ❖ National Planning Authority (NPA) ❖ Ministry of Finance Planning and Economic Development
PROGRAM OBJECTIVES	RESULTS			
1. Climate resilient Agriculture To enhance climate resilient agricultural production, food security and nutrition.	Climate smart agriculture practices scaled up	❖ Number of farmers practicing Climate Smart Agriculture per district ❖ Percentage area of agriculture land under CSA per district	❖ Annual reports of Ministry of Agriculture, Animal Industry and Fisheries. ❖ District production quarterly reports.	❖ MAAIF ❖ District Local Governments
2. Climate resilient urban communities and infrastructure To strengthen climate resilience of communities and infrastructure in major urban centres.	Standards and codes of practice for climate-resilient infrastructure developed and adopted	❖ Number and type of urban infrastructure complying with climate resilient standards.	❖ Copies of the standards and codes of practice. ❖ Compliance monitoring reports	❖ MoLHUD. ❖ Urban Authorities
	Enhanced resilience of urban communities and infrastructures	❖ Number of urban centres with climate change master plan developed and implemented for enhancing resilience and mitigation to climate change. .	❖ Copy of urban centre climate change master plan ❖ Annual implementation reports of the urban authorities	❖ MoLHUD ❖ Urban Authorities
3. Hydro-Met services To strengthen hydro-meteorology services	Enhanced weather, climate and hydrological information and early warning systems	❖ Number of timely and accurate weather and hydrological forecasts for the country	UNMA and DWRM records	❖ UNMA. ❖ DWRM
4. Strengthening Institutional Capacities To enhance institutional capacity in climate	Harmonized mechanisms to coordinate and manage climate	❖ Number of institutions with capacity to manage climate change Programs	❖ Annual progress reports at the CCD	❖ CCD ❖ MoFPED

Objectives/Component Investments	Results/Outcomes	Indicator	Means of Verification	Responsibility
change coordination and mainstreaming	change Programs	❖ Percentage growth in internal and external funds for climate change activities		
5. Rural community resilience To build rural community resilience through Integrated and Sustainable Management of Landscapes and Catchments for improved catchment protection, water supply, storage and utilisation	Improved resilience of rural communities to climate change shocks	❖ Percentage change in rural livelihood improvement ❖ Number of rural community's climate change adaptation livelihood improvement programs implemented	❖ Uganda Bureau of Statistics (UBOS) ❖ National Climate Change Actors Landscape	UBOS MWE
INVESTMENT COMPONENTS	OUTCOMES			
1. Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition	1.1 Climate Smart Agriculture approaches scaled up in specific areas in Uganda targeting key agricultural crops and trees (Grains, Oil Seed, Irish Potato, Coffee and Fruit trees)	❖ 250,000 hectares of agricultural land under Climate Smart Agriculture practices, 1,000 km of soil and water conservation bunds/terraces ❖ Mechanized Conservation Agriculture operations developed	Ministry of Agriculture, Animal Industry and Fisheries records	MAAIF
	1.2 Strengthened sustainable rangeland management and improved livestock production systems	❖ Percentage of rangelands under improved pasture management systems ❖ Percentage increment in selective breeding for improved milk production and resilient breeds as a focus on resilience of livestock enterprises	Ministry of Agriculture, Animal Industry and Fisheries records	MAAIF
	1.3 Agricultural insurance schemes and micro-credit schemes for agricultural and pastoral production adopted	Number of farmers adopting agriculture insurance schemes Number of farmers accessing agriculture credits	Ministry of Finance, Ministry of Agriculture, Animal Industry and Fisheries records and Ministry of Trade and Industry records	MAAF
2. Strengthening Climate Resilience of Urban Communities and Infrastructure in Greater Kampala and selected Municipalities in Uganda	2.1 Climate resilience mainstreamed into infrastructure development standards, regulations, processes and	Updated climate-resilient standards adopted for major transport infrastructure and other civil works	Ministry of Lands, housing and Urban development and Ministry of works	Ministry of Lands, Housing and Urban Development

Objectives/Component Investments	Results/Outcomes	Indicator	Means of Verification	Responsibility
	action plans			
	2.2 Awareness and training programs implemented for contractors and regulators	Number of awareness and training sessions for (a) contractors; (b) policy makers Training materials developed	Ministry of Works and Ministry of Lands	Ministry of Lands, Housing and Urban development
	2.3 Improved energy efficiency approaches adopted	Percentage of the urban population using improved/and or alternative energy saving systems	Reports from the selected urban authorities	Ministry of Lands/MoLG
	2.4 Improved waste management approaches adopted	Number of households recycling in selected urban centres	Urban authorities reports	MoLHUD
	2.5 Urban land use planning implemented	Percentage area of urban land under planned development	Urban Authorities reports	MoLHUD
3. Strengthening climate information systems and services	3.1 Strengthened climate and water resources monitoring networks	Number of districts linked to and with operational water resources monitoring capacity	UNMA reports	UNMA
	3.2 Strengthened climate change information and early warning systems supporting timely, user friendly and accurate information	Information crowd sourcing system (two-way communication) established and operational, covering the entire country.	UNMA records	CCD and UNMA
	3.3 Improved community preparedness during extreme events	Number of Districts completing Vulnerability Assessments -Number of districts utilising early warning systems	District records	MWE/OPM
4. Enhancing Institutional Capacity in Climate Change Coordination and Mainstreaming	4.1 Harmonized mechanisms to coordinate and manage climate issues in the country at all levels	Adherence to guidelines for integration of climate change into the sectoral budgets	Budget framework papers	Ministry of Finance, Planning and Economic Development
	4.2 Enhanced CC information access by end users	Number of districts with resource centres		
	4.3 Climate resilience effectively mainstreamed into District Development Plans	At least 50% of DDPs have been mainstreamed with climate resilience considerations	Ministry of local Government reports and District Development Plans	CCD and Ministry of Local Government
	4.4 Strengthened capacity of districts and civil	Demonstrable improvements in district and NGO coordination and organizational	Records at the climate change department	CCD

Objectives/Component Investments	Results/Outcomes	Indicator	Means of Verification	Responsibility
	society to undertake climate resilience	capacity (e.g. statues, # of members represented, mapping of who does what where)		
	4.5 Vulnerability Assessments adopted and implemented at district level	Vulnerability assessments	Reports of vulnerability assessments at district level	District Natural resources offices
5. Integrated and Sustainable Management of Landscapes and Catchments for Improved Livelihoods, Ecosystems and Community Resilience in the Lake Albert, Lake Kyoga and Upper Nile Water Management Zones	5.1 Integrated catchments Management Plans developed and implemented for selected sub catchments	-Integrated catchment management adopted and implemented in selected sites of the Lake Kyoga, Albertine and Upper Nile WMZs -SLM approaches adopted and implemented in the selected sites	Water Management Zones Records	MWE and MAAIF
	5.2 Significant progress in reducing population vulnerability in the three WMZs	Proportion of poor in pilot sites reduced by 10% by 2025 (in accordance with NDP II targets for reduction of rural poverty)	UBOS	CCD
	5.3 Conservation agriculture and sustainable natural resources management scaled- up in pilot sites	Number and percentage of farmers practicing: - Sustainable Land Management - Agroforestry - Community-based NRM - Sustainable forests management - Climate resilient crop varieties Percentage of total land in the WMZs under above practices	District Agriculture records Forestry Records UWA Records	MAAIF, MWE and UWA
	5.4 Major social infrastructure upgraded to climate resilience	Number and type of climate resilient social infrastructure supported by SPCR funds, namely; - Water harvesting - Soil and water conservation structures, -Water storage facilities -Mini irrigation schemes etc.	WMZ records	MWE

Annex 5: Summary of SPCR consultation process, key decisions and minutes

This SPCR has been developed using a participatory approach which began in October 2015 with the scoping and technical missions conducted in March, June and October 2016. Consultative meetings were held with stakeholders from relevant departments and government agencies and development partners, private sector, NGOs, CSOs, NCCPC and NCCAC. List of stakeholders met is given in Annex 5.

1. Scoping mission of October 2015

Key findings and decisions of the mission were that:

- a. Government policies, legislation and sectoral activities are consistent with the objectives of FIP and PCCR which will contribute to climate proofing of the economy and mobilize additional resources.
- b. FIP and PCCR will be implemented by the Ministry of Water and Environment (MWE) through the Climate Change Department and a REDD+ Secretariat which will coordinate all activities.
- c. Both investment plans will be submitted to the November 2016 subcommittees of both the FIP and PCCR. The first joint mission was to be undertaken in March 2016.
- d. The government will communicate to the Climate Investment Funds (CIF) its decision on multilateral development Bank leadership by November 11, 2015 and thereafter commence to the preparation of applications for technical assistance grants.
- e. Record of the minutes of the mission is contained in the Aide – Memoir dated November 10, 2015 and is available at the Ministry of water and Environment as well as with the MDBs.

2. Technical mission of March, 2016

Meetings were held with national level stakeholders, development partners and NGOs. The defined the priorities to be addressed by the SPCR, based on discussions with national level partners and with the FIP preparatory team. It was agreed that further prioritization will take place before the First Joint Mission scheduled for June 2016. It was also agreed that specific support to the areas by either FIP or PCCR or both funds would be determined during the preparation process. Fewer priorities were selected based on criteria discussed and agreed during the mission such as impacts on carbon abatement, poverty and livelihoods, economic and ecosystem benefits. The criteria are aligned to the Government of Uganda (GoU) development and sector policies and plans, as well as the priorities identified by the PCCR to ensure synergies that may lead to joint financing and knowledge sharing.

- a. The following potential thematic areas of investments were agreed upon: Support for integrated watershed/landscape management in two or more priority landscapes with a strong focus on livelihoods and community engagement. Criteria for the selection of landscapes were discussed and agreed during the mission, and the final selection included landscapes in the Albertine Rift, Mt. Elgon and cattle

corridor. GoU indicated it would consider the options further prior to the first joint mission.

- b. Support for private and public investments in efficient timber and fuel wood production and wood and charcoal value chains. This could expand and scale up the successful ongoing initiatives that seek to encourage private sector investment in small plantations and to boost sustainable fuel wood supply, particularly in dry woodland areas in the cattle corridor.
- (iii) Transforming policy implementation performance and effectiveness in the forestry sector including governance, forest monitoring, institutional strengthening, coordination, knowledge management, indicators for forest management effectiveness, FIP monitoring and reporting among others.

3. First Joint Technical Mission of June, 2016

Meetings were held with development partners, NGOs, District Local Government officials, District technical officers and other key stakeholders at the grassroots level in *Mbale, Bududa, Katakwi, Moroto, Gulu, Kiryandongo and Masindi, Mbarara, Rubirizi, Kasese, Fort Portal, Hoima and Masindi*). In addition, the missions visited key pilot programs at the district level and engaged Local Government stakeholders (Annex 5) and obtained their views on challenges and opportunities, and local level actors' priorities in order to inform and shape potential PPCR investment opportunities. Key findings and decisions of the mission were:

- (i) Prolonged droughts are adversely affecting crop and livestock production and dwindling water supply sources.
- (ii) Severe floods are damaging infrastructure and escalating landslides in mountainous areas thus causing land degradation.
- (iii) There were serious human encroachment into forests, wetlands and other fragile ecosystems.
- (iv) There was low institutional capacities – technical, financial and material support; weak institutional coordination, weak implementation of policies and laws.
- (v) A draft of the SPCR was available and outlined the key climate risks, vulnerabilities, impacts and other development challenges, priority thematic areas¹⁴⁷, climate resilience-building opportunities and potential investment areas to be explored in the SPCR. The draft was reviewed by the mission and the mission noted that good progress had been made.
- (vi) The mission agreed that the SPCR will adopt a basin/catchment management approach, within three of the 4 demarcated Water Management Zones /Basins and approved catchment management planning guidelines. Government observed that this approach would benefit from existing stakeholder engagement and institutional arrangements for identifying and planning multi-sectoral and stakeholder investments in sustainable land and water management.
- (vii) The mission confirmed that the thematic areas agreed upon during the scoping and technical missions still remained the key SPCR priorities after consultations and

¹⁴⁷ Agreed Priority SPCR thematic areas are: (i) Climate resilience agriculture; (ii) Institutional strengthening in addressing climate change issues; (iii) Landscapes and catchments; (iv) Hydro-metrological services; and (v) Urban resilience and infrastructure.

field visits. These include: (a) Scaling up of climate resilience agriculture (b) Institutional strengthening for addressing climate change issues (c) Promoting climate resilient approaches to landscape and catchments/watershed management (d) Strengthening hydro-meteorological networks and services and (e) Promoting climate resilient urban development and infrastructure. These priority themes formed the foundation for the proposed SPCR investment projects.

(viii) The mission agreed on indicative investment projects which would be further refined and validated through further wider stakeholder consultations. The priority projects were identified using the following criteria among others: (i) Alignment with national development and sectorial strategies and priorities; (ii) Level of vulnerability of regions and sectors to climate change risks; (iii) Potential for transformational change and for scaling up; (iv) Recommendations from the stakeholders consultations and field visit observations; and (v) Leverage of funding from MDBs and other donors.

(ix) Based on the agreed criteria, seven indicative investment projects were prioritized, with 5 PPCR projects and 2 joint PPCR and FIP projects as given below:

Project 1: Enhancing climate resilient agricultural production and food security (PPCR);

Project 2: Strengthening hydro-meteorology services (PPCR);

Project 3: Enhancing institutional capacity in climate change coordination and mainstreaming (PPCR);

Project 4: Strengthening climate resilience of communities and infrastructure in major urban centres (PPCR);

Project 5: Building rural community resilience through improved catchment protection and water supply and storage (PPCR);

Project 6: Forest watershed/ landscape management and restoration in the Albert Water Management Zone (PPCR and FIP);

Project 7: Sustainable catchment management through integrated land-use to improve forest cover, agriculture production and reduce poverty in the Kyoga Basin and Upper Nile WMZs (PPCR and FIP).

4. Second Joint Technical Mission of October, 2016

Meetings were held with development partners, NGOs and an advance team of MDB staff and consultants who also participated in the national consultation workshop. The objective of the Mission was to support/assist the Government of Uganda in advancing the development of fundable Strategic Program for Climate Resilience (SPCR) of the PPCR using the funding criteria and guidelines. The specific objectives of the Mission were to: (i) refine and finalize the SPCR results framework; (ii) review and refine the concept notes for the SPCR and joint SPCR-FIP investment projects (including components, activities, geographical locations, and estimated cost); (iii) agree on institutional and coordination arrangements for implementation of the SPCR and joint SPCR-FIP investment projects; (iv) agree on financing options for implementation of the SPCR and joint SPCR-FIP investment projects, including financing through the CIF, and other climate change funding mechanisms including the Green Climate Fund (GCF), bilateral programs, Government resources and the private sector; (v) refine the SPCR document with updated information and agreed actions; and (vi) update the roadmap for finalization and submission of the SPCR to the CIF-AU. The key findings were:

- Significant progress had been made in the preparation of the SPCR document and the 3rd draft was shared with the stakeholders for review and comments.
- Provisionally, the SPCR implementation will cost US\$ 200 million, with possible financing anticipated through various sources including US\$70 million grant contribution from CIF (if funds are made available); USD100 million from GCF to be requested; and co-financing to be estimated from Government, multilateral, bilateral, private and NGO partner sources.
- Stakeholder engagements and consultations were on-going and the mission found that consensus and broad support was emerging regarding the identified SPCR investment areas as aligned to Uganda's Vision 2040, NDP II, National Climate Change Policy, Nationally Determined Contribution, and key sector strategies.
- Policy and Planning Department of the MWE and the Forest Sector Support Department, the national focal points for the respective programs, were collaborating with CCD that was spearheading the SPCR preparation.
- Through consultations, synergies and potential investment actions had been identified between the SPCR and FIP in relation to resilient landscapes and watershed management, charcoal value chains and cooking energy demand in urban environments, and institutional capacity building, governance and transparency.

The major decisions were:

- **Submission of final SPCR:** It was agreed that the SPCR will be formally submitted to the CIF-PPCR sub-committee for discussion at the June 2017 meeting, and that a request will be made to the CIF-AU to schedule a progress report presentation by the Government at the December 2016 PPCR Sub-Committee meeting.
- **Joint FIP and SPCR Projects:** The Mission and the Government agreed that the two projects identified by stakeholders during the June 2016 Joint Mission (i) Forest watershed/ landscape management and restoration in the Albert WMZ (ii) Sustainable catchment management through integrated land use to improve forest cover, agriculture production and reduce poverty in the Kyoga Basin and Upper Nile WMZs which have both SPCR and FIP implementation components, will be reflected accordingly and be identical in both the SPCR and the FIP IP. In addition, the two technical teams (drafting the SPCR and the FIP IP) will work together on developing a single capacity building project that encompasses capacity development and policy work required under both plans.
- **Cross-cutting issues:** The Mission and the Government noted the need to incorporate the cross cutting issues of gender, health, and the role of non-state actors, as well as sectoral issues related to fisheries. In addition to reflecting the inputs received during the mission including updates to the investment concept notes and the results framework, the Mission and the Government agreed that the CCD will convene a workshop of all relevant stakeholders at the end of January 2017 to further refine and finalize the SPCR before submission.

- **Further consultations:** There was need for further consultations with relevant ministries and departments to firm up the investment programs/projects and to solidify buy-in and ensure long term sustainability of the program.
- **SPCR strategic pillars:** The Government and the MDBs agreed on the three strategic pillars (SP) underlying the SPCR investments: (i) Catalysing investments for improved rural resilience and food security (SP1); (ii) improving resilience of urban communities and infrastructure (SP2); and (iii) Strengthening the capacity to manage climate variability and change (SP3). The three SPCR strategic pillars are based on the five priority thematic areas identified by stakeholders.
- **Institutional arrangements for implementing the SPCR:** The Mission and the Government agreed on an overall implementation architecture involving (a) oversight by the Policy Committee on Environment (PCE) at the Cabinet level, (b) while at the implementation level, oversight and coordination will be done by the National Climate Change Advisory Committee (NCCAC), and (c) the Project Management Units (PMU) in coordinating departments or ministries will implement the investment programs. In consonance with the National Climate Change Policy, MWE's CCD will be responsible for inter-project coordination, monitoring and reporting for the entire program.

As SPCR is a major contributor to Uganda's national Climate Change Program, its funding shall be part of the country's overall long-term financing framework for climate action. A joint mission will take place in February 2017 to review and finalize the SPCR document followed by a final internal review and approval within the Government which will include a final national validation workshop.

5. National and Regional Consultation meetings

National and regional level consultations were held in October and November, 2016 with officials from relevant government departments, agencies, development partners, private sector players, NGOs, CSOs, academicians and multilateral and bilateral development agencies working in Uganda. Five national level stakeholder consultative meetings were conducted on 4th October in Mukono and three in Kampala. The meeting held on 6th October 2016 was attended by the members of the Technical Planning Committee of the Strategic Plan for Climate Resilience. On 25th October 2016 a special meeting was organized for the members of the National Climate Change Advisory Committee. The last national level consultative meeting was organized for Members of Parliament in Entebbe on 13th January 2017.

5.1 National Consultations

The following is a summary of key suggestions from national level consultations: SPCR was considered a great input to the efforts of Uganda to address climate change issues and move towards achieving its vision. Stakeholders agreed on the priority themes which informed the choice of investment projects and formulation of the strategic pillars (SP1-SP3) presented in Section 7.2. The following specific comments were made on the projects:

Project 1- Enhancing Climate Resilient Agricultural Production and Food Security

- a. Amend the title of Project 1 to “Scaling up Climate Smart Agricultural approaches in specific areas in Uganda targeting key agricultural crops” as CSA is already being undertaken and requires scaling up. However, the SPCR drafting team has used the above project title as it integrates the CSA scaling up and food production.
- b. Agricultural insurance needs further investigation because the concept of agricultural insurance is not fully understood and very much doubted. The premium charged for agricultural insurance may be high and farmers may not afford it.
- c. For CSA (i) the geographic areas of “action” can include grain in the mid-west, oil seed in the north, fruit trees in the east, Irish potatoes in south west, coffee in central, and range lands in the cattle corridor, especially in the north east (ii) project design is appropriate, provides sufficient details needed to achieve the objectives. USD 80 million is estimated for this project.
- d. There is need for an institutional baseline survey, e.g. farmer forums, to assess what exists, what has been done, and capacity gaps.
- e. There is a need for a risk resilience bank for the untamed shocks from climate. This will transfer risks to another bank and reduce the effects of risks.
- f. Biogas technology is a promising area that could be useful in this project to improve agricultural systems.

Project 2: Strengthening Rural Community Resilience through Improved Catchment Protection and Enhanced Water Supply and Utilization

The stakeholders proposed the adjustment of the project title to “Building the resilience of rural communities through improved catchment protection and enhanced water supply, storage, and utilization.” They also recommended formation of a steering committee to guide the project and the activities should be mainstreamed into the existing institutional arrangements. The following were identified as critical challenges to be addressed: degraded forests; population vulnerable to landslides and the magnitude of vulnerability. In addition the following were suggested: construction and expansion of gravity flow schemes for provision of water for domestic use and water for production and inclusion of Agoro hills in the project alongside Rwenzori Mountains and Mt. Elgon. The estimated project cost was USD 60.5 million.

Project 3: Strengthening Climate Resilience of Communities and Infrastructure in Major Urban Centres

Stakeholders observed that:

Guidelines for urban waste removal are currently lacking and should be developed so that households move away from dumping waste to recycling and re-use. The project should plan where there are no guidelines, develop and implement the plans.

The issue of water ways and drainage systems was not discussed in relation to urban resilience. However, municipal development strategies will help scale up urban resilience.

There is a need to review the activities under climate change development strategies with a view to climate proofing them, implementing and integrating infrastructure strategies. In addition, there is a need to develop city specific urban climate resilient action plans. Most of Uganda's development plans are drawn from fiscal planning guidance and this will change because there is new information on climate proofing. Other suggestions were:

- Develop regulations for physical infrastructure for buildings/structures (not limited to public buildings).
- Because we have that inter- and intra-impact of development, the program should not be action oriented only in places where there are problems such as in slums, but should also involve areas outside of these critical areas. Therefore, the action plan should be complemented by neighbourhood planning.
- Development of integrated climate resilient transport master plans for the remaining urban areas.
- Develop building and construction codes/guidelines that are climate proof.

Project 4 – Strengthening hydro-meteorology and early warning systems

The project was regarded as very important and interdisciplinary and multi-sectoral approach should be used to design it. The project should be implemented by UNMA in conjunction with DWRM, MAAIF, MEMD, DLGs, Cultural institutions, and international agencies such as World Meteorological Organization (WMO). Other suggestions were:

- a. Expand, upgrade, and strengthen surface and sub-terrain observation networks (telemetric/near-time).
- b. Enhance information reception system and establish a robust meteorological data archiving and management system.
- c. Strengthening capacity in modelling, forecasting, and early warning:
- d. Strengthening communication and information dissemination: dissemination and utilization of weather and climate information; also build capacity of users to internalize and utilize this kind of information.

Project 5: Enhancing Institutional Capacity in Climate Change Coordination and Mainstreaming

It was noted that the SPCR is multi-sectoral in nature both at the national and local government levels. The National Climate Change Advisory Committee would be the appropriate structure to coordinate the SPCR in line with its mandate under the NCCP. Issues above the mandate the committee shall be handled by the Climate Change Policy Committee.

Some of the key institutions to be included in the project are: MICT and NITA-U as they are in charge of connectivity and ICT development. UBOS should also be included because they are in charge of data collection and management and would be useful in expanding knowledge management systems. The OPM should also be involved because of the mandate and role in coordination and implementation of climate change programs.

The National Planning Authority (NPA) is important because of the effort to mainstream climate change into the national development plan. It is also important to incorporate these issues into the long term planning of the country. MGLSD should be involved because of its role in community development and sharing of knowledge through the districts. UNMA should be a key partner because of its role in collecting climate change information and collaboration with research institutions such as MUCCRI.

5.2 Civil Society Consultations

Specific consultation meetings were held with civil society organisations. The first for national level CSOs that included the academia and selected local CBO representatives was held on 5th October 2016 and the second on 1st December, 2016 (list of participants is given in Annex). Members of the civil society noted that this was a very important and strategic Program and suggested ways in which they could contribute to the success of SPCR including improvement of the projects.

They suggested that civil society could contribute in terms of:

- Creating public awareness of the program to enhance buy in (popularizing the Program) for community members/ stakeholders
- Advocacy, community mobilisation
- Participation in strengthening documentation, communication and information dissemination as well as in end user extension activities.
- Resource mobilization
- Domesticating the Program, and Participating in research
- Facilitating use of indigenous knowledge in creating resilient communities.
- Use of community based adaptation approaches in creating climate resilient communities could be included especially in Project 1.
- Supporting innovations such as small scale irrigation projects, water harvesting and energy harvesting e.g., affordable wind power where feasible, and support climate information dissemination.
- Consider incorporating promotion of markets and value chain systems of key agricultural crops/ enterprises and mainstreaming gender.
- Under Urban resilience, consider the existing KCCA waste management strategy and identify the gaps in the strategy rather than develop a new one. Empower the village health teams to enforce proper waste disposal
- Realign drainage master plans to accommodate climate proofing and future climate impacts
- The country should seriously consider development and enforcement of zoning guidelines or rules. Floodplains and wetlands should not be used for road construction or establishment of settlement. This should include enforcement of wetland policy
- Communication towers should be removed from human settlement areas because there is scientific evidence that they cause cancer.
- Capacity building needs assessment should be part of the analytical studies on climate resilience. The Program should target strengthening human resource for coordination of climate change at district level (focal persons or officers) as well as Establishment of mechanisms for information flow (dissemination and feedback).

- Key players should include media, Research Institutions like Makerere University, CSOs like PELUM to support dissemination of indigenous knowledge, and the private sector can do – information dissemination as well as support M&E.
- Hydro-Met should be linked to agriculture and the end-users should receive reliable market information per agricultural Zone. On capacity building, this should lead to effective District Climate Change Information Centres/ Resource Centres.
- SPCR investment projects should be more effective, there should be representatives of the civil society on the national steering committee.
- The Program implementation should engage the production offices at the District Local Governments and the community; and also should ensure engagement of CSOs at all levels of project cycle in all components. The Program should utilize some of the CSO structures on ground to implement interventions. This could help to strengthen traditional community based resources users associations as well.
- On urban resilience, there should be deliberate efforts towards greening the infrastructure for example the buildings, petrol stations.
- Design and construction of infrastructure using innovative and efficient technologies that allow use of clean renewable energy. There should be garbage sorting to isolate biodegradable materials, step up awareness creation, promote electronic waste management systems and promote waste management Programs in schools. Lastly, promote under-ground electricity cabling technologies in-stead of over-head electricity wires.

5.3 FIP – PPCR Consultation Retreat

A two-day FIP-PPCR retreat was held on 31st October and 1st November to discuss the harmonization of joint project activities between the FIP and PPCR as per the two Aide memoirs (Para.17 of the FIP aide memoir and Para 23 of the PPCR Aide memoir). Discussions focused on the joint projects as well as on the issues of capacity building interventions (whether or not the interventions can be delivered through a single joint PPCR/FIP project).

It was noted, after extensive discussions that the two landscape projects; (Forest watershed/ landscape management and restoration in the Albert WMZ; and, Sustainable catchment management through integrated land use to improve forest cover, agriculture production and reduce poverty in the Kyoga Basin and Upper Nile WMZs) can and should be formulated into a joint FIP/PPCR project. The issues included which title, possible components, and themes and implementation modalities. The following sections offer a brief on the outcomes of the discussions.

The joint project title was modified as “*Integrated and sustainable catchment and landscape management for improved livelihoods, ecosystems and community resilience*”

The following were proposed as the justification/rationale for a joint project

- i) FIP and PPCR support complementary actions.
- ii) Promote synergies between FIP and PPCR for efficiency and effective delivery of the goal and objectives of FIP and PPCR.
- iii) Demonstrate both mitigation and adaptation/resilience activities for (article 5 par 2 Paris Agreement).
- iv) Demonstration of donors and other stakeholders collaboration at landscape level
- v) Focus on the same WMZ/landscapes, Local Governments and stakeholders.

- vi) The project would use and build on existing institutional structures.
- vii) Both proposals stand chance to have stronger case before mobilizing financial resources if demonstrate collaborative/joint actions.

5.4 Regional Consultations

Four regional stakeholder consultative meetings were held throughout the country. The first regional consultative meeting was held on 15th November 2016 in Mukono and was attended by officials from local governments of 20 districts from central Uganda. The second regional stakeholder consultative meeting was held in Mbale on 17th November 2016 and was attended by local government officials and officials from 20 districts in eastern Uganda. The 3rd regional stakeholder consultative meeting was held on 18th November 2016 in Gulu and was attended by local government officials and government officials from 20 districts from northern Uganda. The 4th and the last stakeholder consultative meeting was held on 22nd November 2016 in Fort portal and was attended by local government officials from municipalities and districts government officials from 20 districts from western Uganda. Regional stakeholder consultative meetings were also attended by local community leaders, non-governmental organisations and community based organizations from the respective regions. The objectives of the stakeholder consultative meetings were to:

- a. Provide information to stakeholders on the SPCR preparation process and brief them on the stage of development.
- b. Present to the stakeholders proposed investment projects and obtain feedback on the soundness and appropriateness of the proposed investment projects.
- c. Get the opinions of the stakeholders on the projects as part of their inputs into the proposed investment projects.
- d. In view of their local knowledge, stakeholders identify appropriate district and regional locations for the proposed investment projects.
- e. Validation of the SPCR as part of build-up to finalization of the SPCR and preparation for formal submission of the SPCR to the CIF-AU.
- f. There was a strong support for improvement of charcoal production to reduce degradation of woody biomass and promotion of a realistic rural electrification program. Other suggestions were:
 - Need to implement by-laws and ordinances on environment and natural resources management.
 - Promotion of massive tree planting on public land and bare hills
 - Reduction of emissions from transport sectors most especially in urban centres
 - Mapping for ecosystems management, management planning at ecosystems level
 - Formulation of strategy for forest establishment at sub county level using indigenous trees
 - Promotion of wind mills for generation of energy
 - Carrying out baseline survey in the entire country on most of the issues to be addressed. Setting up of coordination committee at district level comprising Production Officer, Environment Officer, Forestry officer, Natural Resources Coordinator, Water Officer, NGO and CSOs involved in climate change activities and Secretary for Production and Natural Resources of the District Council.
 - Urban resilience a strategy should be developed to support tree planting along avenues and streets

- Change min set on garbage management
- Re-introduce peri-urban forest plantations
- Avoid selective application of the law e.g. on wetland management
- Re-emphasizing the need to bring political leaders on board in SPCR formulation processes.
- Urban centres to establish wetland management plans

Detailed reports of the stakeholder consultative processes are available on the Uganda Climate Change Department Website.

5.3 National Climate Change Advisory Committee Meeting for the Approval of the SPCR–April, 27th, 2017

Following the numerous consultations the SPCR was approved covering the period 2018 – 2025, when it was presented to the National Climate Change Advisory Committee (NCCAC) on 27th April 2017 for approval. Also presented was the Forest Investment Plan (FIP). The list of participants to the approval meeting is given in Table 39. The participants unanimously endorsed the SPCR and the FIP documents for submission by Government of Uganda to the CIF.

Annex 6: List of participants consulted during SPCR preparation

Table 26: List of stakeholders met (Scoping Mission; 19th- 23rd October, 2015)

No	Name	Institution
1	Alex B. Muhweezi	Technical advisor RED+ secretariat, Ministry of Water and Environment
2	Angella Rwobutomize	Environment and Natural resource Desk officer , MFPED
3	Caren Blume	Deputy head of corporation, Embassy of the Federation Republic of Germany
4	Charles Ngeye	Senior Engineer Ministry of local government
5	Charles Walaga	Executive director, Environmental Alert
6	Chebet Maikut	Commissioner, Climate Change Department Ministry of Water and Environment
7	Christopher Tumusiime	Assistant Commissioner, Rural Water Supply, Ministry of Water and Environment
8	Collins Oloya	Commissioner Wetlands
9	David, O.O, Obongo O.O	Permanent Secretary Ministry of water and Environment
10	David Wanlgene	Secretary General Uganda forestry Association
11	Disani Ssozi	Commissioner, Aid Liaison Department, Ministry of Water and Environment
12	Dr Callist Tindimugaya	Commissioner, Water Resources Planning and Regulation. Ministry of Water and Environment
13	Emmanuel Zziwa	National consultant- Climate Change adaptation, Food and Agriculture Organization of the United Nations
14	Eng. Richard Cong	Commissioner, Water for Production Ministry of Water and Environment
15	Ezera Rubanda	Head of Trade UNCCI
16	Fredrick Matyama	Assistant Commissioner, Infrastructure and Social Services Department
17	Gaster Kiyingi	National Program Manager Tree Talk Plus
18	Gertrude K Kenyangi	Observer for Africa on FIP, Support for Women in Agriculture and Environment
19	Godfery Lutwama	Program Assistant Environmental Alert
20	Harriet Nantabi	Water and Sanitation Specialist, Water and Sanitation Program
21	Henry M Baziira	Executive Director, Water Governance Institute
22	James Kawesi	Assistant Commissioner, policy and Planning, Ministry of water and Environment
23	John Begumana	MRV specialist REL team, Food and Agriculture Organization of the United Nations
24	Joseph Epitu	PTO/MWE Ministry of Water and Environment
25	Julian Basunpi	Research Associate ACODE
26	Katebaka Raymond	African union, conservationists
27	Kavutse Dominic	Commissioner Urban Water and Sewerage Services, Directorate of water Department, Ministry of Water Environment
28	Koma Stephen	Ag. Assistant Commissioner Ministry of local government
29	Luisama Gostroy	Program Officer Environmental Alert
30	Margret Adata	Commissioner FSSD/MoWE
31	Lawrence K Kiiza	Director, Economic Affairs MPED
32	Margret Athieno Mwebasa	Assistant Commissioner, National Focal Point REDD+ , Ministry of Water and Environment
33	Maris Wanyera	Commissioner Aid liaison Department Ministry of Finance, Planning and Economic Development
34	Masaba Andrew R.K	Senior Economist, Development Assistance And Regional Cooperation
35	Moses Nyango	REDD+ Senior officer, Wildlife Conservation Society
36	Muhammad Semambo	Senior Climate Change Officer-Climate Change Department, Ministry of

		Water and Environment
37	Nankya Harriet	Senior Forestry Officer, Ministry of Water Environment
38	Okwii David	Economist, Planning and Economic Development
39	Paul Isabirye	Head of Uganda Metrological Agency
40	Paul Mafabi	Director, Directorate, Ministry of Environmental affairs, Ministry of Water and Environment
41	Poline Natongo	Executive Director , ECO TRUST
42	Randole Annet Balensa	Manager Care
43	Rebecca Nabatanzi Sierwanga	Research Associate IITA -Uganda
44	Richard Sandall	Private Sector Development Adviser, Department of International Development Ukaid
45	Ronald Kaggwa	Principal Environmental Economist ,National Environment Management Authority
46	Samuel Otubo	Commissioner, Policy Planning, Ministry of Water and Environment
47	Sergio Innocente	Food and Agriculture Organization -TA. Ministry of Water and Environment
48	Simon Nampindo	Country Director, Wildlife Conservation Society
49	Sophie Kutegeka	Acting Head of Office - International Union For Conservation of Nature
50	Valence Arineitwe	Senior Forest Officer, Ministry of Water and Environment
51	Xavier Nnyindo Mugumya	Climate Change Coordinator Alternate National Focal Point REDD+ National Forest Authority

Table 27: List of stakeholders met (Joint Mission; 16th - 24th March, 2016)

No.	Name	Title and Institution
1	Hon. Prof. Ephraim Kamuntu	Minister, Ministry of Water and Environment
2	Chebet Maikut	Ag. Commissioner, Climate Change Department, Ministry of Water and Environment
3	Callist Tindimugaya	Commissioner, Water Resources Planning and Regulation, Ministry of Water and Environment
4	David Okwii	Economist, Ministry of Finance, Planning & Economic Development
5	Margaret Adata	Commissioner, FSSD / MoWE
6	Margaret Athieno Mwebesa,	Assistant Commissioner, National Focal Point for REDD+, Ministry of Water and Environment
7	Muhammad Semambo	Senior Climate Change Officer – Adaptation, Climate Change Department, Ministry of Water and Environment
8	Paul Mafabi	Director, Directorate of Environmental Affairs, Ministry of Water and Environment
9	Paul Isabirye	Director, Networks and Observations, Uganda National Meteorological Authority
10	Samuel Otuba	Commissioner , Policy and Planning, Ministry of Water and Environment
11	Xavier Nyindo Mugumya	Climate Change Coordinator, Alternate National Focal Point for REDD+, National Forestry Authority
12	Annunciata Hakuza	Senior Agriculture Economist, Ministry of Agriculture, Animal Husbandry and Fisheries
13	Sunday Mutabazi	Commissioner and Head of MAAIF Climate Change Task Force
14	Consolate Nakyagaba Kiyingi	Manager, Risk & Quality Assurance, Directorate of Internal Audit, KCCA
15	John Paul Sajjabi	Manager, OHS, KCCA
16	Edison Masereka	Manager, Business Development and Research, KCCA
17	Najib Banteganya	Manager, Environment, Climate Change, Waste & San., KCCA
18	Kajara Janet	Strategy Officer, KCCA

19	Nyamatte Damalie	Research Officer, KCCA
20	Angufaru Monica	Program manager/ CARE
21	Emma Goring	Operations Officer, Whave Solutions,
22	Adam Harvey	Director, Whave Solutions
23	John B. Kaddu	Professor of Zoology, Makerere University
24	Kibaya Patrick	Uganda Chartered Heathers, CHAI
23	Jalia Kobusinge	Operations Advisor, Sustainable Development, European Union
24	Kennedy Igbokwe	Project Manager, Global Climate Change Alliance, Food and Agriculture Organization of the United Nations
25.	Maris Wanyera	Commissioner, Aid Liaison Department, Ministry of Finance, Planning and Economic Development (MoFPED)
26.	Andrew Masaba	Senior Economist, Climate Change Desk Officer, MOFPED

Table 28: List of stakeholders met ((National Level – Joint Mission; June, 2016

No.	Name	Institution /Title
1	Hon. Prof. Ephraim Kamuntu	Minister, Ministry of Water and Environment
2	David O.O. Obong	Permanent Secretary, Ministry of Water and Environment
3	Paul Mafabi	Director, Directorate of Environmental Affairs, MWE
4	Chebet Maikut	Ag. Commissioner, Climate Change Department, MWE
5	Samuel Otuba	Commissioner, Policy and Planning, MWE
6	Margaret Adata	Commissioner, FSSD / MWE
7	Margaret Athieno Mwebesa	Assistant Commissioner, National Focal Point for REDD+, MWE
8	Mark Infield	Technical Adviser to Directorate of Environmental Affairs, MWE
9	Muhammad Semambo	Senior Climate Change Officer – Adaptation, Climate Change Department, MWE
10	Paul Isabirye	Director, Networks and Observations, Uganda National Meteorological Authority (UNMA)
11	Xavier Mugumya	Climate Change Coordinator, Alternate National Focal Point for REDD+ , National Forestry Authority;
12	Alex Muhweezi	Technical Advisor, REDD+ Secretariat, MoWE
13	Issa Katwesige	Senior Forestry Officer, FSSD / MWE
14	Bob Kazungu	Senior Forestry Officer, FSSD / MWE
15	Bruno Okwir	Plantation Manager, National Forestry Authority
16	Tom Rukundo	Environment Impact Assessment, National Forestry Authority
17	Sunday Mutabazi	Commissioner and Head of MAAIF Climate Change Task Force
18	Annunciata Hakuza	Senior Agriculture Economist, MAAIF
19	Stephen Muwaya	SLM National Program Coordinator, MAAIF
20	John B. Kaddu	Professor of Zoology, Makerere University
21	Kibaya Patrick	Uganda Chartered Heathers, CHAI
22	Jalia Kobusinge	Operations Advisor, Sustainable Development, European Union
23	Kennedy Igbokwe	Project Manager, Global Climate Change Alliance, Food and Agriculture Organization of the United Nations
24	Bakiika Robert	Deputy Executive Director, Environmental Management for Livelihood Improvement Bwaise Facility (EMLI)
25	Bbosa Henry	Senior Climate Change Officer International Relations, Climate change Department, MWE
26	Patricia Roy Akullo	Action Aid-Uganda
27	Stella G. Lutalo	Country coordinator, Participatory Ecological Land Use Management (PELUM)

28	Anthony Wolimbwa	RDCO-Climate Change Action Network Uganda
29	Susan Nanduddu	African Centre for Trade and Development
30	Abubaker Wandera	UNDP Small Grant Program
31	Hadad Kavuma	Environmental Management for Livelihood Improvement Bwaise Facility (EMLI)
32	Sergio Innocente	Technical Advisor, FAO-REDD+ at the FSSD
33	Christopher Besacier	FAO/Forest Land Restoration Mechanism
34	Faustine Zoveda	FAO/Forest Land Restoration Mechanism
35	Polcarp Mwima Musimo	Program Officer, Forests, IUCN-Uganda Country Office
36	Cotilda Nakyeyune	Program Officer, IUCN- Uganda Country Office
37	Sandra Amongin	Program Officer, Forests-IUCN
38	Martin Fowler	Agricultural Adviser, USAID
39	Robert Senkungu	Environment Program Management Specialist, USAID
40	J. Ashley Netherton	Natural Resources Officer, USAID
41	Dr. Simon Byabagambi	Agronomist/ Program Management Specialist, USAID
42	Kevin Namulembwa	Agribusiness Specialist, USAID

Table 29: List of stakeholders met ((District Level – Joint Mission; June, 2016

NO.	NAME	TITLE	ORGANIZATION	CONTACT
MBARARA District				
1	Kyaligonza Herbert	NFA Plantation Manager	NFA	0772-613364
2	Tumwesigye Robert	Senior Agric. Officer/Mbarara	Mbarara District	0782-609981
3	Tusiime Frank	DFO	Mbarara District	0772-551151
4	Musingwire Jeconious	DNRO SES/RWIZI CMC Focal Nema	Mbarara	0772-482352
5	Francis Ojara	Climate Change Officer	CCD/MWE	0772-689374
6	Faith Bagandunda	Public Health Specialists	MWE (TSU 8)	0778-983539
7	Mutabazi Hillary	BM/WSDF-SW	WSDF-SW	0772-527785
8	Rukundo Tom	EIARI	NFA	0772-591205
9	Richard Musota	Team Leader	VWMZ/DWRM	0772-520966
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21	Maguzu Patrick	Forest Worker	NFA	0774-150838
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25	Silagi Magyezi	Patrolman, Rwoho	NFA	0750-938701
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34	Rhoda Tuhimbisibwe	Treasurer	SWAGEN	0759-831569
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2	Akareut Esther	Assistant Lecturer	NFC	0779229285
3	Akera Anania Christopher	Senior Lecturer	NFC	0772891396
4	Godfrey Nabona	Principal Lecturer	NFC	002560/752318116
5	Bob Kazungu	Senior Forest Officer	MWE/FSSD	0782712196
6	Kisakye Richard	Acting Deputy Principle	NFC	0772335978
7	Nasta Babirye	Academic Registrar/ Lecturer	NFC	0772316213
8	Mwodi Martin Kegere	Range Manager	NFA BUDONGO	0781519433/ 0776931705
9	Komaketch Julius Peter	Senior Instructor	NFC	0775226276
10	Ahimbisibwe Ambrose	Lecturer	NFC	077501766
11	Levi Etwodu	Director Natural Forests	NFA	0772581494
12	Chebet Maikut	UNFCCC NFP/Commissioner	MWE/CCD	0772409414
13	Katuhaise Godfrey	Lecturer	NFC	0779710071
14	Bruno Okwir	Plantation Manager	NFA	0772153779
15	Kabaireho Moses	Sector Manager/ Budongo	NFA	0772932336
MASINDI – KINYARA SUGAR FACTORY				
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MASINDI ECO-TRUST				
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3	Adrine Kirabo	Program Coordinator	Eco-trust Masindi	0774-087452
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6	Mugisa Geoffrey			0777-608096
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Hoima				
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Nakasongola District				
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Global Woods – Kikonda CFR				

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KASESE DISTRICT				
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KABAROLE DISTRICT				
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RWENZORI COMMODITIES				
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RUBIRIZI DISTRICT				
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5	Agaba Patriot Aggrey	SEO	RDLG	0752-671528
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Mabira Forest Ecosystem				
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25	Apolot Elizabeth	DNRO	Katakwi	0772372389
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27	Olinga John	AO	Moroto DLG	0785660696
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29	Patrick Loke	Economist	Moroto DLG	0772713722
30	Dr Elanyu Sam	VO	Moroto DLG	0772996892
31	Lotyang John	DNRO	Moroto DLG	0782740147
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38	Okot Francis	DAO	GDLG	0788508169
39	Aker John Bosco	DCAO	GDLG	0772612667
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52	Akareut Esther	Ass Lecturer	NFC	0779229285
53	Akera Anania Christopher	Senior Lecturer	NFC	0772891396
54	Godfrey Nabona	Principal Lecturer	NFC	002560/752318116
55	Bob Kazungu	SFO	MWE/FSSD	0782712196
56	Kisakye Richard	Ag Deputy Principal	NFC	0772335978
57	Nasta Babirye	Academic Registrar/ Lecturer	NFC	0772316213
58	Rukundo Tom	EIARS	NFA	0772591205

59	Mwodi Martin Kegere	Range Manager	NFA BUDONGO	0781519433/ 0776931705
60	Komaketch Julius Peter	Senior Instructor	NFC	0775226276
61	Ahimbisibwe Ambrose	Lecturer	NFC	077501766
64	Levi Etwodu	Director Natural Forests	NFA	0772581494
65	Chebet Maikut	UNFCCC NFP/Commissioner	MWE/CCD	0772409414
67	Katuhaise Godfrey	Lecturer	NFC	0779710071
72	Vera Oling Kintu	Senior Macro Economist	AFDB	0772454701
73	Bruno Okwir	P/ Manager	NFA	0772153779
74	Kabaireho Moses	Sector Manager/ Budongo	NFA	0772932336

Table 30: List of stakeholders met (Second MDBs Joint Mission; 10-14 October, 2016)

NO	NAME	INSTITUTION	DESIGNATION
1.	Hon. Dr. Mary Goretti Kitutu	Ministry of Water and Environment	State Minister for Environment
2.	Mr. Charles Esimu Okuraja	Ministry of Water and Environment	Undersecretary(Representative of the Permanent Secretary)
3.	Mr. Paul Mafabi	Ministry of Water and Environment	Director Environment Affair
4.	Mr. Chebet Maikut	Ministry of Water and Environment, Climate Change Department	Ag. Commissioner Climate Change Department/PPCR Focal Person/ UNFCCC NFP
5.	Mr. Samuel Otuba	Ministry of Water and Environment	FIP Focal Point
6.	Mr. Godfrey Mujuni	Uganda National Meteorological Authority (UNMA)	Manager
7.	Mr. Leo Mwebembezi	Directorate of Water Resources Management	Principal Water Officer
8.	Ms. Margaret Athieno Mwebesa	Ministry of Water and Environment,	Assistant Commissioner, National Focal Point for REDD+, MWE
9.	Mr. Muhammad Semambo	Climate Change Department MWE	Senior Climate Change Officer – Adaptation/
10.	Mr. Bob Natifu	Climate Change Department MWE	Principal Climate Change Officer
11.	Mr. Stephen Muwaya	Ministry of Agricultural Animal Industry and Fisheries	SLM National Program Coordinator.
12.	Ms. Damalie Nyamatte	Kampala Capital City Authority	
13.	Eng. Richard Cong	Ministry of Water and Environment	Commissioner Water for Production
14.	Ms. Atuhaire Evelyn	Ministry of Water and Environment, FSSD	Economist
15.	Mr. Mark Infield	Ministry of Water and Environment	Technical Advisor, Directorate of environment affairs
16.	Mr. Alex Muhwezi	Forestry Sector Support Services	Local Technical Advisor (FIP/REDD+)
17.	Mr. Valence Arinaitwe	Forestry Sector Support Services	Senior Forestry Officer
18.	Mr. Issa Katwesige	Forestry Sector Support Services	Senior Forestry Officer
19.	Mr. Martin Ojok	Ministry of Water and Environment, Climate Change Department	Climate Change officer Adaptation
20.	Mr. Xavier Nyindo Mugumya	National Forestry Authority	Climate Change Focal Person/Alternate National REDD+ Focal Point
21.	Robert Bakiika	Deputy Executive Director EMLI	Environment management Livelihood improvement
22.	Mr. John Diisi	NFA	Coordinator GIS
23.	Mr. Kapere Richard	Uganda Wild life Authority	Planning Coordinator/ Climate Change Focal Point

24.	Mr. George Kaija	WWF	Forest Governance Officer
25.	Mr. Bintoor K Adonia	UWA	Senior Manager CBWE
26.	Grit Techel	FAO	Consultant
27.	Dr. Callist Tindimugaya	Ministry of Water and Environment	Commissioner Water Resources Regulation
28.	Ms. Cortilda Nakyeyune	IUCN	Senior Program Officer
29.	Ms. Tasila Banda	UNDP	Technical
30.	Mr. Sebuyira John	Ministry of Lands Housing and Urban Development	Principal Urban Development Officer
31.	Sergio Innocente	FSSD	Technical Advisor, FAO-REDD+ at the FSSD
32.	Faustine Zoveda	FAO	FLR Mechanism
33.	Mr. Dennis Kavuma,	Uganda Timber Growers Association	General Manager
34.	Mr. Andrew Masaba,	Ministry of Finance	Senior Economist, MOFPED
35.	Mr. Samson Muwanguzi,	Ministry of Finance, MOFPED	Ministry of Finance, MOFPED
36.	Mr. John Ogol	Ministry of Finance	Assistant Commissioner, MOFPED
37.	John Begumana,	FAO/FSSD-REDD+	GIS Specialist, FAO
38.	Simon Hughes	Hatfield Consultants Ltd	Consultant

Table 31: Participants at the National Consultation workshop; 4th October, 2016; Colline Hotel, Mukono

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Table 32: Participants at the Civil Society Organizations Consultative Meeting – October, 5th, 2016; NWSC Conference Hall, Kampala.

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14	Dylis Ndibaisa	A Rocha Uganda	Research & Conservation Officer	782-736418
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17	Ingrid Aringaniza	GWOPAYA	P.R.R	706-557064
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40	Benard Namanya	BNB Advocates	Legal Consultant	772-438417

Table 33: Participants at the Regional Consultation workshop for the Central Region held on 15th November at Colline Hotel, Mukono.

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4. SEMBABULE DISTRICT

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17. KALANGALA DISTRICT

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19. BUVUMA DISTRICT

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Table 34: Participants at the Regional Consultation workshop for the Eastern Region held on November, 17th, 2016; at Mt. Elgon Hotel, Mbale.

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9. KAPCHORWA DISTRICT

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14. LUUKA DISTRICT

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15. JINJA DISTRICT

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Desgination</i>	<i>Email/Contacts</i>
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2.	Gidina Hassan	Soft Power Education	Communication Officer	0753615713
3.	Nassolo Dorah	Arise And Shine Uganda	CSO Representative	S0757056278
4.	Waibuga Sharif	Water Mission	CSO Representative	sharifa@gmail.com 0781571494
5.	Magona Musa	Josnet	Coordinator	kimstech@rocketmail.com

16. JINJA MUNICIPALITY COUNCIL (JMC)

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Desgination</i>	<i>Email/Contacts</i>
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3.	Nyende Ramathan	JMC	Civil Engineer	ramanyende@yahoo.uk
4.	Odoi Tom	JMC	Health Inspector	odoitom@yahoo.com
5.	Kyangwa Mercy	JMC	Senior Planner	Kyangwa70@yahoo.com

17. MBALE DISTRICT

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Desgination</i>	<i>Email/Contacts</i>
1.	Walakira Paul	DLG	CAO	paulwalakira@gmail.com
2.	Wafula Wilson	DLG	Driver CAO	
3.	Watenga Abednego	DLG	DCDO	abednegowatenga@yahoo.co.uk
4.	Nangosya Emma	MBALE CAP	Project Officer	nangosya@gmail.com
5.	Opusi Joseph	DLG	DNRO	josephopusi@yahoo.com
6.	Namakhola Rajab	DLG	For DNRO	rajabnamakhola@gmail.com
7.	Ddeme Fred	DLG	DWO	Fred_maz@yahoo.co.uk 0712574881

18. MBALE MUNICIPAL COUNCIL (MMC)

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Desgination</i>	<i>Email/Contacts</i>
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1.	Odongo Musa	MMC	Principal Medical Officer	Modongo2005@gmail.com
2.	Wotsomu John	MMC	Planner	jmwotsomu@yahoo.com
3.	Namutuya P	MMC	Engineer	
4.	Nyaribi Rhoda	MMC	Environment Officer	Nrhoda22@yahoo.co.uk
5.	Musamali Sam Wamutu	MMC	For Town Clerk	sammusamali@gmail.com

19. BUSIA DISTRICT

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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2.	Nandege Ivan	Ecological Sanitation	Project Officer	0775402391

20. BUTALEJA DISTRICT

<i>NO</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
1	Wabomba Hebert	Bunyole Sustainable Development Organisation	Project Coordinator	0705030011

Table 35: Participants at the Regional Consultation workshop for the Northern Region held on November, 18th, 2016; at Acholi inn Hotel, Gulu.

1. NAKAPIRIPIT DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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3.	Atibu Losse	DLG	DPO	atibulosse@yahoo.com
4.	Waiswa Peter	DLG	For Planner	0782424191
5.	Kocho Justin Bob	Ecological Christian Organization	Project Manager	bob@ecouganda.org
6.	Aluka Musa	Northern Kyoga Wealth & Governance	Manager	077839462

2. AMURU DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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2.	Ajok Doreen	DLG	DNRO	doreenorui@gmail.com
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4.	Kiplengat Martin	DLG	CAO	martinkiplengat@gmail.com
5.	Ojok Robert	DLG	CAO-Driver	

3. OTUKE DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
1.	Okwir Peter	DLG	CAO-Driver	0774528454
2.	Dr. Amum Thomas	DLG	DPO	anyuruth@gmail.com 0772887835
3.	Odongo Thomas	DLG	DWO	odongoomila@yahoo.com 0772669379
4	Ebong Boniface	DLG	SEO	Bonniebuzgl1@gmail.com
5	Otim Alex	DLG	FOR CAO	
6	Etil	DLG	Planner	etiltom@gmail.com

4. KOTIDO DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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4.	Etuko Emmy Brian	DLG	FOR DCDO	Etuko82@gmail.com 0774143130
5.	Modo Arafat Abong	DLG	CAO Driver	0788845560
6	Dr. George Oming	DLG	DNRO	omingg@yahoo.com 0774026880
7	Engima Jerome	Nature Uganda	Administrator	0775669645

5. MOROTO DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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3.	Lotukei Dean Raphael	CSO/ECO	Program Officer	0772647592 lotukei@gmail.com
4.	Martin Jacan Gwokto	DLG	CAO	martingosokto@yahoo.com 0772460408
5.	Walakira Moses	DLG	PO	Moseswalakira84@gmail.com
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9	Okumu Patrick	DLG	NRO	

6. KITGUM DISTRICT

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7.	Oryem Peter	DLG	ADWO	emmformigo@gmail.com

7. KAABONG DISTRICT

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8. LIRA DISTRICT

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6.	Otim Tom	DLG	Driver CAO	0772697880
7.	Olido Oscar	LIRA	Project Officer	0781133613

9. LAMWO DISTRICT

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4.	Opii Moses	DLG	CDO	mosesopii@gmail.com
5.	Odong Bosco	DLG	FOR CAO	odobosag@yahoo.com
6.	Komakech Richard	DLG	DNRO	Komtroyl@gmail.com
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10. YUMBE DISTRICT

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3.	Kawawa Serbert	DLG	DNRO	Kaseb200@yahoo.com
4.	Ayimani Bernard	DLG	DEO	bayimani@gmail.com
5.	Guma victor	DLG	Planner	Gumavictor1964@gmail.com
6.	Muzamil Denis	DLG	Driver-CAO	
7.	Alibankoha Noeline	Straight Talk Foundation	Administrator	alibonkohanudine@gmail.com

11. PADER DISTRICT

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4.	Peter Ondkara	DLG	DPO	odongop@hotmail.com 0774106882
5.	Rockara Benjamin	DLG	CAO DRIVER	0775928890
6.	Akello Dorothy	DLG	Coordinator	0778379748

12. APAC DISTRICT

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3.	Atim Tom Richard	DLG	Planner	richatim@yahoo.com 0772974438
4.	Odongo John	DLG	DNRO	johnodongo2013@gmail.com 0772657217
5.	Okoi Betty	DLG	SAO	bettyokoi@yahoo.co.uk 0772642471
6.	Ongom Emmanuel	DLG	DWO	ongoema@gmail.com
7.	Odur Elvis	Apac Foundation For Community Development	Project Coordinator	odurelvis@gmail.com 0783234650

13. NEBBI DISTRICT

No	Name	Institution	Designation	Email/Contacts
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4.	Fauling Doreen	DLG	DNRO	dfauling@yahoo.com 0782878098
5.	Oryem Richard	DLG	For Planner	oryemrichard@gmail.com 0774248599
6.	Jalar Denis	DLG	CAO Driver	0782722055
7.	Okecha Jean Andrew	DLG	DWO	jeanmungucwia@gmail.com
8.	Ojok Michael	DLG	Administrator	ojokmichael@gmail.com

14. NPAK DISTRICT

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4.	Lomongo Paulina	DLG	AG. DNRO	paynerag@gmail.com 0772825643
5.	Mwayita Bruno	DLG	CAO	mwabruno@gmail.com 0702580846/0784191522
6.	Loram Paul	DLG	Driver CAO	0781762902
7.	Gonza Irene	Disaster Risk Reduction	Administrator	0704522025

15. GULU DISTRICT

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2.	Nyeko Francis	DLG	DPO	nyeko@gmail.com
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4.	Okwir Annet	DLG	Straight Talk Administrator	Annannet33@gmail.com
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6.	Odwar Santa	DLG	FOR CAO	0772594299
7.	Oyik Alfred	DLG	Driver Cao	0772343558
8.	Nyeko Samuel	DLG	DWO	0776002953

16. AGAGO DISTRICT

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17. ARUA DISTRICT

No	Name	Institution	Designation	Email/Contacts
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4.	Eng. Tiyo W.T. Oda	DLG	DWO	THEOWILLIAMSTHETHIRD@GMAIL.COM
5.	Adule Kefa	DLG	Planner	Actinto2009@yahoo.com

6.	Odida Alex	Action For Welfare And Action In Environment	Administrator	0771367837
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18. ARUA MUNICIPALITY COUNCIL (AMC)

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4.	Afubo Mathew	AMC	Senor Ass. Engineer	0772901190
5.	Findru Moses	AMC	Planner	0782323530

Table 36: Participants at the Regional Consultation workshop for the Western Region of Uganda held on November, 22nd, 2016; at Kalya Courts Hotel, Fort portal.

1. FORT PORTAL MUNICIPALITY COUNCIL (FPMC)

No	Name	Institution	Designation	Email/Contacts
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3.	Rusoke J. Bosco	FPMC	For Town Clerk	apuulirusokejl@gmail.com
4.	Birungi Cissy	FPMC	Health Inspector	ceciliabirungi@gmail.com
5.	Nyakoojo Adolf	FPMC	Driver for Town Clerk	0782749325
6.	Kabacwamba H	Fort TBG	Trainer	hkaba@yahoo.com
7	Kabagenyi Mary	Fort Portal Hewasa	Volunteer	K_mary@yahoo.com

2. IBANDA DISTRICT

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5.	Akankwasa Confidence	DLG	For DNRO	akwankwasacconfidence@gmail.com
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7	Alex Kirabo Asiimwe	DLG	DCDO	alexnekirabo@yahoo.com 0779102350
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9	Tayebwa Benson	DLG	DPMO	ben.tayebwa@yahoo.com bensontayebwa55@gmail.com
10	Turyamureba Irene	DLG	Officer	Irene@yahoo.com

3. KISORO DISTRICT

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9	Bizimana David	DLG		0712190032
10	Muhuza David	DLG	Officer	

4. KABAROLE DISTRICT

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10	Ruabuhingi Richard	DLG	Chair person	0772553139

5. KIRYANDONGO DISTRICT

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9	Mbaine Scovia	DLG	Member	0778811464
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6. SHEEMA DISTRICT

No	Name	Institution	Designation	Email/Contacts
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5.	Tumushabe Jeninah	DLG	DPMO	tumushabejeninnah@gmail.com
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7. BUNDIBUGYO DISTRICT

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10.	Katarike Joseph	HEWASA	Member	07754511723

8. KASESE DISTRICT

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10.	Kandiri Molly	DLG	Officer	0773452912
11.	Nyamutale A.C	MIFA	Coordinator	0773601224
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9. BUSHENYI DISTRICT

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6.	David Baineomugisha	DLG	DPMO	bainedavid@yahoo.com
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10.	Busingye Petra	BRDO	Agro-officer	0701532333
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10. RUBIRIZI DISTRICT

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11. MBARARA DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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6.	Wabwire Nicholas	DLG	Development Officer	0782191327
7.	Mbatya John	DLG	Officer	mbatya@yahoo.com
8.	Tumwine Simon	DLG	ACOD	0784462488
9.	Mushabe Jean	DLG	ACORD- Member	0753986856

12. KYENJOJO DISTRICT

<i>No</i>	<i>Name</i>	<i>Institution</i>	<i>Designation</i>	<i>Email/Contacts</i>
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Table 39: Participants at the National Climate Change Advisory Committee Meeting for the Approval of the SPCR/FIP, held on April 27th 2017 at Rivonia Hotel, Kampala.

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Annex 7: Matrix of responses to comments from the Independent Reviewer

Reviewer: Maarten van Aalst

Date of Review Completion: 22 April 2017

PART I: Setting the context (from the reviewers overall understanding of the SPCR document)

The Uganda SPCR is based on Uganda's overall development strategy, and more specifically the aims of its national climate policy, to "ensure a harmonized and coordinated approach towards a climate-resilient and low carbon development path for sustainable development in Uganda". It identifies three strategic pillars: (i) catalyzing investments for improved rural resilience and food security; (ii) improving resilience of urban communities and infrastructure; and (iii) strengthening the capacity to manage climate variability and change.

The proposed projects cover (i) agricultural production, food security and nutrition (ii) integrated and sustainable management of landscapes and catchments for improved livelihoods, ecosystems and community resilience (iii) resilience of urban communities and infrastructure (iv) climate information systems and services, and (v) institutional capacity in climate change coordination and mainstreaming.

Part II: General criteria: The SPCR complies with the general criteria indicated in the ToRs ¹⁴⁸ (Please provide here an extensive discussion how the SPCR meets the following criteria)

A. <i>Takes into account country capacity to implement the plan</i>	
The main investment projects are mostly grounded in existing institutions and existing priorities, with generally a clear vision of where this needs to be further strengthened (as part of the SPCR , especially project 5). It is good to see a relatively long implementation period, of initially 8 years with the intention of adding another phase (critical to really build capacity, and achieve mainstreaming in regular planning and budgets of various ministries and at subnational level).	
B. <i>Developed on the basis of sound technical assessments</i>	
<p>The SPCR is grounded in a good risk assessment, with a focus on current variability and extremes, which makes sense given both the challenges faced and the rapid development taking place in Uganda. The focus of investment on agricultural production and urban centres – as the two key aspects of development affected by climate and in need of better risk management, and additional investment is well justified.</p> <p>The specific projects are still in need of further design work, which will be able to address some of the current gaps, including in terms of safeguards, but also substantively. This may include further linkages with other investments in those projects (also enhancing the capacity to leverage and mainstream) as well as the engagement with a wider range of stakeholders, especially also in project 4 on climate information and services (see also general comment 5 in Part III below).</p>	

¹⁴⁸ Each criterion is assessed in 3 colors: green = met the criteria; yellow = need for some additional work; red = did not meet the criteria yet.

of finance, planning and economic development.	<p><i>others have been elaborated in the SPCR and will be used at the project design stage.</i></p> <p><i>MoFPED's profile has been raised in a number of places including new text inserted in section 7.1 that highlights MoFPED's role in the Paris Agreement and long term strategies.</i></p>
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<i>D. Provides for Prioritization of investments, capturing of lessons learned, M&E, and links to the PPCR results framework</i>	
<p>Prioritization of investments is based on well-identified priority themes agreed in an interactive consultative process and informed by the risk assessment. They are structured into a set of activities that are clustered into the five proposed investment projects.</p> <p>The M&E table overlaps largely with the PPCR results framework, although a few indicators could use refinement (detailed suggestions provided separately).</p>	

<i>E. Has been proposed with sufficient Stakeholder consultation and stakeholder engagement</i>	
<p>The SPCR reflects extensive stakeholder consultation and engagement.</p> <p>However, it is less explicit how stakeholders will be engaged in the implementation of the projects – this is recommended as an area of continued attention, given the potential for synergies especially with the wide portfolio of development activities by multilateral and bilateral donor agencies as well as NGOs, and the important role of the private sector in shaping future climate risk.</p>	

<i>F. Adequately addresses social and environmental issues, including gender</i>		Response
Environmental and Social Due Diligence is not yet described in detail, but a Strategic Environmental and Socio-economic Assessment (SESA) has been proposed by the MWE in the PPCR preparation grant to ensure integration of environmental considerations into the SPCR. The document clearly highlights the gender aspects of climate impacts. All proposed projects mention that further gender analysis will be carried out and gaps addressed during design and implementation. This will require proper attention, as little insight at project level is currently included.		<p><i>It is not possible to provide detailed input on E&S or Gender during the planning stage, but both aspects will be fully addressed during project preparation. Both aspects are part of MDB standard operating procedures regarding safeguards.</i></p> <p><i>Section 7.9 paragraph 160 has been edited and new paragraphs 161 – 162 have been added to highlight E&S Safeguard procedures.</i></p> <p><i>Text on E&S Safeguards and Ugandan ESIA has been added to each project as appropriate.</i></p>

<i>G. Supports new investments or funding additional to on-going/planned MDB investments</i>		Response
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<p>Currently the only other funding sources identified for most of the proposed projects are Government of Uganda and „GCF or other“. It is unclear how certain this GCF funding is. In any case, it would mean mostly blending SPCR funding with GCF funding – i.e. blending two types of climate finance.</p> <p>It would have been stronger if further linking to other specific investments (e.g. in agriculture or urban infrastructure) from “regular“ MDB investment budgets (or other government or donor-funded projects) would have been identified, not only to achieve stronger leveraging, but also because the blend of climate finance into “regular“ development finance is actually a better model to ensure mainstreaming of climate concerns into regular planning and budgeting.</p> <p>I would suggest to indicate in the SPCR a vision of identifying other finance and/or ongoing projects to connect to, and address this aspect further during detailed project design.</p>	<p><i>See new text in new paragraph 125 and text on additional sources of finance in new paragraph 157.</i></p>
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<i>H. Takes into account institutional arrangements and coordination</i>	
The main investment projects are grounded in existing institutions and existing priorities (with one question for clarity about the role of the ministry of finance and planning regarding mainstreaming into budgets)	

<i>I. Promotes poverty reduction</i>	
The SPCR is closely aligned with Uganda’s overall development strategy with has poverty reduction as a key objective, and addresses areas of investment that have a direct bearing on poverty reduction.	

<i>J. Sufficiently considers cost effectiveness of proposed investments</i>		Response
Cost effectiveness is not explicitly addressed in the SPCR, but I would note that this is also a difficult criterion to satisfy for the add-on adaptation elements in wider projects (how does one assess cost-effectiveness of the separate elements?) and for capacity building (how does one quantify the future benefits)?	<p><i>Noted. As a results based financing instrument, the Adaptation Benefit Mechanism has the potential to promote cost effectiveness. See references to ABM in paragraphs 125/6, 157, 169 and 189.</i></p>	

Part III: Compliance with the investment criteria of SPCR

Provide extensive comment on whether the SPCR complies with the following criteria specific for PPCR (see TORs).

<i>A. Climate risk assessment: The SPCR has been developed on the basis of available information on the assessment of the key climate impacts in the country; the vulnerabilities in all relevant sectors, populations and ecosystems; and the economic, social and ecological implications of climate change impacts.</i>	
The SPCR contains a solid overview of key climate risks in Uganda.	

<p><i>B. Institutions/ co-ordination: The SPCR specifies the coordination arrangements to address climate change: cross-sectoral; between levels of government; and including other relevant actors (e.g., private sector, civil society, academia, donors, etc.).</i></p>	
<p>The SPCR builds on existing coordination arrangements, has involved participation from a wide variety of stakeholders, and intends to build on that engagement.</p> <p>The long list of civil society and development agencies active on climate resilience indeed highlights the opportunities for effectiveness of the SPCR by engaging those partners.</p> <p>In several of the projects, stakeholder engagement is also included as an aim for design and implementation, but it is less explicit how this will be taken forward – it is recommended to provide guidance to those designing the projects for implementation that this merits special attention (for instance, building on the comparative advantages of knowledge partners in learning activities, and of civil society organizations in addressing local level risk management).</p>	
<p><i>C. Prioritization: The SPCR has adequately prioritized activities taking into account relevant climate/risks and vulnerabilities and development priorities, sectoral policies; ongoing policy reform processes and existing, relevant activities and strategies.</i></p>	
<p>The prioritization was based on existing development policies and priorities, and resulted from a thorough process with the key government agencies and other stakeholders. The areas chosen for investment also make sense from a technical perspective given the risk profile of the country.</p> <p>What is slightly less clear is relative prioritization of these projects, and how they would be prioritized between themselves in case of budget constraints (e.g. less GCF finance than anticipated).</p>	
<p><i>D. Stakeholder engagement/ participation: The SPCR has identified and addressed the needs of highly vulnerable groups.</i></p>	<p>Response</p>
<p>There has been sufficient stakeholder engagement, and the projects clearly address issues of concern to the most vulnerable.</p> <p>However, it is not yet very explicit how the most vulnerable will be engaged and their needs addressed as a priority within the target areas or investments in the projects. The SPCR mentions that „The vulnerable social groups will be mainstreamed in the proposed investment projects in this SPCR.” However, it is unclear how this will be done in practice.</p> <p>It is recommended to pay special attention to this aspect during project design, and directly engage with vulnerable groups and/or civil society organizations to identify and/or implement the priority activities. Note that this may not come naturally to all institutions engaged in the SPCR.</p>	<p><i>Noted. Vulnerability has been incorporated in each project description and the issue is systematically addressed in MDB E&S Safeguard procedures.</i></p>

- (1) Complies with the principles and objectives of PPCR as specified in the design documents and programming modalities.

PPCR principles:		
A. <i>Embedded in the broader context of sustainable development</i>		
The SPCR is embedded in the overall sustainable development vision of Uganda.		
B. <i>Ambitious and innovative in their objectives towards climate resilience</i>		
The SPCR is certainly ambitious, addressing both rural and urban resilience, as well as cross-cutting capacities.		
C. <i>Strengthen collaboration and complementarity with other development partners and seek to identify other sources of financing</i>		Response
Current co-financing is primarily from GCF, and seems yet to be mobilized. Wouldn't there be more scope for integration of efforts with some of the activities listed in table 11, or the other programs listed in the annexes? See also the previous comment in section II.G		<i>See new text in Section 7.1 paragraph 126 and text on additional sources of finance in Section 7.6 paragraph 157.</i>
D. <i>Build on existing efforts supporting climate resilience (including NAPAs), taking care not to duplicate</i>		
The SPCR builds on the Climate Change Policy, which succeeded the NAPA, so at a policy level there is continuity and coherence. The SPCR is also aligned with the NAP roadmap (the NAP itself is not yet complete); the agriculture section of the NAP was developed alongside that component of the SPCR. It is not explicitly addressed to which extent the SPCR investments continue, build on or possibly duplicate specific activities already addressed under the NAPA or elsewhere, although there is clearly an ambition to scale up existing effective activities from current climate programming, and these have informed the choice of priority investments.		
E. <i>Outline how lessons learned will be captured and widely shared</i>		Response
As also noted in Part III, the SPCR document contains relatively little information about how the SPCR will generate learning (other than as part of capacity building activities, and/or within M&E). How will the projects stimulate reflection, adaptive programming and iterative learning about what works and what doesn't? How will these lessons be shared and put into practice in future planning and programming? I would have expected to see a more explicit vision on this, given that it is a high-level objective of the SPCR.		<i>This concern has now been elaborately addressed the new section 7.10 as well as in all the projects.</i>
PPCR Objectives:		
Help countries transform to a climate resilient development path, consistent with poverty reduction and sustainable development goals. As a pilot program		

and supporting learning-by-doing, PPCR implementation ultimately aims to result in an <i>increased application of knowledge on integration of climate resilience into development</i> .		
A. Pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning		
The SPCR is based on a vision of climate change policies integral to the regular development priorities of the country. It is slightly less clear how this integration into planning will occur at the highest level of national budget, in particular through the role of the ministry of finance and planning.		
B. Strengthen capacities at the national levels to integrate climate resilience into development planning		
This is not only an overall objective, but actually targeted in a specific SPCR project.		
C. Scale-up and leverage climate resilient investment, building on other ongoing initiatives		Response
As noted above (especially II.G) it is somewhat unclear how the SPCR is leveraging other initiatives and scaling up climate action partly by strategically using climate finance within broader areas of work (not just leveraging additional climate finance from GCF, but transforming „regular“ investment flows in a more climate resilient direction)		<i>See new text in new paragraph 126 and text on additional sources of finance in new paragraph 157.</i>
D. Enable learning-by-doing and sharing of lessons at country, regional and global levels		Response
As noted above under the PPCR principles section, the SPCR would benefit from a more explicit vision on learning (by doing) and uptake of that learning (by who, through what sort of process, with what expected results).		<i>This comment has been addressed in new section 7.10 inserted in the SPCR</i>

(2) Assessment towards the PPCR results framework

OVERARCHING REVIEW COMMENT: Results table 15 in the Uganda SPCR roughly meets the intended result areas listed in this template. However, several of the Uganda SPCR indicators could be refined; technical comments have been provided to the team directly in the SPCR document.

Response: *The indicators have been refined taking into consideration the comments raised.*

Results	Indicators	Comments	Score
A1. Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change	INDICATOR A1.1 (optional): Change in percentage of households (in areas at risk) whose livelihoods have improved (acquisition of productive assets, food security during sensitive periods of the year)		

	INDICATOR A1.2 (optional): Change in damage/losses (\$) from extreme climate events in areas at risks that are the geographical focus of PPCR intervention		
	INDICATOR A1.3: (core) Numbers of people supported by the PPCR to cope with effects of climate change		
	INDICATOR A1.4: (Optional) Percentage of people with year round access to reliable and safe water supply (domestic, agricultural, industrial)		
A2. Strengthened climate responsive development planning	INDICATOR A2.1: (core) Degree of integration of climate change in national, including sector planning - e.g., national communications to UNFCCC, national strategies, PRSPs, core sector strategies, annual development plans and budgets, and NAPs		
A2. Strengthened climate responsive development planning	INDICATOR A2.1: (core) Degree of integration of climate change in national, including sector planning - e.g., national communications to UNFCCC, national strategies, PRSPs, core sector strategies, annual development plans and budgets, and NAPs		
	INDICATOR A2.2: (optional) Changes in budget allocations at national and possibly sub- national level of government to take into account effects of CV&CC		
B1. Strengthened adaptive capacities	INDICATOR B1: (core) Extent to which vulnerable households, communities businesses and public sector services use improved PPCR supported tools, instruments, strategies, activities to respond to Climate Variability and Climate Change.		

B2. Improved institutional framework in place	INDICATOR B2: (core) Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience		
B3. Use of climate information in decision making routinely applied	INDICATOR B3: (optional) Evidence showing that climate information products/services are used in decision making in climate sensitive sectors		
B4. Climate responsive investment approaches identified and implemented	INDICATOR B4: (optional) Leverage of PPCR funding against public and private investments in climate sensitive sectors		
B5. Climate responsive investment approaches identified and implemented	INDICATOR B5: (core) Quality of and extent to which climate responsive instruments/ investment models are developed and tested		

Part III: Conclusions and Recommendations

Overall assessment of the SPCR

The document is generally well-written, reflects thorough consultation and technical background work, and conveys a solid vision for integration of climate risk management into regular development planning in rural and urban settings, with cross-cutting investments in climate services and institutional capacity for mainstreaming.

May main questions (partly also covered in the rating comments above) concern:

- 1) The extent to which the proposed projects are integrated with other development investments – current co-financing mainly refers to GCF funding, which seems to be unconfirmed at this stage, but would also not be leveraging of non-climate-related development investments with additional climate finance to ensure climate resilience is integrated.

Noted. This has been addressed in paragraphs 126 and 157.

- 2) This also relates to the involvement of the wide range of stakeholders that have been consulted – their role in implementation is less clear – this is a topic for attention during design. This also applies to the safeguards, which still largely need to be assessed and developed during the design phase.

Noted. It is anticipated that projects will be implemented by Sectors including relevant Government Departments and District Local Governments. The Adaptation Benefit Mechanism, if created, provides platform and scope for engagement with private sector

project developers and this is foreseen, all being well, in Project 1 (rural water supply and sanitation) and Project 3 (urban cooking energy supply).

- 3) Thirdly, the emphasis on mainstreaming begs the question of the role of the ministry of finance and planning. It is listed as one of the key support ministries, and would have a responsibility for tracking that budgets reflect climate resilience, but the capacity to do so is unclear, and not explicitly addressed in the mainstreaming project. This might merit additional attention.

MoFPED has been the lead ministry throughout the process of the SPCR development, with all missions starting and finishing with MoFPED. Their role in planning and programming Uganda's low carbon climate resilient development pathway will be critical and they will be the focus of on-going capacity building from a number of sources including the CIF and MDBs.

- 4) As noted above, the SPCR refers to learning as a key objective (and one of the elements of its transformative nature), but does not yet provide a clear perspective on how this will be achieved, and how and where such learning will subsequently be taken up (it is currently just an activity within project 6 on project management). This even applies to the links between the climate information and services project and the other projects within this SPCR, as well as integration of capacities, knowledge and learning in other activities and investments. A clearer vision could be developed around this (including multi-stakeholder engagement, not just within national government departments).

Noted. A new section 7.10 has been added to address this important issue. In addition, all projects have integrated knowledge management to enhance sharing and utilisation of lessons learnt and best practices generated.

- 5) Specifically in project 4 on climate information and services, the user interface (climate services actually informing decisions on the ground) appears to be an afterthought – the main investment is in equipment and hydromet capacities. These investments are likely to be more effective and sustainable if they are designed with a stronger emphasis on what is currently included in component 3 of this project. Decision-support and needs in early warning systems should be the starting point, then subsequently informing the investments in components 1 and 2 of the project, rather than an afterthought. Stronger links to the user groups in other investment projects in the SPCR, could already partly address this, alongside an active role early on in the design phase for the broader set of stakeholders (including NGOs) identified in the SPCR consultations. This should also be reflected in the indicators for this project, which should refer to the *use* of information, rather than just production or dissemination.

Agreed. The 2013 modernization plan for meteorological services addresses decision support and EWS needs for a wide range of defined users groups. This is 'starting point' to which the reviewer alludes. This is now emphasized in the document. Note that sub-project preparation process included an assessment update of the modernization plan to refine and target specific needs for PPCR support. This concluded that national strategy document is current, links with strategies in beneficiary sectors, that UNMA has been systematically working through that plan, and that the beneficiary sectors are enthusiastic to benefit from future support as proposed. For example, aviation is eager for radar and radio-sounding; forestry and

agriculture for better-resolved, longer-outlook, more-accurate numerical weather prediction as well as restoration of the basic network. The concept proposal format does not provide latitude for much detail, but some examples of demand from different user groups and needs are now provided. The issues will further be clarified at the project elaboration stage.

Overall, the reviewer assessed a total of 23 criteria and indicators with the following scoring:

14	The criteria and/or indicator has been generally met and there is no need for any revision or larger complement at this stage
8	The criteria and/or indicator is partially met, it is recommended to relook at some of aspects that need further clarification
1	The criteria and/or indicator is partially met and need to be developed [or, at the current stage the criteria is not relevant]

Recommendations:

Recommendations have been integrated in the specific comments and overall assessment section above. Most should be relatively easy to address in the current SPCR, and primarily merit further attention during the project design phase.

References

Main document reviewed:

-SPCR Uganda, draft #7 (April 13, 2017)

Additional documents consulted (add more if needed):

- PPCR Design Document (2009)
- PPCR Programming and Financing Modalities (2011)
- Revised PPCR Results Framework (2012)
- PPCR Revised procedures for the preparation of independent technical reviews of the SPCR (2016).