



Ministry of Environment and
Climate Change
Republic of Somaliland

Somaliland

National Climate Change Policy

Approved by:

Somaliland Cabinet of Ministries
Republic of Somaliland

©2023

November 2023

©MOECC

Table of CONTENTS

LIST OF ABBREVIATION AND ACCRONYMY	4
LIST OF FIGURES AND TABLES	5
MINISTER'S FOREWORD	6
ACKNOWLEDGEMENT	7
GLOSSARY	8
PRESIDENTIAL DECREE	10
EXECUTIVE SUMMARY	11
1 ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION	12
1.1 General Introduction	13
1.2 Climate	13
1.3 Potential Evaporation Transpiration	14
1.4 Climatic Zones	14
1.5 Temperature	15
1.6 Water Resources	16
1.7 Flora	17
1.8 Fauna	17
1.9 Environmental Degradation	17
1.10 Geomorphology	18
1.11 Land Use	18
1.12 Socio-Economic Environment	19
2 RATIONALE, VISION, PURPOSE AND GUIDING PRINCIPLES	21
2.1 Rationale of National Climate Change Policy	22
2.2 Vision of the Policy	22
2.3 Purpose of the Policy	23
2.4 Policy Objectives	23
2.5 Scope of the policy	24
2.6 Policy Design	24
2.7 Guiding Principles	24
2.8 Application	25
2.9 Key Focus Issues of the Climate Change Policy	25
2.10 Adaptation	26
2.11 Mitigation	27
3 CLIMATE CHANGE CONTEXT	28
3.1 Descriptions	29
3.2 International Context	29
3.3 Regional Context	32
3.4 National Context	33
4 SITUATIONAL ANALYSIS OF CLIMATE CHANGE IN SOMALILAND	35
4.1 Evidence of Climate Change in Somaliland	36
4.1.1 Temperature	36
4.1.2 Precipitation	36
4.1.3 Droughts	38
4.1.4 Floods and Soil Erosion	38
4.1.5 Rising Sea Level – Sea Surface Temperature (SST)	39
4.1.6 Biodiversity Loss and Habitat Destruction	40
4.2 Climate Change Impacts on Different Sectors in Somaliland	40
4.2.1 Table 1: Climate Changes Impacts in Somaliland	41
5 EXISTING NATIONAL AND INTERNATIONAL REGULATORY FRAMEWORKS	43
5.1 Related National Legal and Policy Framework of the Republic of Somaliland	44
5.1.1 The Constitution of the Republic of Somaliland	44
5.1.2 Somaliland's Vision 2030	44
5.1.3 Environmental Management Law No. 2018/79	45



5.1.4	Other Related National Regulatory Framework Documents	47
5.2	Regional and International Legal and Policy Instruments	48
5.2.1	The Three Rio Conventions	48
5.2.2	Table 2: Objectives of the Rio Conventions	50
5.2.3	The Paris Agreement	50
5.2.4	The Kyoto Protocol	51
5.2.5	Intergovernmental Panel on Climate Change (IPCC)	51
5.2.6	Global Environment Facility (GEF)	52
5.2.7	IGAD Regional Climate Change Strategy (IRCCS)	52
5.3	IGAD- ICPAC Guide for Engagement in Co-Producing Climate Services	53
5.4	Somaliland's Other International Commitments	53
6	ADAPTATION AND DISASTER RESILIENT MECHANISMS	54
6.1	Priority Areas	55
6.1.1	Agriculture Sector	55
6.1.2	Livestock	57
6.1.3	Water sector	57
6.1.4	Fishery sector	58
6.1.5	Natural Environment Sector (Fauna and Flora)	59
6.1.6	Road Transport Infrastructure Sector	61
6.1.7	Energy and Extractive Sector	62
6.1.8	Telecommunication Sector	63
6.1.9	Urban Sector/Built Environment	63
6.1.10	Education Sector	64
6.1.11	Health Sector	65
6.1.12	Mainstreaming Gender Issues	66
7	CROSS-CUTTING ISSUES IN CLIMATE CHANGE ADAPTATION	67
7.1.1	Capacity-building	68
7.1.2	Research and Technology	68
7.1.3	Regional and International Cooperation	68
7.1.4	Information and Communication	68
7.1.5	Education and Public Awareness	69
7.1.6	The Media	69
8	MITIGATION MEASURES OF CLIMATE CHANGE	70
8.1	Energy	71
8.2	Agriculture, Livestock and Fishery	71
8.3	Land Use and Forestry Sector	72
8.4	Industry	73
8.5	Waste	74
8.6	Health	75
9	NATIONAL CLIMATE CHANGE POLICY FUNDING MECHANISMS	76
9.1	Public Sector.	77
9.2	Private Sector	78
9.3	Local fundraising Initiatives	78
9.4	International Multilateral and Bilateral Climate Funding Opportunities	78
9.5	Non-governmental (Foundations) Climate Finance	78
9.6	Voluntary Schemes Carbon Offsetting	78
10	IMPLEMENTATION OF CLIMATE CHANGE POLICY	79
10.1	State Institutions	80
10.2	National Climate Change Coordination Unit (NCCCU)	82
10.3	Legal Frameworks	83
10.4	Mainstreaming Climate Change into the Planning Process	93
10.5	Voluntary Agreements.	83
10.6	Research, Technology, and Development	84
10.7	Climate Change Opportunities	84
11	NATIONAL CLIMATE CHANGE POLICY (NCCP) LIMITATIONS	85
11.1	Coordination Challenges	86
11.2	Technical, Human and Financial Capacity Limitations	86
11.3	Weak Enforcement of Regulatory Mechanisms	86
11.4	Accessibility of International Resources	86
12	MONITORING AND EVALUATION OF THE POLICY	87
	REFERENCE	89



LIST OF ABBREVIATION & ACRONYM



ABM	Adaptation Benefit Mechanism
ACCF	African Climate Change Fund
ADB	African Development Bank
AF	Adaptation Fund (AF)
CBDR-RC	Common but Differentiated Responsibilities and Respective Capabilities
CWS	Cyclone Warning System
DANIDA	Danish International Development Agency
DFID	Department for International Development
ECF	European Climate Foundation
ENSO	El-Niño/Southern Oscillation
EU	European Union
GBP	Green Bond Program
GCC	Arabian Gulf Cooperation Council (GCC)
GCF	Green Climate Fund (GCF),
GCRP	Global Climate Resilience Partnership
GEF	Global Environmental Facility
GHA	Greater Horn of Africa
GHG	Greenhouse Gasses
GoSL	Government of Somaliland
GPSA	Global Partnership for Social Accountability
GSLOS	Global Sea Level Observing System
ICPAC	IGAD Climate Prediction and Application Center
INDCs	intended Nationally Determined Contributions
IOD	Indian Ocean Dipole
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Inter-Tropical Convergence Zone
JICA	Japan International Cooperation Agency
LCDs	Least Developed Countries
LDCF	Least Developed Countries Fund
MoECC	Ministry of Environment and Climate Change
NCCCU	National Climate Change Coordination Unit
NCCP	National Climate Change Policy
NDP	National Development Plan
NGDP	National Gross Domestic Product
NADFOR	National Disaster Preparedness and Food Reserve Authority
NORAD	Norwegian Agency for Development Cooperation
PAI	Power Africa Initiative
QBO	Quasibiennial Oscillation
SCCF	Special Climate Change Fund
SDC	Swiss Agency for Development and Cooperation
SDGs	Sustainable Development Goals
SEFA	Sustainable Energy Fund for Africa
SGP	Small Grant Program
SIDA	Swedish International Development Agency
SIDs	Island Developing States
UN REDD	United Nations Programme on Reducing Emissions from Deforestation and Degradation
UN	United Nations
UNFCCC	United Nations Climate Change Convention
USA	United States of America
USAID	United States of America International Development



LIST OF FIGURES AND TABLES

TABLES:

- Table 1: Climate Changes Impacts in Somaliland 32
- Table 2: Objectives of the Rio Conventions 40
- Table 3: The Role of Government Ministries on Climate Change Policy Implementation 63

FIGURES:

- Figure 1. Global average land-sea temperature anomaly relative to the 1961-1990 average temperature in degrees Celsius (°C). 24
- Figure 2: Global mean sea level temperature compared to the 1900-1905 average. 25
- Figure 3: Global Precipitation Anomalies (1979 – 2013) 26
- Figure 4: Temperature anomalies in East Africa. 26
- Figure 5: Somaliland Temperate Analysis 28
- Figure 6: Decadal Rainfall Variability in Greater Horn of Africa (GHA). 29
- Figure 7: Somaliland Rainfall Analysis 29
- Figure 8: Greater Horn of Africa Sea Surface Temperatures 31
- Figure 9: Greater Horn of Africa Sea Surface Temperatures 31

MINISTER'S FOREWORD



I would like to take this opportunity to thank the President of Somaliland HE: Muse Bihi Abdi for Prioritising Climate Change and understanding the importance of mitigation measures and the entrusting of Ministry Environment and Climate Change in carry forward to fight against climate change and its impacts. Also, I would like to thank everyone who contributed to the development of this policy.

The people in Somaliland are going to perceive the impacts of Climate Change on their social and economic sectors. Somaliland is pursuing to implement all international legal documents aimed to protect our environment. Citing to Somaliland constitution which ratifies to carry out the international obligations, government of Somaliland envisages to adopt the three Rio UN Conventions on Climate Change, Biological Diversity and Desertification, namely:

1. The United Nations Framework Convention on Climate Change (UNFCCC)
2. The Convention on Biological Diversity (CBD)
3. The United Nations Convention to Combat Desertification (UNCCD)

National Climate Change Policy, is a preparatory document that is in compliance to Paris Agreement which is historic accord sets in place a durable and dynamic framework requiring all Parties to take climate action. It's also aligned to the UNFCCC's Kyoto Protocol in 2007.

This National Climate Change Policy gives obligations to the Government of Somaliland to formulate regulatory documents and implement programmes facilitating adequate adaptation and mitigation to climate change impacts.

To implement this policy, the Government of Somaliland needs technical and financial support from the UN bodies, international agencies and local partners to strengthen the adaptation and community resilience to climate change shocks and its adverse impacts.

As this policy illustrates, climate change in Somaliland, in the region and as well as globally, is a pressing problem to the socioeconomic issues, because it impacts ecosystems, biodiversity and people as well as all other life forms. Current perceived impacts are expected to worsen as the temperature continues to rise, triggering recurrent droughts, cyclones, floods and unpredictable precipitation. Therefore, climate change has to be considered on top in the national development priorities.

This policy is a catalyst tool for all stakeholders in Somaliland and international partners to tackle climate change impacts, and in helping them to identify appropriate adaptation measures and protection strategies, while at the same time, mainstreaming the climate change into the development projects and long-term programs.

**HE Shukri H. Ismail
Mohamoud (Bandare)**

Minister of Environment
and Climate Change
Republic of Somaliland



Acknowledgment



Mohamed Abdilahi Duale
Director General

Ministry of Environment
and Climate Change
Republic of Somaliland

The Somaliland National Climate Change Policy has been prepared through the involvement of various stakeholders in Somaliland.

These include the staff and management of Ministry of Environment and Climate Change, consultants and UNDP staff and members from the civil society, public and private institutions.

We are hereby expressing our sincere appreciation to the Mrs. Shukri Ismail Bandare, Minister of Environment and Climate Change for her leadership to develop this policy. I am appreciative to the technical staff of the Ministry that has been involved and reviewed in the process including Director of Environmental protection department Aden Ahmed Hasen, Director of Urban Environment Mohamed Yassin Abdirahman, Director of Forestry and Rangeland Ahmed Ibrahim Warsame, Adam Nour Abdilahi a staff in the department of Environmental Protection, Amuun Ali Haybe former head of Rural Development Department, Technical Advisors of the Ministry Abdikarim Aden Omar and Omar Abdillahi Ali for their tireless contribution and review to the policy.

The Ministry of Environment and Climate Change acknowledges the consultant Mohamed Farah for his assistance of improving and validating the policy and the technical consultant Hassan Hussein Abdi for providing significant guidance and support in climate change policy review and validation process. We are also grateful to the consultants Ali Abdi and Mohamed Yusuf Nour (Guruje) for their initial drafting contribution of the policy and Ahmed Ibrahim Awale for proof reading of the policy document.

We are always appreciative for the continued assistance of UNDP staff in terms of their technical and financial assistance, their strong willingness to support good governance in the environmental sector and improved service delivery of the Ministry. The provision of the necessary funding and technical support of UNDP is much appreciated.

My special thanks go to Mr. Nabil Yusuf Abdi and Abdi Yusuf Abokor for their endeavour in supporting the Ministry to formulate this National Climate Change Policy.

We are thankful for the contribution and participation of international and local NGOs in the process of developing and validation of the policy.

Finally, the contribution of the various members including Ministerial staffs, members from public and private institutions in the formulation process of the National Climate Change Policy is much appreciated.

GLOSSARY

Climate

The average pattern for weather conditions occurs over a long time period. Weather refers to the atmospheric conditions at a specific place at a specific point in time. Climate has always varied because of natural causes. Increasingly, however, human increases in GHG emissions causing changes in climate as well.

Climate Change

Changes in global or regional climate patterns, including changes in temperature, wind patterns and rainfall. In particular, climate change refers to a change apparent from the mid to late 20th century onwards and attributed largely to human activities that increase levels of GHG emissions, especially atmospheric carbon dioxide produced by the use of fossil fuels. Climate change is sometimes referred to as global warming, which specifically refers to the long-term trend of a rising average global temperature.

Greenhouse gases

The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent -- but very powerful -- greenhouse gases are hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and Sulphur hexafluoride (SF₆).

Intergovernmental Panel on Climate Change (IPCC)

Established in 1988 by the World Meteorological Organization and the UN Environment Programme, The IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the UNFCCC's subsidiary bodies. The IPCC is independent of the UNFCCC

Mitigation

In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere.



GLOSSARY

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

United Framework Convention on Climate Change (UNFCCC)

An international treaty signed by 195 countries that entered into force in 1994. The objective of the Convention is “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate systems

Vulnerability

The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity.

Kyoto Protocol

An international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of GHG emissions by industrialized countries.

Adaptation

Adjustment in natural or human systems in response to actual or expected climatic shocks or the effects, which moderates harm or exploits beneficial opportunities.

Adaptive Capacity

The ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behaviors and in resources and technologies.

Climate Resilience

Closely linked to adaptation, building climate resilience includes reducing vulnerability to climate change, making sure that the impacts of climate change are avoided or cushioned, and enabling people to respond to climate risks.

Presidential Decree

JAMHUURIYADDA



SOMALILAND

Xafiiska Madaxweynaha

Sum: JSL/XM/WM/222-1110/112023

Taar: 07/11/2023

Wareegto Madaxweyne

Dhaqan-galka Siyaasadda Qaran ee Isbeddelka Cimillada

Markaan Arkay: Qodobka 90aad ee Dastuurka Jamhuuriyadda Somaliland;

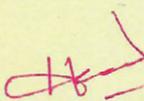
Markaan Arkay: Muhiimadda ay Siyaasadda Qaran ee Isbeddelka Cimilladu u Leedahay Dhismaha Qaranka iyo Wax-ka-qabashada Saamaynta Isbeddelka Cimillada;

Markaan Arkay: Go'aanka Fadhiga Golaha Wasiirada ee Fadhi Lr. 114aad, kuna taariikhaysan 20/07/2023 ee ay ku ansixiyeen Dhaqan-galka Siyaasadda Qaran ee Isbeddelka Cimillada Jamhuuriyadda Somaliland;

Waxaan soo-saaray;

Wareegtadan oo lagu baahinayo Dhaqan-galka Siyaasadda Qaran ee Isbeddelka Cimillada Jamhuuriyadda Somaliland.

Allaa Mahad Leh


Muuse Biixi Cabdi
Madaxweynaha Jamhuuriyadda Somaliland



Executive Summary

Climate change has been recognized as one of the biggest challenges facing humanity in twenty first century. Even though Somaliland's contribution to greenhouse gas (GHG) emissions attributed to global warming and climate change is trivial if compared to those of other countries, including those in the region, the Government of Somaliland (GoSL) accepts that, human induced activities play a major role in exacerbating climate change impacts in the country. Furthermore, the Government of Somaliland (GoSL) recognises that, impacts of climate change have serious implications for the country as more than seventy percent of the people of Somaliland heavily depend on narrow natural resource-based economy (pastoralism, rangelands, and rain-fed agriculture) and other services derived from a very fragile ecosystem. Owing to the country's low adaptive capacity, also, the government recognises that, Somaliland is highly susceptible to the impacts of climate change – a vulnerability that is further exacerbated by other factors, namely, limitation of the country's institutions to prepare and respond climate change disasters effectively and recurring localised conflicts.

Policy development followed a systematic and structured approach based on comprehensive participatory consultative process, since its original conceptualization by the related Ministries. It was planned that the development process would be as inclusive and transparent as possible to achieve wide ownership and acceptability.

Extensive institutional stakeholder meetings with focus group discussions, workshops and specific meetings were organized, and lengthy electronic information exchanges and intensive literature review took place. In addition, several in-depth one-to-one meetings with representatives of stakeholder institutions were arranged. At the comprehensive consultation level National Workshops on the Policy Development Process were held hence, this National Climate Change Policy (NCCP) is a key policy instrument for dealing potential climate change impacts in the country and should act as a guide in integrating climate change response across all key economic, environment and social sectors, so as to better manage future challenges and disasters posed by climate change. The Policy affirms Government's commitment to addressing climate change through the development of resilience interventions in key economic, environmental and social sectors to overcome the challenges of climate change whilst equally, acknowledging the opportunities presented by the climate change phenomenon to allow the country to lay a solid basis for a sustainable development and equitable society.

The goal of the National Climate Change Policy (NCCP) is to create an enabling environment (policy and legal framework) which coordinates and harmonizes climate change responses and interventions throughout key development sectors. While the implementation of the National Climate Change Policy will be overseen by the Ministry of Environment and Climate Change (MoECC), the overall coordination and day-to-day activities will be managed by a Climate Change Coordination Unit (CCCU), a unit that shall be established by the ministry to head climate change issues in Somaliland. Nevertheless, effective implementation of climate change policy will require involvement and participation of all stakeholders, including government institutions, international development partners, NGOs, civil society, the private sector and academia.



**ENVIRONMENTAL AND
SOCIAL BASELINE
INFORMATION**

1.1 General Introduction

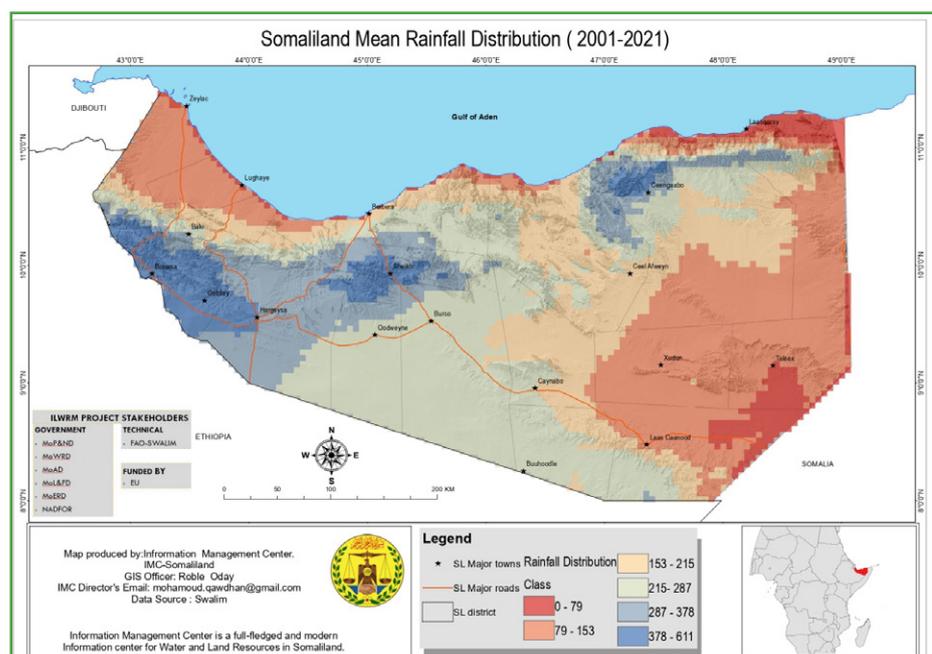
Somaliland is located in the Horn of Africa, with an area of 177,000 km square and a biophysical environment consisting of a variety of ecosystems, limited biodiversity and water resources. The altitude ranges from 2,633 meters above sea level at the highest peak. A large portion of the country consists of high plateaus and mountains but has no rivers or lakes.

Since its declaration of independence in 1991, Somaliland remained and continues to be comparatively peaceful country, charting different path from the rest of the region. Taking advantage of this relative stability, the nation has embarked on state rebuilding ambition driven by the citizens yearning for a democratic process that encompasses political, economic and social development. As part of this aspiration, governmental and non-governmental institutions, independent media, political parties, legal system, accountable to the people, that promotes economic growth of a modern society, at the same time, harmonising economic development with the imperatives of environmental protection has been established.

1.2 Climate

Somaliland is classified into three main climatic zones across its regions. These include; (a) desert zone mainly along the coastal belt, (b) very arid zone in the central and western areas and (c) semi-arid zone in the lower parts of Awdal and present-day Maroodijeex. The latter areas receive the best rainfall up to 500 to 600 mm per year, Togdheer, Sool and Sanaag regions come next with rainfall values of 100 to 400 mm per year. The coastal belt and a small pocket of the area south of Sool region are characterized by very low rainfall with values less than 100 mm per year. Somaliland is subject to four seasons each lasting three months. Winter (Jiilaal) is a dry season occurring from December to mid-March. Spring (Gu') is the long rainy season, lasting from late March to mid-June. Summer (Xagaa) is the third season and occurs from late June to mid-September. Autumn or fall (Dayr) is another rainy season but is much less bountiful than the spring season in many parts of the country, especially the west which is compensated by 'Karan' showers in winter (Somaliland country profile 2021).

Figure 1.
Somaliland mean annual rainfall spatial distribution



1.3 Potential Evaporation Transpiration

Potential Evaporation Transpiration (PET) varies between 1000 to 3000 mm/year with mean annual values for the region being greater than 2000 mm/year. PET exceeds rainfall across the region and is highest in dry seasons with values between 280 mm/month inland and 440 mm/month in the coastal areas. In the driest areas, e.g. Berbera, annual PET values exceed 3000mm/year (SWALIM 2016).

1.4 Climatic Zones

Detailed analysis of Somaliland weather data reveals three main climatic zones across the regions. These include; (a) desert zone mainly along the coastal belt, (b) very arid zone in the central and western areas and (c) semi-arid zone in the lower parts of Awdal and M.jeex (Figure 1). The three zones are further elaborated below:

- **Desert zone:** This zone receives less than 100 mm of annual rainfall and the rain seasons lasts for one month only. The coastal belt of Somaliland and a small portion in southern Sool region falls under this kind of climate. Major towns in this zone include Zeylac, Lughaye, Berbera, Lasqooray and Laas Caanood. Rainfall is unreliable while 34 daily average temperatures are above 30 C. The desert zone is unsuitable for cropping and pastoralism is the common land use.
- **Arid zone:** This zone receives less than 400 mm of annual rainfall and the rain season lasts for a maximum of three months. Rainfall usually comes in heavy showers and a large proportion is lost through runoff. Although cropping is possible, irrigation is absolutely essential for success. High temperatures are experienced throughout the year. This zone covers the central and eastern parts of Somaliland and includes town such as Ceerigabo, Ceel Afweyne, Burco and Xudun.
- **Semi-arid zone:** This zone receives 400 to 600 mm of annual with the rainfall seasons slightly exceeding three months. Rain fed cropping is possible but irrigation is indispensable for reliable and good crop harvests. Some drought-resistant crops such as sorghum and millet may give reasonable yields without irrigation, but there is still a risk of unreliable rainfall and subsequent crop failure. The zone includes inland areas of Awdal and M.jeex region in the western parts of Somaliland which plays a major role in production of most important food crops for the whole of Somaliland.



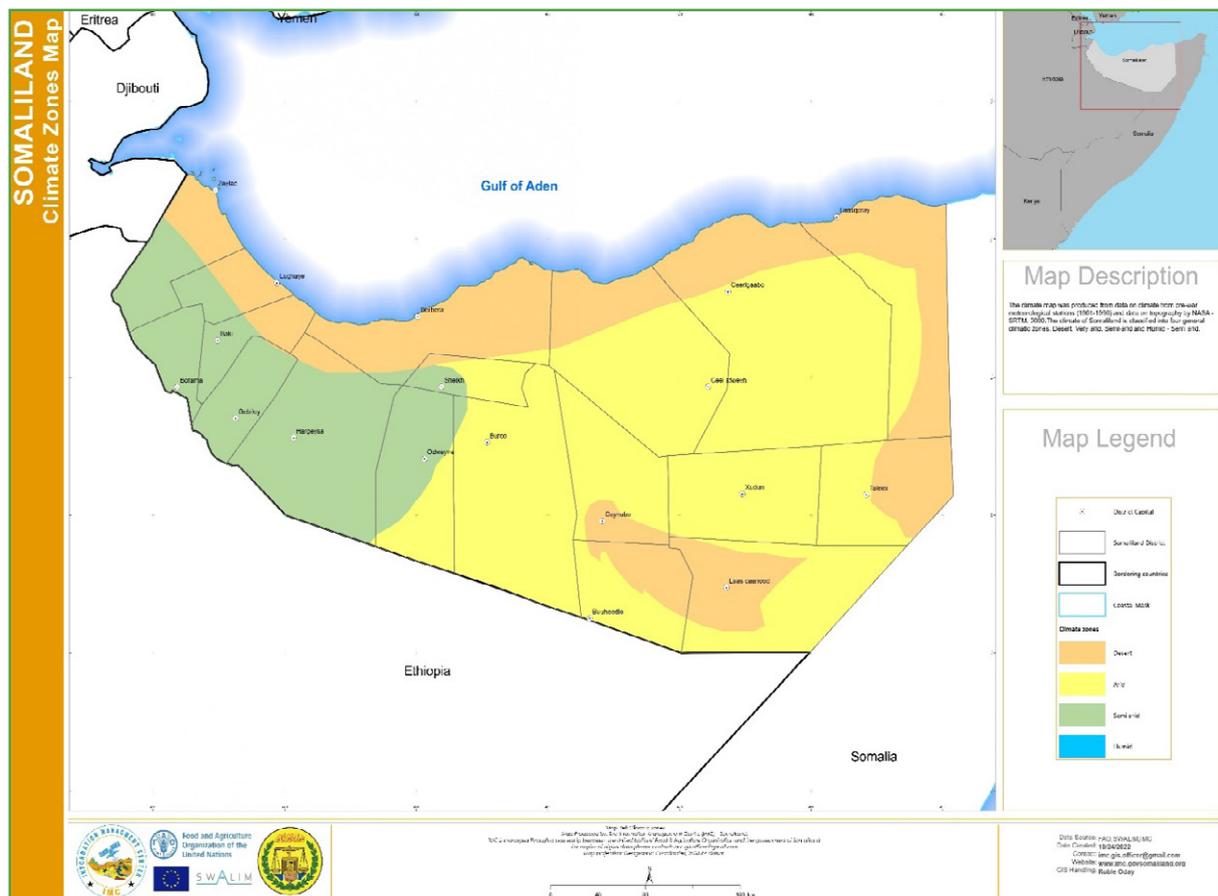


Figure 2. Somaliland climate zones

From this analysis, it is evident that Somaliland is predominately dry with 75% of the region being either Desert or Arid. Only a small portion of Somaliland to the South West is semi-arid. Somaliland is therefore prone to harsh weather conditions which present a major land resource development challenge

1.5 Temperature

The mean air temperatures are generally high: in the range of about 25° C to more than 35° C in the northern coastal regions (e.g. Berbera) while it is cooler in the Saahil mountain region (e.g. Shiekh) where it varies from about 15° C to about 23° C. In the inland areas of the Togdheer/Nugaal basins, it varies between 22° C to about 33° C. The mean temperature is highest from June to August in the Gulf of Aden basin areas whereas the peak temperature occurs from May to September in the inland areas of the Togdheer/Nugaal basins. In the eastern coastal areas of the Central Coastal basin, the mean temperature is cooler than the inland and northern coastal regions and is more or less constant between 25° C to about 28° C throughout the year (FOA SWALIM, December 2021).

1.6 Water Resources

Water resources are generally scarce in Somaliland and there is no rivers with perennial flows. Groundwater is the main source of water for the majority of the people in the country to meet their water needs. Groundwater from dug wells, bore holes and springs are the primary sources of water for the population in the most of the country. Groundwater is harnessed by the rural and urban population to meet domestic and livestock water needs as well as for small scale irrigation. Somaliland Ministry of Water Resources Development together with partners namely FAO SWALIM, UNICEF among others conducted the water inventory sources across Somaliland in 2019, the assessment established a total of 914 water sources including boreholes, hand dug-wells, dams, springs and others as per below shown map:

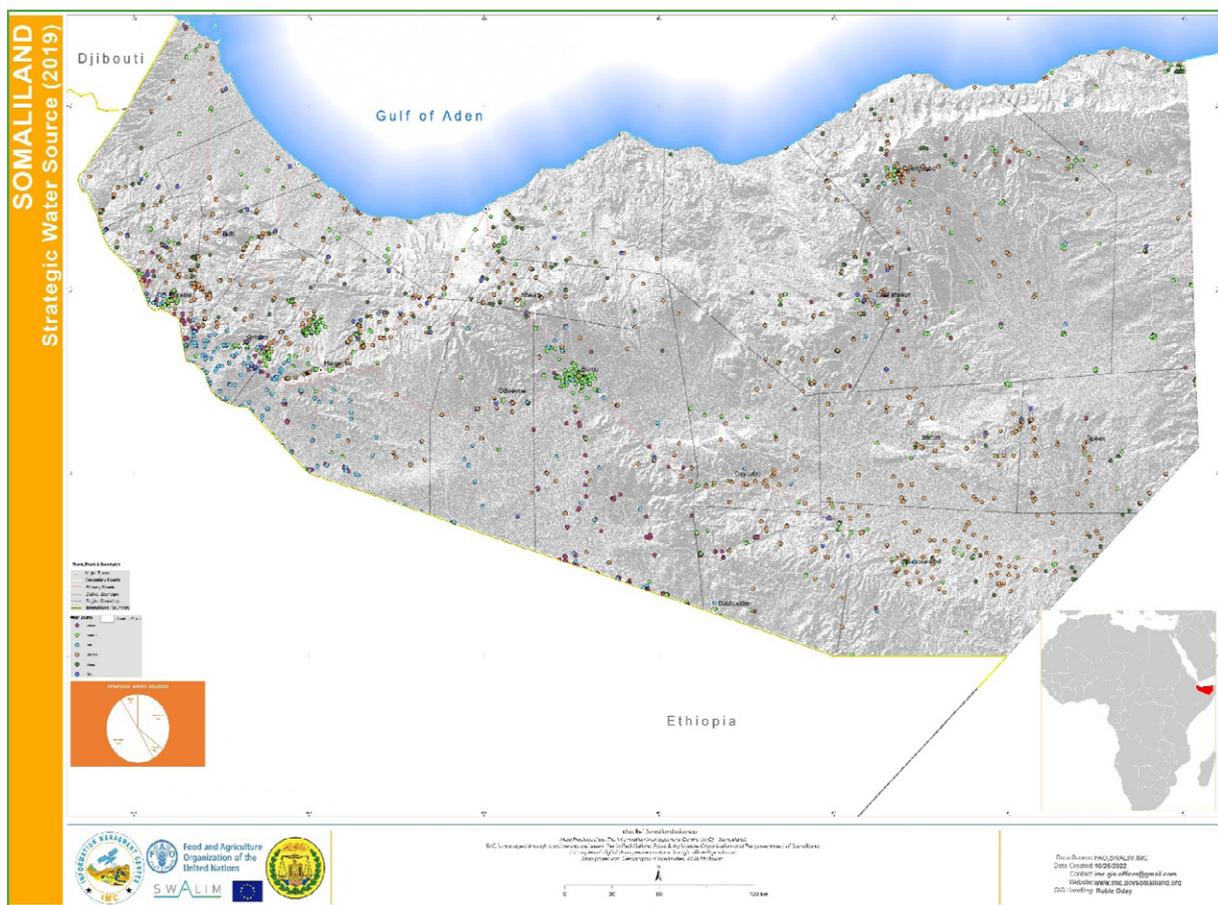


Fig 3. Somaliland Strategic Water Sources in 2019



1.7 Flora

The vegetation in Somaliland is predominantly dry deciduous bush land and thicket dominated by species of Acacia thorn trees, commiphora, aloes, and candelabra trees are native to the semiarid regions, with semi-desert grasslands and deciduous shrub land in the western parts neighbouring Ethiopia. Trees that provide frankincense and myrrh are native to the region as well. Mangrove trees are found in the western part of Somaliland namely from Zeila to Lowyacada along the Red Sea coast. Papaya grow along the dry seasonal rivers. Dune palm, pine, juniper, cactus, and flowering trees such as the flamboyant were imported and have become widespread in populated areas.

1.8 Fauna

Along with its large livestock herd, Somaliland has one of the most abundant and varied stocks of wildlife in Africa. Animal life includes elephants, lions, wildcats, zebras, hyenas, gazelles and other mammals, although many of them are on the verge of extinction or are already extinct such as elephants, zebra etc. A large variety of birds inhabits the different geographical zones, among these several species endemic to the Somali Region, e.g. Somali Pigeon (*Columba oliviae*), Somali Thrush (*Turdus ludoviciae*) and Warsangeli Linnet (*Carduelis johannis*). For whole Somaliland a total of 177 species of mammals, 727 species of birds, and over 3,000 species of plants have been reported.

1.9 Environmental Degradation

Environmental degradation is a gradual negative environmental process which can be accelerated by human activities. Due to its gradual nature, it takes some time (e.g. from a rainy season to several years) before manifesting observable symptoms in the field and is therefore often unnoticed until it is quite advanced. During its development, it leaves a trail of destruction which may be difficult and costly to eradicate should the responses to control the degradation be delayed.

Examples of such destructions include inhibition of root-zone supply of water and nutrient for plant growth and subsequent reduction of food production, loss of vegetation and consequent loss of livestock pasture, interference with hydrologic cycle through decimation of trees and siltation of surface water reservoirs, destruction of road network by gully erosion, among others. These negative effects generally touch on food security, economic well-being, and environmental conditions

The fauna and flora in Somaliland is affected by environmental degradation due to several factors such as: (i) clearing of vegetation and deforestation, (ii) illegal charcoal production, and trade (iii) over-fishing and illegal fishing by foreign companies in coastal waters; (iv) indiscriminate shooting and hunting of wildlife; (v) uncontrolled over-grazing by livestock; (vi) erosion and desertification, and (vii)

Unsustainable farming practice, much of Somaliland's environment has been severely degraded in the past thirty years.

According to the land degradation assessment (2007) which was conducted by FAO SWALIM together with the line ministries, it was revealed that land degradation is only moderate to strong in Somaliland. About 37% of Somaliland is degraded and the most common degradation types are soil loss due to wind and water erosion, loss of soil nutrient in agriculture productive areas (mainly western part of Somaliland), loss of vegetation cover (in eastern part, parts of north-western and south-eastern), and invasive and non-palatable plant species in western Somaliland.

With natural resource degradation rampant throughout the country, most notably, the production of charcoal, Somaliland is becoming increasingly vulnerable to the perils presented by climate change and the unsustainable utilization of the environment and the natural resources are severely jeopardizing Somaliland's economy where majority of the people are dependent on climate-sensitive agriculture and pastoralism-based economic systems for their livelihoods.

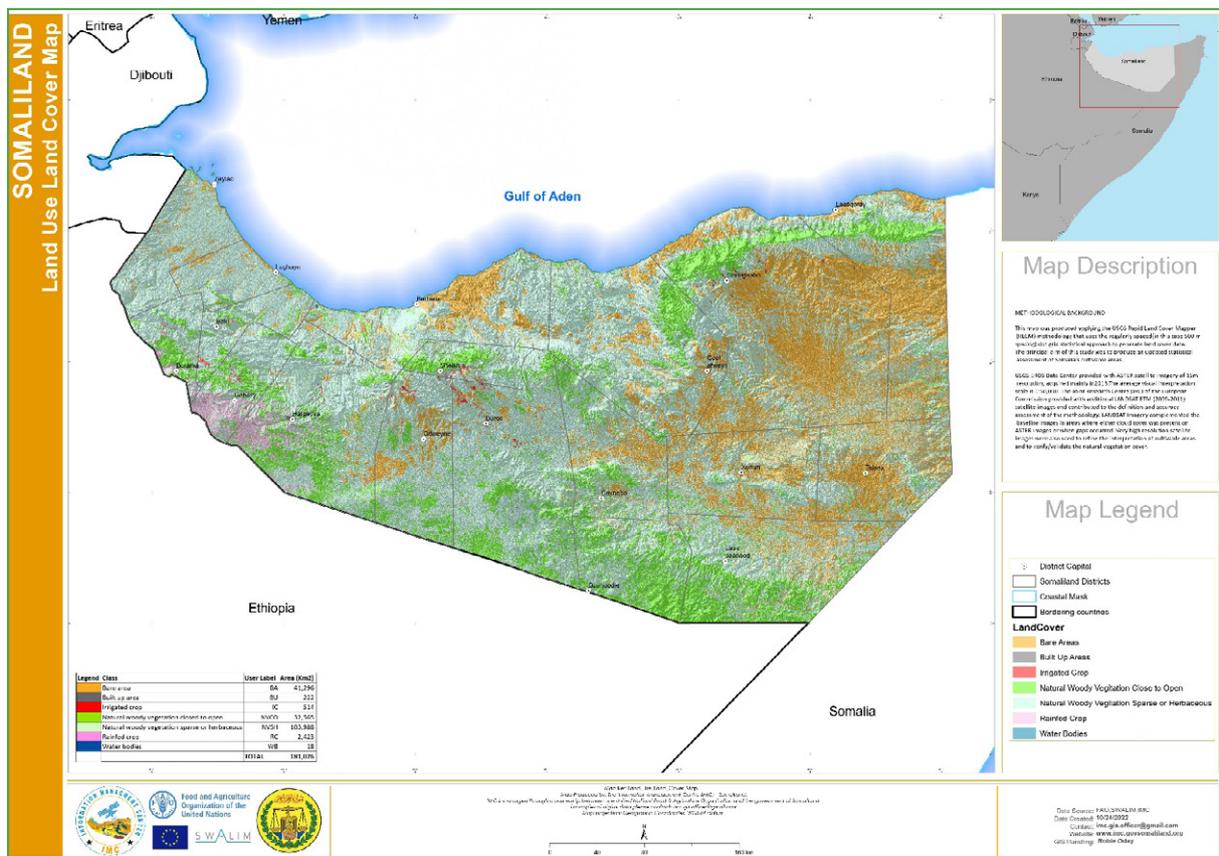
1.10 Geomorphology

Somaliland can be divided into three major physiographic provinces: (i) The coastal belt; (ii) The mountainous zone incised by numerous seasonal dry rivers; (iii) The plateaus and valleys which include the large undulated Hawd and Sool plateaus and the Nugal valleys. The highest elevations occur in the Golis Mountains near the Gulf of Aden. Coastal belt and plateaus have mainly an undulating topography.

1.11 Land Use

The main land use in Somaliland is extensive grazing (pastoralism), only 3 percent of the land is, currently, used for crop production, and a further 7 percent is potentially arable. Around 60% of the land is used purely for grazing including transhumance pastoralism and about 40% for crop production where rain-fed agriculture is practiced.





1.12 Socio-Economic Environment

The population of Somaliland in 2021 was estimated at 5 million according to the Ministry of National Planning and Development (Somaliland in Figures, 2011). About 55% of the people are nomadic pastoralists and 45% are urban and rural dwellers. Somaliland is predominantly a nomadic pastoral community and traditionally the major livelihood is livestock husbandry, which is the main source of food and income for 70% of the population including rural pastoral and urban communities. Crop production ranks second to livestock.

There are three main sources of revenue in Somaliland today: livestock, agriculture and remittance from the diaspora. Livestock is the backbone of the Somaliland region's economy. Sheep, goats, camel and cattle are shipped from the Berbera port and sent to Arab countries, mainly Saudi Arabia. Around 10% of land area is estimated to be suitable for permanent agriculture (Somaliland country profile 2021).

It is mainly found in the western regions, where rainfall is higher and soil is more fertile. Spate/flood irrigation is also practiced in parts of Togdheer such as Beer, Gatiitaley and Haahi. The major crops include maize, sorghum, and millet.

Felling of trees for charcoal production is also very common and occurs almost in all Somaliland. Charcoal production is for both local household consumption and income generation through sales in the local markets. Although the export of charcoal is unlawful in Somaliland, it is illegally taken across the border.

Lack of access as a result of poor infrastructure, particularly roads, is inhibiting socio-economic development. The government of Somaliland is driven to strengthen the health system despite facing multiple challenges in its efforts to improve coverage, access, staffing and service delivery,

Education in Somaliland is generally limited. One out of two female members of the household and 43 percent of male household members had some form of primary education. In comparison, 30 percent of all children attending primary school are of the right age for that level, and only 11 percent of children attending secondary education are of the right age for that education level (The Somaliland Health and Demographic Survey 2020).

Somaliland is facing rapid urbanization, which is creating another vulnerable group-the urban poor. This group includes destitute pastoralists who lost their animals, and economic migrants

Internally Displaced Persons (IDPs) and returnees occupy the major towns. It is estimated that up to 100,000 IDPs are languishing in IDP settlements in the major towns of Somaliland with contaminated water and no sanitation facilities, lack of access to basic social services, rampant disease and regular outbreaks of fire/arson. However, there is an active inter-agency IDP working group consisting of UN agencies, NGOs and local partners who are providing assistance to the Somaliland authorities on the provision of humanitarian assistance to IDPs, as well looking at the implementation of longer-term responses which focus on IDP reintegration.



2

**RATIONALE, VISION,
PURPOSE AND GUIDING
PRINCIPLES**

2.1 Rationale of National Climate Change Policy

Article 18 of the Somaliland's Constitution together with several other aspects of the existing laws enacted by the parliament regulates the management and the protection of the environment. In addition, to reaffirm its economic, environmental and social development responsibilities, the National Vision 2030 and National Development Plan (NDP III 2023 – 2027) policies are among key policies upon which the protection of the environment, economic and social development of the Government of Somaliland's commitments rests upon.

Somaliland is not a party to the United Nations framework Climate Change Convention (UNFCCC) or the "Paris Agreement", thus, it has no obligation under the "Intended Nationally Determined Contributions (INDCs)" arrangement of the United Nations framework Climate Change Convention (UNFCCC) Notwithstanding to this, the Government of Somaliland (GoSL) acknowledges that, the impacts of climate change are global in scope and unprecedented in scale. It also recognises that, due to the nation's high reliance on natural resources-based economy, the country is disproportionately vulnerable to the impacts of climate change and the resulting changes are likely to have serious consequences for future food security, water and other natural resources, health and biodiversity among other important resources. Furthermore, the Government of Somaliland (GoSL) accepts that, on account of the current climate change crisis, traditional economic growth pattern cannot be sustained and thus, "green growth" or a path of economic development that uses natural resources in a sustainable manner is to be pursued as part of the national development agenda.

Therefore, by endorsing the "Rio Convention", and at best, contributing to the actions taken by other nations under the "Paris Agreement", Somaliland can only then ensure attainment of the objectives of its National Development Plan III (2023 – 2027) and National Vision 2030 and those of the Sustainable Development Goals (SDGs), which form the basis to realise a healthy and more sustainable future for its citizens.

In view of the above contextual circumstances and taking into consideration its own capabilities, the Government of Somaliland (GoSL) initiated this document as its "National Climate Change Policy" (NCCP) to address impacts of Climate Change and generates resilience mechanisms in its territory.

2.2 Vision of the Policy

The vision of Somaliland National Climate Change Policy is to make sure that our citizens become more resilient to climate change and to be resistant to impacts of climatic changes to their social and economic status.



This National Climate Change Policy is envisaged to increase the community adaptation and mitigation capacity to minimize the wide range impacts of climate change to various in Somaliland. This climate change policy will make sure that interventions and projects are mainstreamed to the facts of climate changes.

2.3 Purpose of the Policy

The overall purpose of the Somaliland's National Climate Change Policy (NCCP) is to enhance the resilience and improve adaptive capacity of the country as whole, and in particular, the vulnerable communities and the ecosystems on which they depend, whilst equally, pursuing a path of economic growth that uses natural resources in a sustainable manner.

2.4 Policy Objectives

Key objectives of the policy are:

1. To reduce climate change vulnerability and strengthen coping mechanisms of vulnerable communities and the ecosystems and improve disaster preparedness and management.
2. To propose possible "Adaptation Interventions" to reduce the impacts of climate change, equally, improving resilience, minimize susceptibility and recovery capacity of vulnerable economic, environment and social sectors.
3. To improve institutional coordination and mainstream climate change response across all key economic, environment and social sectors, to better manage future challenges and risks posed by climate change.
4. To provide summary or guide for resource deployment (financial and technical) required to realise objectives of the National Climate Change Policy (NCCP) through participatory process to address the most immediate effects of climate change and climate related risks across the country.
5. To provide framework for capacity-building that addresses the needs, conditions and priorities relating to climate change responses of the national and local institutions (governmental and non-governmental) to strength skills and knowledge and provide opportunities of shared experience among stakeholders.
6. To promote public participation and awareness of the effects of climate change and inform citizens possible climate change "response actions" that reduces or lessens potential

adverse impacts, whilst, improving the recovery capacity of vulnerable communities, including women and children.

7. To promote use of research, science and technology in development policy decisions.

2.5 Scope of the policy

This policy is intended to guide the development policies and operations of those concerned with development matters in Somaliland, including government institutions, non-governmental international, local organisations and private sector with the intention of enhancing coping and recovery mechanisms of the Somaliland citizens to the risks of climate change.

2.6 Policy Design

Generally, climate change policy must address two important issues, which directs policy options; (i) mitigation – which refers to efforts aimed to reduce or prevent emission of greenhouse gases at source. Mitigation approaches are costly and require unprecedented shift from the conventional economic development policies and even advanced economies that emit most of greenhouse gases (GHG) are reluctant to fully exploit this approach, (ii) adaptation addresses the effects of climate change. Adaptation does not necessarily eliminate all negative impacts of the climate change, but it limits or lessens possible damages.

Also, effects of climate change are very specific in the circumstances of geographical location, sectoral features and cross-sectoral interactions and there is no “one size-fits-all” policy for countries or even sectors. Thus, climate change policies are developed based on a reflection of national settings, development aspirations, and sectoral characteristics and cross-sectoral interactions.

Somaliland is among the Least Developed Countries (LDCs) with trivial emission profile and weak natural-based economy which is highly susceptible to the effects of climate change. Therefore, this National Climate Change Policy (NCCP) is designed in consideration of the above said basis and with the principles of “Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)” and thus, resilience-based approaches and interventions is the preferred policy position.

2.7 Guiding Principles

A range of international and local legal and policy frameworks addressing climate related issues listed below will underpin the implementation of the policy:



- 1) Somaliland Constitution: Under Article 12 and Article 18 of the Somaliland Constitution gives the state full responsibility of the country's natural resources protection and its exploitation for the benefit of its citizens.
- 2) National legislations with reference to management and safeguarding of natural resource and biodiversity.
- 3) National Vision 2030. This policy provides framework that pledges Somaliland citizens should live in stable, democratic and prosperous country and enjoy a quality of life and reduced poverty.
- 4) National Development Plan (NDP III 2023 - 2027) The National Development Plan recognises the environment sector as a key pillar of the national asset and points out that:
 - A. **"Somaliland should have a healthy and well-managed environment that is productive and sustainable",**
 - B. **"Resilience of the country/citizens against the effects of climate change should be increased through improved management of the environment, strategic water management, food security and diversification of the economy".**
- 5) Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) is a principle within the United Nations Framework Convention on Climate Change (UNFCCC) that acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change.
- 6) Right to Sustainable Development. The Rio Declaration and its Principles acknowledges that, human beings are at the centre of concerns for sustainable development and thus, Somaliland citizens have the right to a healthy and productive life in harmony with nature in order to realise sustainable development, where environmental protection human rights are integrated into the development process.
- 7) Partnerships and co-operation development with stakeholders from the public, government, nongovernmental organisations, civil society and private sector, as well as vulnerable communities and populations including women and youth, is a fundamental component in the effective implementation of the policy.

2.8 Application

This Somaliland National Climate Change Policy shall be a vital tool in the national environmental sector

legal framework documents. It provides guideline to all public institutions, private, non-governmental, statutory, civil society and international agencies which are involved in, or which may seek to become involved in, addressing environmental and climate change issues that may have positive and negative impacts to the environment, climate, socio-economic status of the Republic of Somaliland.

2.9 Key Focus Issues of the Climate Change Policy

Somaliland has little contribution over the causes of climate change, yet is highly vulnerable to the effects of the global climate changes. Therefore, Somaliland's current primary focus of climate response is to build and secure the appropriate long-term sustainable resources for adaptation to the effects of climate change. For mitigation, Somaliland will predominantly focus on low carbon development and sustainable energy since Somaliland does not emit significant amounts of GHG into the atmosphere.

Somaliland shall however explore access and utilise available global mitigation techniques for the country's economic benefit such as benefits from energy efficiency such through Clean Development Mechanisms of UNFCCC. This is done through the use of cleaner more energy efficient technologies, and adapting existing renewable technologies to be more economically viable.

Hence the Somaliland National Climate Change Policy shall primarily focus on Climate Change Adaptation measures while necessary attention will be given to mitigation.

The National Climate Change Policy (NCCP) provides strategic direction and guide to the key issues of climate change in Somaliland. It emphasizes two key issues:

1. Adaptation
2. Mitigation

2.10 Adaptation

Adaptation to climate change is crucial to help Somaliland communities to reduce vulnerability to the impacts of climate change.

The policy identifies the key adaptation needs and establishes priorities of adaptation activities against the key vulnerabilities in each sector.

Comprehensive lists of adaptation needs/options for each key sectors were identified in Somaliland.

The following sectors that need to be addressed were identified:



- 1) Agriculture Sector
- 2) Livestock sector
- 3) Water sector
- 4) Fishery sector
- 5) Natural Environment (Fauna and Flora)
- 6) Industrial sector
- 7) Road Transport Infrastructure sector
- 8) Energy and Extractive Sector
- 9) Telecommunication Sector
- 10) Urban Sector/Built Environment
- 11) Education Sector
- 12) Health Sector
- 13) Mainstreaming Youth and Gender

2.11 Mitigation

- This policy supports Somaliland to look forward creating cleaner, lower emission, and less carbon-intensive economic development.
- Somaliland needs to positively to respond to obligations of international legal instruments on enhanced mitigation actions, including low carbon growth. Somaliland targets to be climate-friendly country with low carbon economic growth through green technology.
- Somaliland's focus is mainly on adaptation to climate change. However, this does not make mitigation irrelevant. Somaliland contribution (62.92 Mt CO₂ as at 2015) to the total global GHG emissions is marginal, representing less than 0.12 percent of total global emissions in 2015 while the Energy and Waste contribute 3 percent and 1 percent respectively and the Industrial Processes and Product Use (IPPU) sector is not considered significant (INC, 2018).

3

CLIMATE CHANGE CONTEXT

3.1 Descriptions

In IPCC practise, climate change, means “a statistically substantial disparity in the usual condition of the climate or in its variability, lasting for a lengthy period, typically decades or longer and may be due to natural variability or as a result of human activity (IPCC, 2014)”. Likewise, the United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as, “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere which is in addition to natural climate variability observed over comparable time periods” (UNFCCC, 1992). Hence, “climate change” is regarded as a result of human activities altering the atmospheric composition of natural greenhouse gases (Carbon Dioxide, Methane, Nitrous Oxide and Chlorofluorocarbons) and land use, whereas “climate variability” is ascribed to natural causes.

3.2 International Context

Since the industrial revolution, concentration of greenhouse gases (GHG) in the atmosphere have increased significantly. Thus, the average global temperature is now one degree Celsius higher than pre-industrial levels (Lockwood, 2009) (figure 1), and considering the on-going trend emissions of greenhouse gases (GHG) and their concentration in the atmosphere, scientists forecast that, by the end of this century, average global temperature will exceed 1.5°C compared to 1900 levels (IPCC, 2018) (figure 2).

This increase in global mean temperature is causing chain of reactions including, extreme climate-related events (excessive precipitation, prolonged dry spells, wildfires, thunderstorms, downbursts, tornadoes, waterspouts, and cyclones) and change in rainfall patterns and its intensity and frequency among other effects around the world. All these changes have destructive forces that upset the natural ecosystem balance and cause significant disruption in food availability, food quality, reduce agricultural productivity, limit and reduce access to water resources among other grave impacts. To put this into perspective, as a result of the warmer climate, between 1981 and 2002, all major crops such as maize and wheat have experienced substantial yield reductions of 40 megatons per year at a global scale (IPCC, 2014).

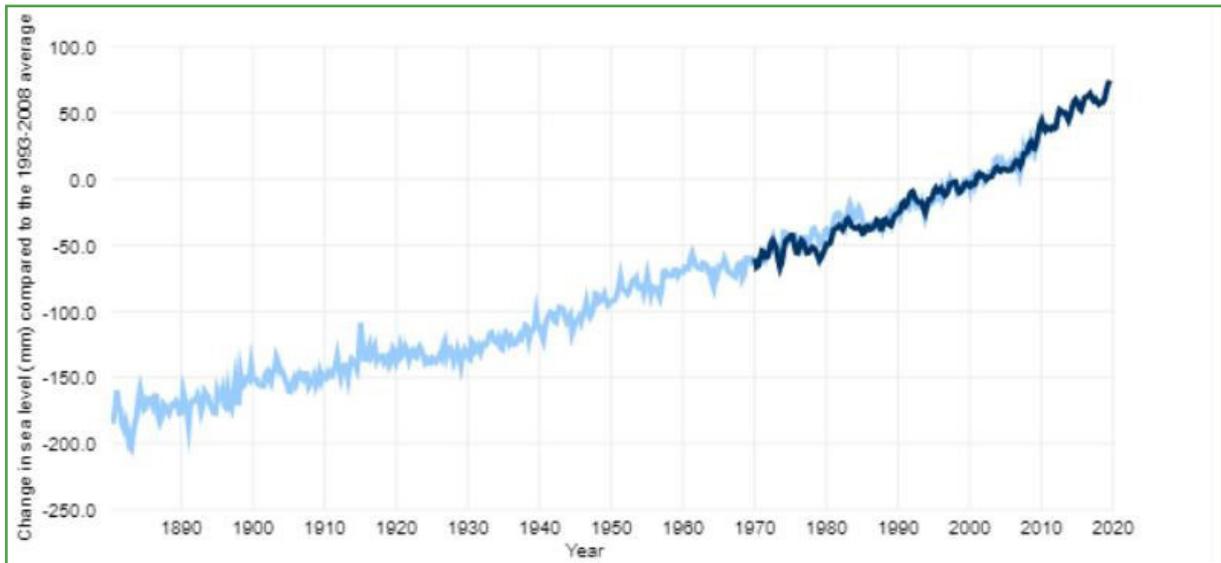


Figure 1.
Global average land-sea temperature anomaly relative to the 1961-1990 average temperature in degrees Celsius (°C).

Data Source:: <https://www.climate.gov/news-features/understanding-climate/climate-change- global-sea-level>.

Also, an increase in global temperatures causes melting ice and subsequently raises global sea levels. According to IPCC (2013), on average, global sea level rose around 1.7 millimetres per year between 1901 and 2010 (figure 2). Current studies indicate that, in 2018 alone, global mean sea level was 3.2 inches (81 mm) above the 1993 global average level - the highest annual average rise in records (Lindsey, 2019). Recent data published by IPCC indicates that, by the end of this century, sea level rise is expected to reach between 0.95 feet (0.29m) and 3.61 feet (1.1m) (H. Porntern, etal, 2019).

In populated urban settings along coastal regions around the world, rising seas threaten ecosystems and will cause catastrophic destructions of infrastructures such roads, bridges, subways, water supplies, communication infrastructure, oil and gas infrastructure, power plants, manufacturing plants, among others – an impact that is practically endless—setting off incomparable further sets of environmental, economic and social disruptions, including possible mass relocation or loss of millions of lives in many parts of the world.



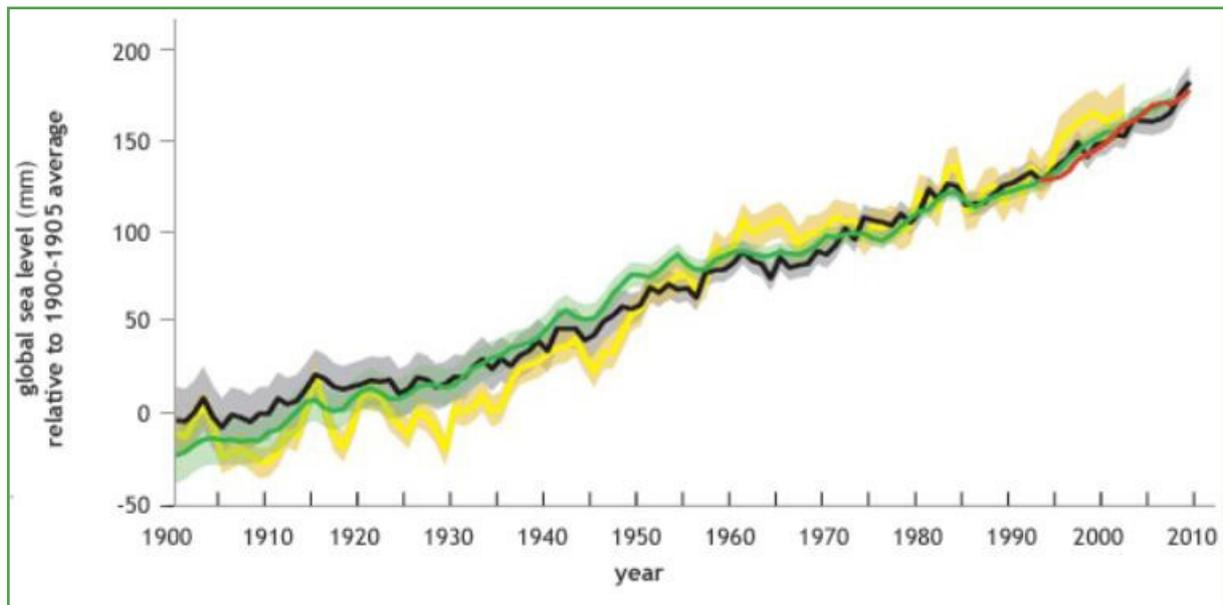


Figure 2: Global mean sea level temperature compared to the 1900-1905 average.

Data Source: IPCC

Similarly, climate change is expected to strengthen the intensity and frequency of extreme weather events which includes, unpredictable precipitation pattern (figure 3), tropical cyclones, snow and ice storms, thunderstorms, tornadoes, dust storms and longer dry spells, wildfires – adversities that have already manifested themselves as regular incidences in many parts of the world in recent decades (IFRC, 2016).

Bearing in mind the current trend of global warming since industrial times, effects of climate change on the ecosystem and human system, be it slow-onset disasters (pollutions, desertification, droughts or coastal erosion) or sudden onset disasters (tropical storms, flash floods and recurrent droughts) are expected to be a long-term and continue for centuries to come even if emissions causing global warming are reduced significantly or removed from the atmosphere (UNFCC, 2012).

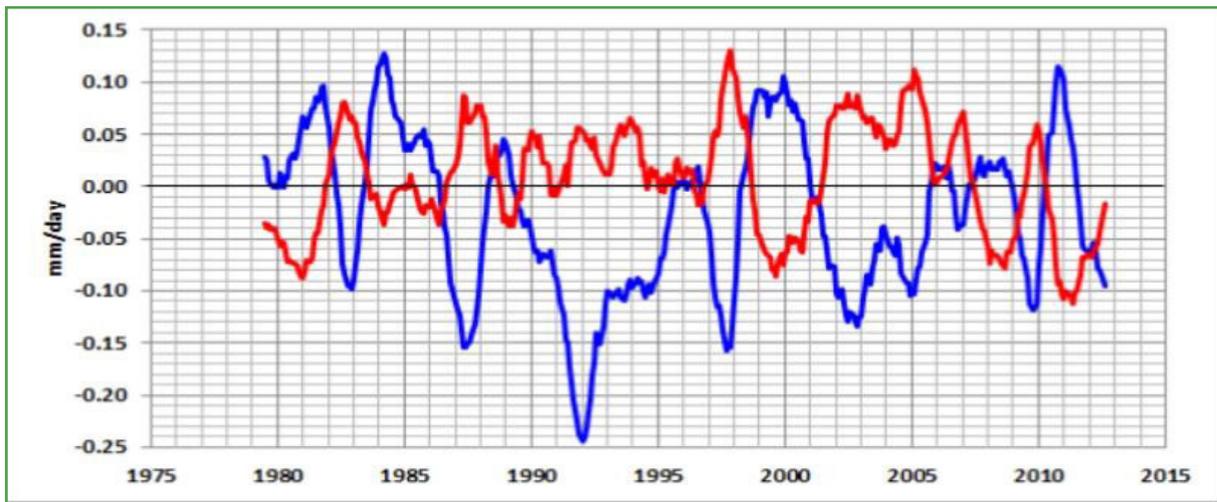


Figure 3: Global Precipitation Anomalies (1979 – 2013)

Data source. National Oceanic and Atmospheric Administration – USA

3.3 Regional Context

Despite being the least responsible for the pollutions causing the global warming, the Intergovernmental Panel on Climate Change (IPCC) acknowledges that sub-Saharan regions of Africa are disproportionately exposed to the effects of climate change. Current temperature predictions for East Africa indicates continuous warming trend, and by 2080, temperature in East Africa is predicted to rise between 5.4 to 7.2 degrees Fahrenheit – an increase that is one and a half times more than the projected global average (NASA, 2018).

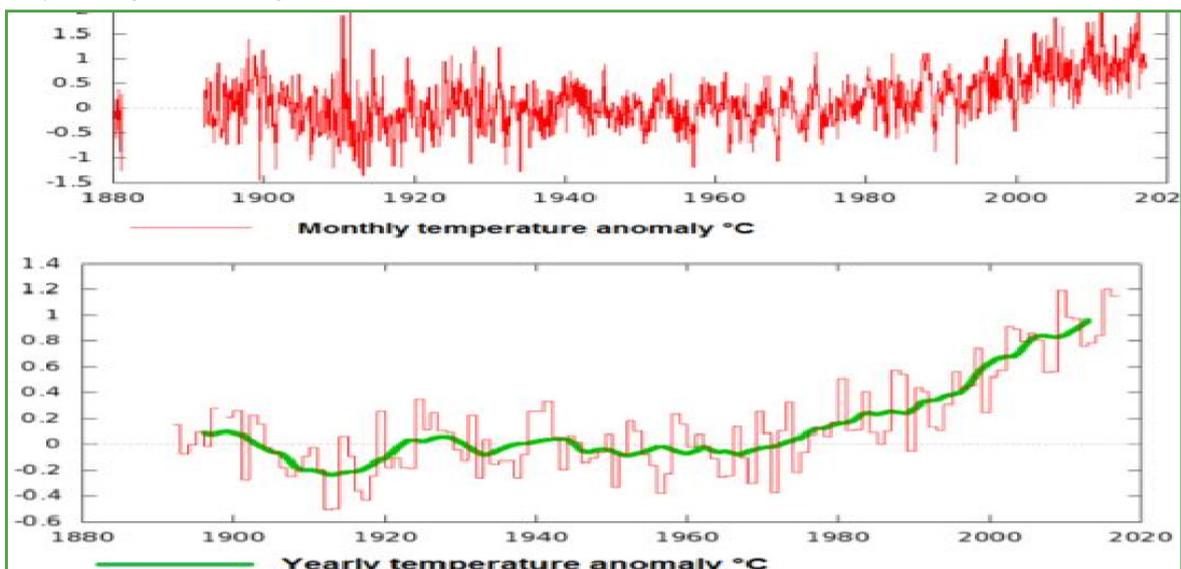


Figure 4: Temperature anomalies in East Africa.

Data Source: NASA, GISS MAPS



Although the resulting effects of climate change for East Africa are several, erratic rain patterns causing recurring cycles of droughts and subsequently increasing aridity, desertification, water shortage and decrease in agricultural yields and food shortage are now normal and prevalent in East Africa. According to the UN, rain fed agricultural systems and livestock on which the livelihoods of most of the East Africa population depends on are particularly susceptible to climate change and during recent droughts, around 13 million people across the region suffered from food shortages. As agricultural and pastoralism livelihood dependency becomes more strain, the rate of rural-urban migration is also expected to increase, adding further economic, environmental and social stresses to an already significant urbanization trend in the region (Heidelberg, 2016).

Also, in the last quarter century, on the north-eastern African coastline, sea levels have risen by as much as 12cm, and current prediction suggest that, by the end of this century, the region could experience as much as one meter of sea-level rise (Brown, 2018). While almost every coastal African country will be affected by the rise in sea level of this scale, low laying coastal regions will be hit the hardest. Experts predict that, by 2030, between 109 and 118 million people living in coastal regions in Africa could be affected by rising sea levels (Brown, 2018). This poses serious threat to a large and growing population in coastal areas, including high percentage of poor communities susceptible to effects of climate change with low adaptive and recovery capacity. The likely impacts of climate change impact in these regions include, destructions on infrastructure and properties, erosion, groundwater salinization, loss of economic activity, loss of lives, among other impacts which is expected to worsen compared to a scenario without climate change (S Brown, 2011).

The climate change impact on East Africa is further compounded inadequate economic development, limiting the ability of vulnerable communities to adapt to climate change impacts or recover from potential disasters – a situation that undermines improvements made in recent times in the environmental protection, security or stability and socio-economic well-being of East African citizens (Pasquini, 2019).

3.4 National Context

Majority of Somaliland's population are highly reliant on natural resource-based livelihood – a resource that is very susceptibility to effects of climate change. Degradation of the country's natural resources as a result of sustained and unregulated exploitation over several decades, such as excessive charcoal production and overgrazing has further heightened the people of Somaliland's vulnerability to climate change impacts (UNDP, 2018).

This vulnerability is further exacerbated by recurring droughts, including recent one, which lasted three successive years (2015 to 2017). Lack of rainfall has resulted in a significant reduction of water resources for agricultural and animal consumption, and around 70% of livestock were lost, leading to food insecurity and widespread hunger and malnourishment, significantly debilitating living conditions of an already fragile and vulnerable pastoralist communities and subsistence farmers who lack the resilience to adapt or recover from unexpected disruptions on this magnitude on their livelihood. As a result, around 6.5 million people in the wider Somali peninsula needed humanitarian assistance and tens of thousands of families were forced to migrate to an urban setting, where basic social services are already overstretched or inexistence (Wilson, 2018).



4

SITUATIONAL ANALYSIS OF CLIMATE CHANGE IN SOMALILAND

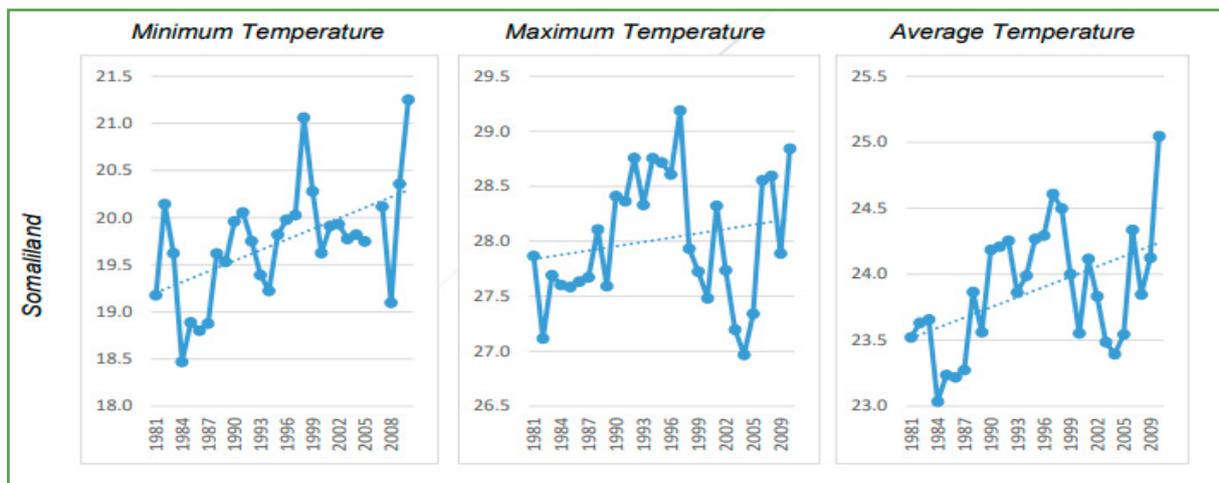
4.1 Evidence of Climate Change in Somaliland

4.1.1 Temperature

It is widely acknowledged that, effects of climate change will be at the greatest, felt by the world's poorest nations and nowhere is that more evident than in Somaliland. In recent decades, the Greater Horn of Africa (GHA) region including Somaliland has been marked by increasing temperature and increase in the number of extreme dry spells, with inadequate rains in last 20 years (Goldsmith, 2019). Consistent with this account, the Intergovernmental Panel on Climate Change's fourth assessment report (IPCC, 2007) reported that, as a result of climate change impact, the temperatures across the Horn of Africa region has been increasing exponentially over the last fifty years (IPCC, 2007). Recent study carried out by the University of California, Santa Barbara's Climate Hazards Centre for the Thomson Reuters Foundation found, an average, over the last thirty years, daily maximum temperatures in Greater Horn of Africa (GHA) have risen by about a degree from 33C⁰ to about 34C⁰(Chen, 2017).

The below graphs summed up the temperature in Somaliland.

Figure 5: Somaliland Temperature Analysis



4.1.2 Precipitation

The climate of Somaliland is an arid to semi-arid characterised by two dry seasons (summer and winter) that are relatively hot and two rainy seasons (spring and autumn) with moderate temperatures. Given the variation in climate features in the arid and semi-arid regions, precipitation broadly varies from location to location and from year to year, ranging from

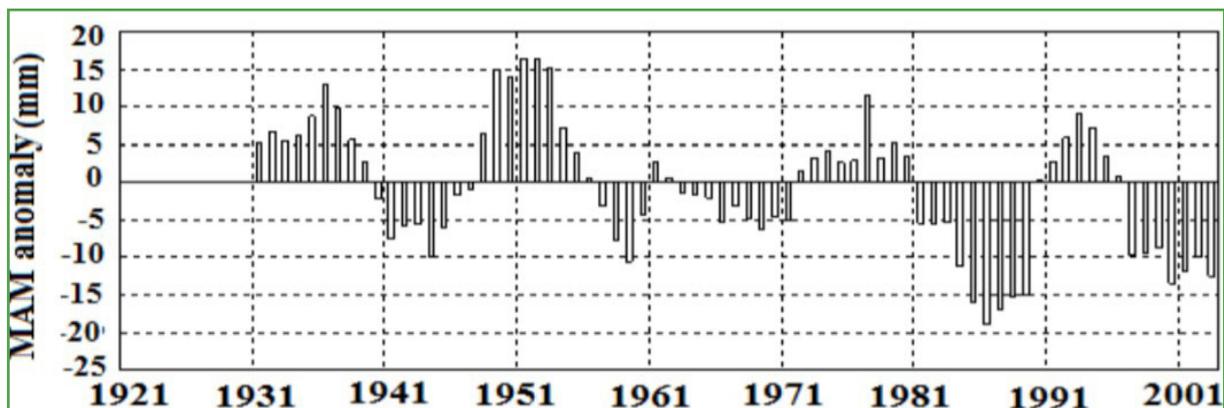


as low as 50 mm in coastal areas (arid) to 600 mm in mainland and as much as 900mm in the highlands (semi-arid). Around 50-60% of total annual rain occurs during the spring season (Gu), whereby autumn (Deyr) rains accounts for around 20-30% of the total annual rainfall (Abdulkadir, 2017). The rainfall cycle in Somaliland is dominated by the north and south movement of the Inter-Tropical Convergence Zone (ITCZ), but other weather systems such as Quasibiennial Oscillation (QBO), El-Niño/Southern Oscillation (ENSO), Indian Ocean Dipole (IOD), and intra-seasonal waves monsoonal winds and ocean currents, jet-streams, easterly waves, tropical cyclones all influence the precipitation patterns in Somaliland (UNDP, 2013).

Therefore, because of the effects of climate change on the above weather systems, there is an increasing consensus that, precipitation quantity and predictability in the Greater Horn of Africa (GHA) will decline in the longer term. For instance, in 2017, spring (Gu) rains were late and were 20-30 percent below average. This decrease in precipitation is predicted to intensify the frequency and severity of incidents of droughts. Also, due to change in the above weather systems attributed to the effects of climate change, weather-related risks, such as flash flood downpours and cyclones are expected to increase (UNDP, 2013).

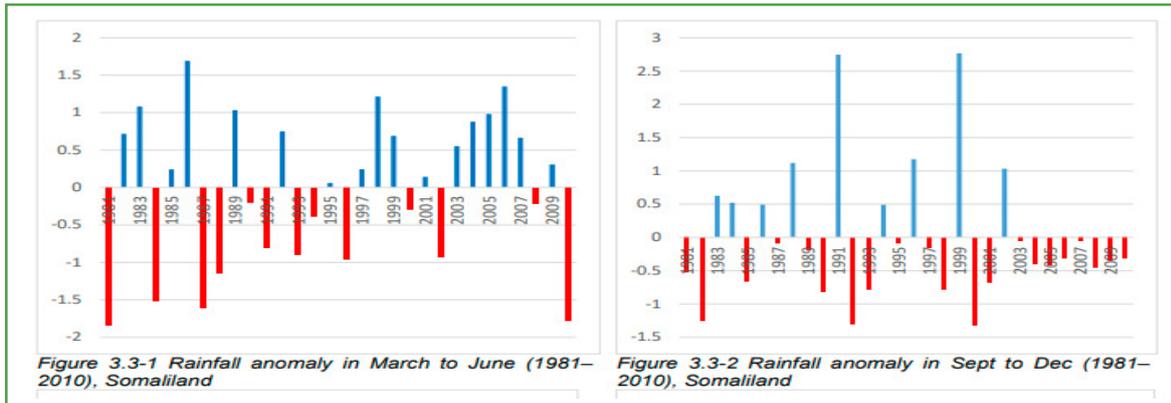
Figure 6: Decadal Rainfall Variability in Greater Horn of Africa (GHA).

Adapted from DINA, 2018



In the figure below, it summed up Somaliland rainfall analysis:

Figure 7: Somaliland Rainfall Analysis



4.1.3 Droughts

In the past, Horn of Africa had experienced droughts of various strengths. However, the frequency and the intensity of these droughts have become more persistent in recent decades, often each cycle lasting several years. For instance, attributed to the effects of climate change on the El Niño weather system (dry regions get drier and wet regions get wetter), in the course of 2015 to 2017, Somaliland and the Greater Horn of Africa (GHA) was hit by a severe drought with significant implication on the availability of grazing pastures and water resources, killing almost 70% of all livestock. Pastoralist's communities and those engaged in rain-fed agricultural production were particularly hit, leaving tens of thousands of families with serious food and water shortage. Reports indicate that, between 4.3 to 6.7 million people in the Greater Horn of Africa (GHA) required food assistance during the drought season (Wilson, T, 2018).

Recent Drought Impact and Need Assessment Report for Somaliland\Somalia (2018), suggests that, the total damages caused by the drought in Somaliland exceeded US\$874 million. Production sector, livestock, irrigated and rain-fed crop and fisheries were most hit, while the physical (Water & Sanitation, Environment and Transport), social (Health, Nutrition and Education), and cross-cutting sectors were also severely damaged (UNDP, 2018).

4.1.4 Floods and Soil Erosion

Climate models show that, the accumulation of greenhouse gases (GHG) in the atmosphere shift precipitation in two ways. Change in current precipitation patterns stronger than usual



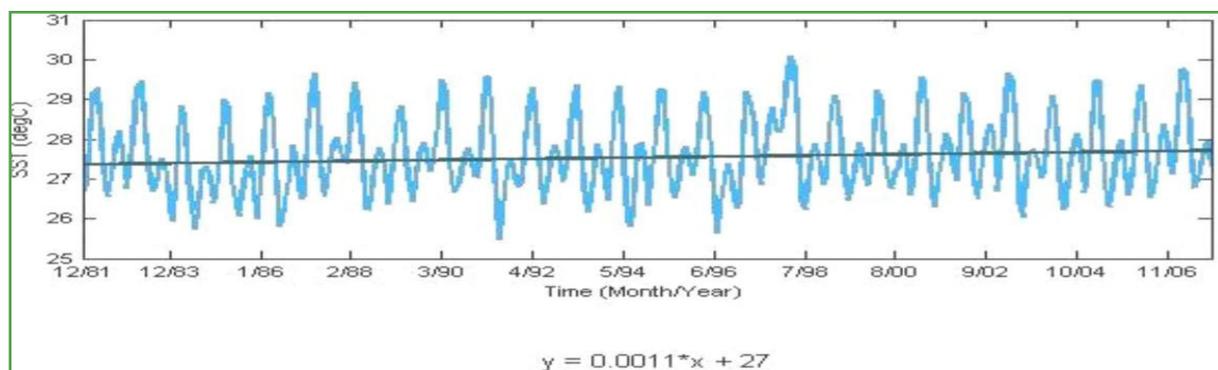
often making wet regions wetter and change in storm tracks moving away from the equator and in the direction of the poles as atmospheric circulation change making drier regions drier. In recent years, both events have occurred in Somaliland causing contrasting climate-related events with different degree of severity but having comparable adverse consequences. Climate change attributed impacts such as extreme and prolonged dry spells, soil erosion and floods, combined with uncontrolled exploitation of natural resources of the country such as overgrazing.

Apart from recurring droughts, in 2018, a tropical hurricane (Sagar) attributed to the effects of climate change has dumped a year's rate of rain, causing flash floods and the death of over fifty people and destruction of thousands of livestock and properties in coastal areas of the country (Wilson, 2018). Studies suggest that, considering the worldwide-observed tendency of higher rainfall-intensities, on account of climate change, the occurrence and severity of floods and other climate-related disasters will increase in the future all over the Horn of Africa with various degrees of severity (Oxfam, 2017).

4.1.5 Rising Sea Level – Sea Surface Temperature (SST)

Albeit, there is no or limited specific available data relating to sea level rise along the Greater Horn of Africa (GHA) coast to verify the expected sea level rise rate. However, a fifteen-year (1995 - 2010) record on observations of monthly mean sea level from a tide gauge in coastal regions of Kenya close to the Horn of Africa coast, which is part of the Global Sea Level Observing System (GSLOS) indicates a rising trend of about 1.3 mm per year, which is aligned to the global trend. Intergovernmental Panel on Climate Change (IPCC) also suggest that, by the end of the century, a mean sea-level rise of about 50cm along the Indian Ocean coastline is expected (IPCC, 2007).

Figure 8: Greater Horn of Africa Sea Surface Temperatures



4.1.6 Biodiversity Loss and Habitat Destruction

Somaliland has a spectacular array of species and potential ecosystems that have evolved with level of endemism, thus it is one of the Countries (Somaliland) in Africa being found the largest endemic Flora and Fauna.

This endemism of species are largely related to indo- Mediterranean, Asian and African Flora and Fauna and arrived over hundred thousands of years by various means of dispersal. The large numbers of potential habitats in the Country provided unfilled ecological niches that are among major contributing factors to speciation, making Somaliland one Africans major biomes or center of Endemism.

This relatively high rate of endemism divulges the substantial conservation value that exists in Somaliland but also economic value of biodiversity towards wellbeing or sustainable functioning of production systems, on which livelihood of population depended and the economy in general.

In regard with the marine environment, the areas from the Djibouti border to raasurad are the very high Biodiversity sites as they hold elements of Fauna and flora such as abundant pelagic species from Gulf of Aden, Red sea and Arabian Sea. On the others hand several Island locate that zone (Saed Din, Maydh and khorshora) are extremely important nesting and roosting site seabirds. On the other hand, Bush/Woodlands and Highland Forests are important biodiversity sites in Terrestrial environment.

Climate change attributed impacts such as extreme and prolonged dry spells, soil erosion and floods, combined with uncontrolled exploitation of natural resources of the country such as overgrazing, poaching and excessive charcoal production causing deforestation, biodiversity species (fauna and flora) and their habitats are under extreme pressure prompting widespread decline in biodiversity's relative species abundances in terms of quality and quantity throughout the Somali peninsula.

Biodiversity increases ecosystem output, and every species, despite its size or number, plays an important role in the functioning of the ecosystem. Examples of the biodiversity loss can be seen in reduction of biodiversity of crops, the reduction in the number of perennial grass and woody vegetation in rangelands, or wild animals that were once roamed in plains in large numbers, or marine resources.

4.2 Climate Change Impacts on Different Sectors in Somaliland



The changes climate has obvious impacts on Somaliland it encountered recurrent droughts in the past 20 years that have intensified since 2015 as consecutive rains have failed. The impact of climate change traverses a wide range of societal aspects, economy, and environment. The adverse effects of climate change affect the following sectors:

4.2.1 Table 1: Climate Changes Impacts in Somaliland

Sector	Impacts
Food Security and Nutrition	<ul style="list-style-type: none"> • Recurrent droughts resulted lack of water for crops and livestock and thereby crop production lost. • Rise of temperature destroyed crops. • High rise of red sea level may have potential negative affect to the fishery sector. • The rise in temperature will affect the quality and quantity of crop yields. • Climate change has already led to a rise in prices of major crops and staple foods. • Higher levels of CO2 may reduce the nutritional value of crops.
Livestock, Fisheries, and Agriculture	<ul style="list-style-type: none"> • Impacts include lower pasture and animal productivity, damaged reproductive function, and biodiversity loss. • Recurrent droughts, adversely affect livestock production in Somaliland. • Rising ocean acidification and temperatures are altering the aquatic ecosystems. • Temperature rises affect the cold chain of fish supply and thereby it reduces fishery practices • Fish would not survive from the droughts as it misses fresh water • Lack of rain is obvious challenges to the farming
Environment, Water and Forestry	<ul style="list-style-type: none"> • Climate change has had a significant adverse impact on Somaliland's natural ecosystem. • Quality of life of depend on the ecosystem will be deteriorated • Water scarcity is critical to existence of plants and the biodiversity in general • The recharges of grwwoundwater resources (aquifers) are depleted and access of water in the ground will be less.

Land Degradation and Desertification	<ul style="list-style-type: none"> • The vegetation in Somaliland will be lost due to climate changes and high temperatures. • The adverse impact of climate change has exacerbated the rate of environmental degradation. • Dying trees due to lack of precipitation and high temperature contribute significantly to the increase in the greenhouse gases. • Increasing floods and winds result in soil erosion, runoff and landslides, hence destroying livelihoods. • Since a majority of socio-economic activities in Somaliland depend on rainfall water availability, the country will face increased threats of climate extremes unless effective adaptation systems are initiated.
Health	<ul style="list-style-type: none"> • Impacts include various climate-sensitive infectious illnesses such as foodborne, waterborne, vector-borne disease. Vector-borne diseases such as RVF and dengue fever. • The increase in mortality of animals and humans, shortages of food lead to malnutrition particularly among children, mothers and youths • The rise in psychological disorders because of stress. • There are high cases of asthma, pneumonia and other respiratory diseases. High incidences of sunburn, dehydration, heat stroke, sunstroke, and heat exhaustion have also been reported. • Droughts and cyclones may lead to the destruction of health services, disease epidemics and overburdening of existing health facilities.
Coastal Areas	<ul style="list-style-type: none"> • The increase in GHG and associated climate change will affect the chemistry and physical composition of Somaliland coastal waters through a change in salinity, ocean temperatures, upwelling, chemical reactions, general cycles of various gases • The rise in temperatures and sea levels, ocean acidification, and irregular precipitation pose significant challenges to the structure, health and functioning of the marine and coastal marine ecosystems such as mangroves, coral reefs, and estuaries, which are highly susceptible to climate change. • Degradation of coastal environment leads to a decline in vegetative cover, the death of wildlife and the reduction in soil fertility. • The many competing demands on coastal resources have led to depletion of forest cover, and the destruction of mangroves.
Economic Development	<ul style="list-style-type: none"> • A majority of Somali landers rely on livestock and agriculture to sustain their livelihoods. However, agricultural productivity is significantly affected by climatic extremes such as droughts, floods, and famine. • Large stocks of animals put enormous pressure on foraging land, triggering overgrazing and communal clashes over land ownership rights. • The outbreak of diseases primarily in livestock makes Somaliland lose significant income from agricultural exports due to ban impositions.



5

**EXISTING NATIONAL
AND INTERNATIONAL
REGULATORY FRAMEWORKS**

5.1 Related National Legal and Policy Framework of the Republic of Somaliland

5.1.1 The Constitution of the Republic of Somaliland

The Constitution of the Somaliland has provisions that safeguard natural resources and the environment. These include the following:

- Article 12 states that the government is responsible for the natural resources of the country, and shall take all possible steps to explore and exploit all these resources which are available in the nation's land or sea. The protection and the best means of the exploitation of these natural resources shall be determined by law.
- Article 18 states that the government shall give a special priority to the protection and safeguarding of the environment, which is essential for the wellbeing of the society, and to the care of the natural resources. Therefore, the care of and (the combating of) the damage to the environment shall be determined by law. The state shall also undertake plans towards disasters such as famine, storms, epidemics, earthquakes, and war.

5.1.2 Somaliland's Vision 2030

Somaliland's Vision 2030 Environmental protection is one of the pillars addressed in the Vision 2030 strategy of Somaliland. This is the government's long-term development blueprint that was launched in 2011 by the government. The Vision 2030 identified principal natural resources of the country, challenges thereof and measures to be taken.

The Somaliland Vision 2030 rests on the following five pillars:

1. Economic Development
2. Infra-Structure Development
3. Good governance
4. Social Development
5. Environmental Protection

Government of Somaliland recognised the Environmental Protection as one of principal agenda of the country's development. This is good indication on how Somaliland is committed to make sure its citizens to live in state of wellbeing and in clean and protected environment.



The Environmental Protection has a vision of State with a Healthy and Well Managed Environment that is Productive and Sustainable. The most important asset of every nation after its people is its natural environment. Somaliland's environment is currently under various degrees of stress depending on the location, level and nature of exploitation. Some of the key factors affecting the country's environment and its natural resources are:

- Soil erosion
- Deforestation
- Recurrent drought and climatic changes
- Overgrazing
- Overfishing
- Urbanization
- Growing population
- Pollution
- Farming marginal land
- Invasive plant species

These factors are jeopardizing the environment to provide the necessary goods and services to sustain the nation's growing population. The principal natural resources of Somaliland are:

- Water
- Land and mineral resources
- Coastal and marine resources
- Forests and woodland
- Biodiversity and wildlife

5.1.3 Environmental Management Law No. 79/2018

The Somaliland National Environmental Management Law (No. 79/2018) is the key regulatory document in the management of environmental sector. The act manages all issues in the environment as it sets the following general principles:

The General principles of Environmental Management are:

- To ensure all people living in the country the fundamental right to an environmental adequate for their health and wellbeing.

- Appropriate natural resource management in dealing with land degradation must be applied. Lost ecosystems where possible are reclaimed and reversed.
- Overlapping, conflicting mandates of different natural resource Ministries should be avoided;
- Community awareness on environmental issues should be sustained;
- renewable resources must be used on a sustainable basis in order to address the energy associated problems for the benefit of present and future generations;
- community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated;
- Reduce environment-related conflicts, by improving conflict resolution mechanisms in the management of natural resources and biodiversity and by addressing the underlying political and economic issues that affect resource access and use, including the role of corruption.
- the participation of all interested and affected parties must be promoted and decisions
- must take into account the interest, needs and values of interested and affected parties;
- equitable access to environmental resources must be promoted and the functional integrity of ecological systems must be taken into account to ensure the sustainability of the systems and to prevent harmful effects;
- assessments must be undertaken for activities which may have a significant effect on the environment or the use of natural resources;
- Sustainable development must be promoted in all aspects relating to the environment;
- Somaliland's cultural and natural heritage including, its biological diversity, must be protected and respected for the benefit of present and future generations;
- the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term must be adopted to reduce the generation of waste and polluting substances and sources;
- To ensure that environmental awareness is treated as an integral part of education at all levels



- the reduction, re-use and recycling of waste must be promoted;
- Climate change can affect environmental regulatory frameworks, either rendering them ineffective or forcing them to adapt to achieve their goals under changing conditions.
- A person who causes damage to the environment must pay the costs associated with rehabilitation of damage to the environment and to human health caused by pollution, including costs for measures as are reasonably required to be implemented to prevent further environmental damage;
- Where there is sufficient evidence which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation;
- Damage to the environment must be prevented and activities which cause such damage must be reduced, limited or controlled.
- To establish adequate environmental protection standards to monitor changes to environmental quality.
- To promote international cooperation between Somaliland and other states in the field of the environment.

This National Climate Change Policy implements the principles listed above.

5.1.4 Other Related National Regulatory Framework Documents

1. Somaliland National Environmental Policy 2015
2. Conservation of Forestry and Wild Life Law 2015
3. Somaliland Energy Policy 2010
4. Somaliland National Petroleum Policy 2013
5. Petroleum Exploration and Production, Act LR. 95/2021
6. Somaliland Electrical energy Act LR. 81/2018
7. Government transport policy 2018
8. National Veterinary Code 2004

9. Somaliland National Fishery Law 2018
10. National Fishery Policy 2020
11. Somaliland National Water Policy 2004
12. The Somaliland National Water Strategy 2004
13. Somaliland National Water Act – Law 49/2011
14. Somaliland National Health Policy 2012
15. Somaliland National Sanitation Policy 2011
16. Somaliland Food and Water Strategy 2014
17. Urban Land Management Law 2008
18. Agricultural Land Ownership Law 1999.
19. Somaliland Traffic Law 56/2013
20. Somaliland National Gender Policy 2019

5.2 Regional and International Legal and Policy Instruments

5.2.1 The Three Rio Conventions

Most people in Somaliland, particularly the rural, depend on their life directly on natural resources for their livelihoods. However global environmental problems are undermining this resource base. Biodiversity loss is happening in Somaliland rapidly, due to habitat loss, illegal trafficking of wild life, and cutting trees for fencing and charcoal production. Desertification and recurrent drought are problems which are affecting all regions in Somaliland.

This Climate Change Policy is designed to carry out all obligations in the three Rio UN Conventions, on Climate Change, Biological Diversity and Desertification which means to address the environmental threats in the world, which could undermine collective efforts to eradicate poverty and foster sustainable development worldwide. Therefore, this policy obliges to the Ministry of Environment and Climate Change to implement these three Rio UN Conventions listed below:



5.2.1.1 The United Nations Framework Convention on Climate Change (UNFCCC)

With 197 ratified parties, the United Nations Framework Convention on Climate Change is committed to the objective of “[stabilizing] greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

5.2.1.2 The Convention on Biological Diversity (CBD)

With 196 ratified parties, the Convention on Biological Diversity aims to conserve and protect biodiversity, biological resources and safeguard life on Earth, as an integral part of economic and social development. Considering biological diversity as a global asset to current and future generations and populations across the planet, the Convention works to prevent species extinction and maintain protected habitats. As well, the CBD promotes the sustainable use of the components of biological diversity, and works to maintain the environmental and sustainable process of access and benefit sharing, derived from genetic resource use.

In this regard, the Government of Somaliland recognises the following three objectives in the Convention on Biological Diversity:

1. The conservation of biological diversity.
2. The sustainable use of the components of biological diversity.
3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

5.2.1.3 The United Nations Convention to Combat Desertification (UNCCD)

The United Nations Convention to Combat Desertification (UNCCD) functions as an international agreement that ties the sustainability of land management and the issues of land degradation to the environment. Among the areas of consideration, the Convention focuses on restoring degraded ecosystems found in dry land areas.

In this regard, Government of Somaliland recognises the aims of UNCCD towards creating:

- 1) A future that avoids, minimizes, and reverses desertification/land degradation and mitigates the effects of drought in affected areas at all levels.

The table below provides overall conclusion of the three Rio Conventions:

5.2.2 Table 2: Objectives of the Rio Conventions

Convention	Objectives
UNFCCC: United Nations Framework Convention on Climate Change	[...] achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.
UNCCD: Convention on Biological Diversity	[...] combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas.
CBD: Convention to Combat Desertification	[...] the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, considering all rights over those resources and to technologies, and by appropriate funding.

5.2.3 The Paris Agreement

The Paris Agreement was adopted in 2015 and was ratified by enough countries for it to enter into force less than a year later – a record in international law. This historic agreement set in place a durable and dynamic framework requiring all Parties to take climate action Under the Paris Agreement, countries have agreed:

- A global goal to limit average temperature increase to well below 2°C above pre-industrial levels and pursue efforts to keep warming below 1.5°C
- All countries will make nationally determined contributions to reduce emissions, and review their efforts every five years, to build ambition over time



- Robust transparency and accountability rules that will provide confidence in countries' actions and track progress towards targets
- The importance of adaptation and resilience to climate impacts.
- Developing countries will receive financial, technological and capacity building support.

According to Somaliland constitution, Government of Somaliland recognized the Paris Agreement. Under the Paris Agreement, GoSL has committed to reduce emissions. This Climate Change Policy targets reduce emissions and it provides opportunities and implications across all major sectors of the economy. This policy is obedient to the comprehensive set of rules to implement the Paris Agreement that was adopted at the 2018 UN Climate Conference in Katowice, Poland. This includes a common transparency framework that will allow all Parties to report to their fullest ability, which will provide mutual trust and confidence to drive collective action. Rules on international carbon markets are due to be concluded at the 26th UN Climate Conference to be held in the United Kingdom in 2021.

5.2.4 The Kyoto Protocol

According to Somaliland constitution, Government of Somaliland recognized the UNFCCC's Kyoto Protocol in 2007. The Kyoto Protocol binds developed country Parties to targets to limit and reduce greenhouse gas emissions. This Climate Change Policy is obedient to the Doha Amendment, which provides for a second Kyoto Protocol commitment period, has not yet been ratified by enough parties to enter into force.

According to the Kyoto Protocol, least developing countries including Somaliland have the obligations to do the following:

- Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change.

5.2.5 Intergovernmental Panel on Climate Change (IPCC)

GoSL respects references and reports from the Intergovernmental Panel on Climate Change (IPCC) that does not go against the sovereignty of the republic. IPCC documents will be a key input into the Paris Agreement's Global Stocktake - the first of which will occur in 2023.

5.2.6 Global Environment Facility (GEF)

GoS is committed to make sure strong partner with the Global Environment Facility (GEF) and thereby it's to implement all GEF obligations for developing countries to address issues such as climate change, biodiversity, desertification, organic pollutants and mercury. The GoSL seeks GEF supports on the implementation of following international environment agreements:

- Convention on Biological Diversity
- Stockholm Convention on Persistent Organic Pollutants
- UN Convention to Combat Desertification
- UNFCCC, Mina Mata Convention on Mercury,
- And Montreal Protocol on Substances that Deplete the Ozone Layer.

5.2.7 IGAD Regional Climate Change Strategy (IRCCS)

The Horn of Africa has been noted to be one of the most vulnerable regions to climate change, in particular its mainly natural resources-based economy, and faces serious water shortages, food scarcity, increased risks of livelihood systems, and vulnerability to a number of climate change-induced disasters and diseases.

It is important to mention that IGAD developed policy and strategy for climate change that promotes low carbon and climate resilient development in the Greater Horn of Africa, which should serve as a principal guide for IGAD's climate change activities in support of the region's climate smart and sustainable development agenda.

The specific objectives are:

- Developing a regional climate change strategy;
- Generating climate baseline;
- Recommending a suitable approach for climate change vulnerability assessment in the region;
- Enhancing awareness of decision makers on climate change issues in the region;
- Facilitating the design of specific programmes and concepts to address climate change adaptation and mitigation in the region; and



- Recommending a suitable institutional framework (legal, policy and organisational arrangements and collaboration) to promote climate change adaptation and mitigation measures.

5.3 IGAD- ICPAC Guide for Engagement in Co-Producing Climate Services

GoSL is committed to maintain cooperation with IGAD Climate Prediction and Application Centre (ICPAC) which is accredited by the World Meteorological Organization that provides Climate Services to IGAD Countries.

5.4 Somaliland's Other International Commitments

According to UNEP, the Former Somali Republic, of which Somaliland was part of it, has signed a number of important international conventions relating to natural resource use and management, including (Under Somaliland constitution Article 10: The Republic of Somaliland shall observe all treaties and agreements entered into by the former Somali republic with foreign countries or corporations provided that these do not conflict with the interests and concerns of the Republic of Somaliland)

1. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
2. Convention on the Conservation of Migratory Species of Wild Animals;
3. Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment;
4. Protocol concerning Regional Co-operation in Combating Pollution by Oil and other Harmful Substance in Cases of Emergency;
5. UN Convention on the Law of the Sea;
6. Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern Africa region;
7. Protocol concerning Co-operation on Combating Marine Pollution in cases of Emergency in the Eastern African region; and
8. Convention for the protection, Management and Development of the Marine and Coastal Environment of the Eastern Africa Region (Nairobi Convention).

6

ADAPTATION AND DISASTER RESILIENT MECHANISMS

6.1 Priority Areas

Somaliland is a poor under-developed nation largely depending on narrow natural-based economy system which is particularly vulnerable to the adverse impacts of climate change. Accordingly, the policy priorities are largely based on and developed in consideration of.

- I. Climate change threats on key sectors (environment, production and social sectors) which suggests growing and continues adverse effects and with view to reducing vulnerability of these sectors to the harmful effects of climate change.
- II. Current national greenhouse gases (GHG) emission profile which is negligible comparing to the greenhouse gasses emission profiles of many other countries, including those in the region.
- III. Priorities of national policies (NDP III and National Vision 2030).
- IV. The outcome of consultation process and discussions with key stakeholders from government and non-governmental institutions working in areas covering social, environmental and economic sectors susceptible to the risks of climate change.

Bearing in mind the above, below are proposed sector-based viable adaptation actions.

6.1.1 Agriculture Sector

Objective

To promote sound agricultural development by ensuring sustainable crop production through ecologically appropriate production and management techniques, and appropriate legal and institutional framework for sustainable environmental management.

Due to inconsistent and low amounts of precipitation causing water shortage and land degradation, the productivity of the agricultural sector has been declining in Somaliland for several decades. The current trend in climate change related disasters are expected to exacerbate this decline, and thus, to improve resilience of the sector, the following set of Strategies are proposed.

- Comprehensive climate change vulnerability assessment on the agricultural sector to benchmark against future changes.
- Comprehensive Land-use Survey for the purpose of Sustainable Land Management

(Systematic Land-use Potential) adapted to biophysical and socio-economic condition of the country to assist land users, in particular, those engaged in agricultural activities, and land planners to increase conservation and restoration of degraded land is urgently required.

- Establishment of National Meteorological Monitoring System (Early Warning System) with the aim of enhancing national capacity (skills, data and research) and strengthen mechanisms of climate and disaster preparedness and management.
- Creation of national seed bank and food production to increase food security, in particular, in the event of disaster to reduce risks of hunger and malnutrition and diseases of vulnerable communities.
- Increase of water harvesting techniques collection of runoffs in agriculture areas to increase availability of water for agriculture use.
- To improve soil condition, promote use of different types of crops (crop rotations) in the same plot in sequenced seasons.
- Technical capacity development training programmes in institutional level and community/farmers level in sustainable farming practices and modern irrigation systems (Smart Agriculture System).
- Use of drought-tolerant cereals. Maize represent the most important crops in this regard.
- Provisions of disease management to minimise disease in crops through training programmes to increase both quantity and quality of harvest yield.
- Awareness raising programmes about the relation between land use and climate change for farmers and agro pastoralist communities.
- Economic incentives to induce behavioural changes in land use/land clearance and reduction of illegal enclosures.
- Review and improve agricultural sector policies and legal framework and its implementation to reflect climate change impact.



6.1.2 Livestock

Objective

To promote the livestock productivity, through development of multi dimension interventions that enable the national economy on livestock production is ensured.

Climate change related disasters, such as frequent droughts, frequent floods and increasing land degradation (deforestation and desertification) has become common occurrences in Somaliland in recent years leading to decline in livestock number and its productivity. The current trend in climate change related disasters are expected to exacerbate this decline on the sector, and thus, to improve resilience of the sector, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability assessment on the livestock sector to benchmark against future changes.
- Technical capacity development - training programmes in institutional level and community level in sustainable livestock production practices.
- Provisions of disease management to minimise transfer of diseases in livestock through treatment programmes.
- Review and improve livestock sector policies and legal framework and its implementation to reflect climate change impact.

6.1.3 Water sector

Objective

To manage and use water resources efficiently and effectively so as to promote its conservation and availability of sufficient quantity and acceptable quality for all people and livestock.

In Somaliland, fresh-water availability is naturally limited. Groundwater from dug wells, bore holes and springs are the primary sources of water for the population. To increase resilience of water resources in the event of climate related disasters, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability assessment on the sector to benchmark

against future changes.

- Improve water resource management - watershed management and water harvesting initiatives.
- Establish strategic water points (boreholes) to increase water availability during dry seasons.
- Improve maintenance of water infrastructure systems water supply systems in towns and cities.
- Conduct environmental social impact assessment (ESIA) for any water infrastructure.
- Introduce Ground Water Harvesting – Artificial Recharge of Ground Water (ARGW) initiatives.
- Improve water quality, use of water treatment initiatives (chlorination) and fencing of open water bodies.
- Avoid water pollution, promote use of troughs and drainage system in water resources/ bodies used by livestock.
- Improve maintenance and promote use of climate resistant materials in constructions of water supply systems.
- Capacity building initiatives at institutional level to increase knowledge relating to climate change impacts.
- Review and improve water sector policies and legal framework and its implementation to reflect climate change impact.

6.1.4 Fishery sector

Objective

To achieve the full economic potential of the marine resources in harmony with the marine environment.

Due to or lack of proper marine environment policies and legal framework enforcement, marine resources are also facing challenges as a result of overfishing, disposal of waste, degradation of the mangroves and polluted terrestrial water runoff. Effects of climate change is expected



to exacerbate these threats and thus, to increase resilience of the sector, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability assessment on the fishery sector to benchmark against future changes.
- Establish protected seasonal reserves to protect breeding grounds (reefs) and increase spawning and fish stock.
- Provisions of training to improve and promote use of modern fishing techniques.
- Use of appropriate technology (fishing net) to reduce damage to spawn deposits.
- Establish Cyclone Warning System (CWS) to reduce risk of disasters around fishing and coastal communities.
- Improve maritime Infrastructure and facilities to withstand effects of climate related disasters.
- Capacity building initiatives at institutional level to increase knowledge relating to climate change impacts.
- Review and improve fishery sector policies and legal framework and its implementation to reflect climate change impact.

6.1.5 Natural Environment Sector (Fauna and Flora)

Objective

To conserve and manage the national fauna and flora and ecosystems in such a way as to ensure their protection, sustainable utilization and reduction conflicts based on natural resources.

Decades long of uncontrolled exploitation of natural environment have severely degraded the county's natural resources, thus, increasing the vulnerability of the sector to the risks of climate change. To improve resilience of the natural environment, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability assessment on the sector natural environment to benchmark against future changes.
- Sustainable rangeland resource management – seasonal grazing reserves, forest reserves and soil conservation bunds programmes.

- Green Initiatives – afforestation programmes in degraded land.
- Promotion of forestry and agro-forestry aimed at combatting desertification in communities engaging in farmers' activities.
- Increase of water harvesting initiatives to increase water availability in grazing areas and in rangelands.
- Increase soil conservation initiatives to improve vegetation conditions and fodder quantity and quality for animals.
- Awareness raising programmes about the relation between land use and climate change for agro pastoralists communities.
- Economic incentives to induce behavioural changes in land use/reduction of illegal enclosures.
- Capacity building initiative at institutional level to increase knowledge relating to climate change impacts.
- Carry out inventory and biodiversity hotspots, establishment and improvement of national parks/wild life protected areas, rescue initiatives and orphanage centres for wildlife and establishment of water points.
- Conduct research and studies about climate change impacts.
- Marine Biodiversity Protected Areas (mangrove sites, migratory bird's hotspots, coral reefs).
- Terrestrials' biodiversity protected areas (mountains and archaeology sites).
- Improve law enforcement and detection to reduce poaching of wild animals and endangered plants.
- Economic incentives to promote wildlife protection.
- Capacity building initiative at institutional level to increase knowledge relating to climate change impacts on the sector and community awareness raising initiative to protect biodiversity and their habitats.
- Establish strategic water points (boreholes) to increase water availability for wild animals during dry seasons.
- Establish technical institute for rangeland, forestry and wildlife.



- Assessment of endangered flora and fauna species with view to propose specific interventions.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.

6.1.6 Road Transport Infrastructure Sector

Objective

To promote the rehabilitation and construction of Roads to develop the socio-economy of the people and their livelihoods and provide access to employment, social, health and education.

Majority of trade and people's movement depends on and use of road transport, denoting that, efficient road transport infrastructure is key economic driver for the development of the country. Equally, the road transport sector is one of the main sources of rather trivial national greenhouse gas emissions profile. To ensure road transportation sector's physically resilient to climate impacts and reduce emission of the sector, the policy proposes the following key Strategies:

- Comprehensive climate change vulnerability assessment of the road transport infrastructure sector to benchmark against future changes.
- Rehabilitating and improving existing road network infrastructures to boost sector resilience to impacts of climate change.
- Improve planning and design of new roads to improve physical resilience of the road networks.
- Improve the standard and operations of road transport system to reduce its carbon footprint.
- Reduce growing pollution (air pollution and dust) and congestions in urban areas, promote use of non-mechanised transport (bicycles) methods which also improves health and well-being of citizens.
- Improve quality of road transport system (vehicular condition) and its resilience, improve enforcement and driver vehicle licencing procedure.

- Improve general road knowledge and traffic safety regulations among road users.
- Capacity building initiative at institutional level to increase knowledge relating to climate change impacts.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.

6.1.7 Energy and Extractive Sector

Objective

To meet national energy needs with increased efficiency and environmental sustainability. Development of energy and extractive sector is an important element of the National Development Plan (NDP III) and National Development Vision 2030. Both energy and extractive industries operate at the 'front lines' of the natural world and often in extreme and isolated environments that are more likely to suffer the effects of climate change. To improve resilience of the sector, the policy proposes the following set of Strategies:

- Comprehensive climate change vulnerability assessment on the energy and extractive sector to benchmark against future changes.
- Improve and promote investment in alternative or sustainable sources of energy to firewood/charcoal to reduce use of charcoal and prevent deforestation.
- Improve and promote investment in alternative source of energy (wind and solar) to reduce emissions from fossil fuel reliant energy sources, particularly, electricity.
- Promote and increase investment in energy supply infrastructure (Transmission system for electricity and LPG storage facilities).
- Capacity building initiative at institutional level to increase knowledge relating to climate change impacts.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.



6.1.8 Telecommunication Sector

Objective

To improve safety and quality of telecommunication infrastructure to reduce risks of electrocution in the event of weather-related disasters.

The telecommunication sector heavily relies on rudimentary infrastructure that is highly susceptible to climate-related disasters and thus, to improve resilience of the sectors the policy proposes following set of Strategies

- Comprehensive climate change vulnerability assessment on the sectors to benchmark against future changes.
- Improve telecommunication infrastructure to withstand the effects of climate change related disasters.
- Capacity building initiative at institutional level to increase knowledge relating to climate change.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.

6.1.9 Urban Sector/Built Environment

Objective

To guide orderly town and city sustainable development that incorporates climate change adaptation and climate related risks.

Due to an out-dated urban design and town planning system, combined with vast growing urbanisation, the towns and cities in the country are extremely susceptible to climate-related disasters. To improve resilience of the sector, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability and climate hazard assessment on the sector to benchmark against future changes.
- To guide orderly town and city sustainable development that incorporates climate change adaptation and climate related risks into town and city planning and increase resilience of urban infrastructures, introduction of "Town Planning Legislation" is needed.

- Improve energy consumption, protect and enhance the environment and promote sustainable development at municipal level and community level, introduction of "Building Regulations" and "Policy" are needed.
- Improve waste management process to reduce the build-up of solid waste and air pollution in towns and cities to reduce greenhouse gases (GHG) concentration in the atmosphere.
- "Reform" and initiate "Capacity Development Initiative" of local authority management and operational rules as well as relationships between cities/town and other "external actors" who may need to be involved in adaptation efforts.
- Awareness campaign to promote and increase knowledge relating to climate change impacts amongst public and construction industry.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.

6.1.10 Education Sector

Objective

To promote the knowledge of climate change through review of the curriculum and include climate change education.

Education is a central part of the international response to climate change and most of the countries have already integrated climate change education into their national curriculum to improve climate change knowledge of children and young people. In doing so, the policy proposes following set of Strategies:

- Comprehensive climate change vulnerability assessment of the sector to benchmark against future changes.
- Revise the national curriculum and include climate change education for sustainable development across the curriculum - primary and secondary education prospectus.
- Revise or improve teacher training programs to integrate climate change education into teacher training programmes for all teachers across the primary and secondary education.
- Improve construction and design of education facilities/building to cope with climate



change impacts and to maintain a comfortable and robust teaching environment with emphasis on energy efficiency, water consumption, health and sanitation and wellbeing of children and young people.

- Improve investment in education sector to increase enrolment and attainment at national, regional and community level.
- Climate change awareness campaigns and initiatives such as tree planting and conservation programmes across education institutions across the country.
- Increase flexible non-formal educational programmes for vulnerable population groups including women and rural communities.
- Review and improve sector policies and legal framework and its implementation to reflect climate change impact.

6.1.11 Health Sector

Objective

To improve the health facilities and integrate with climate change resilience.

Primary health care facilities in Somaliland are ill-equipped to prepare for and respond to extreme climate related disasters. To improve resilience and coping mechanisms of the sector, the policy proposes following set of Strategies

- Comprehensive climate change vulnerability assessment on the sector to benchmark against future changes.
- Improve construction and design of health facilities/building to cope with climate change impact and to maintain a comfortable and robust healthcare facilities with emphasis on energy efficiency, water consumption, sanitation and wellbeing of patients.
- Improve operational aspect of health facilities to reduce barriers of tackling burdens of communicable and non-communicable diseases to improve access to treatment of vulnerable groups.
- Improve training of health professional and incorporate climate risks and resilience into health practices.

- Awareness raising campaigns to inform public how climate change will alter the incidence and the distribution of climate-sensitive infections and diseases.
- Review and improve sector policies and legal framework and its implementation to respond to climate change impact.

6.1.12 Mainstreaming Gender Issues

Objective

To incorporate gender-responsive climate resilience into the national and sectorial development plans, programs, and projects.

It is widely accepted that Community groups, in particular, those in rural communities and those from poor households disproportionately bear the burden of climate-related impacts as they lack economics. To create a climate-resilient future for Community groups, the policy proposes following set of strategies:

- Comprehensive climate change vulnerability assessment on the sector to benchmark against future changes.
- Incorporation of Community groups' needs into the national and sectorial development plans and projects.
- To improve the accessibility of the community ownership of the crucial resources such as land, crops and livestock and to establishment of communal initiatives targeting rural and poor households in accordance with country laws.
- Promote and improve literacy and access to education and healthcare system for the Community groups – flexible approaches in rural areas.
- Promote and improve access to participate decision-making process for the Community groups in all settings – national, regional and local levels.
- Awareness-raising campaigns to inform the public importance of community responses to reduce the climate-related vulnerability of Community groups.
- Review and improve sector policies and legal framework and their implementation to reflect climate change impact.





**CROSS-CUTTING ISSUES
IN CLIMATE CHANGE
ADAPTATION**

7.1.1 Capacity-building

Education is a catalyst for socio-economic development, and for empowering the poor, the weak and voiceless. Inadequate capacity and skills in climate change management may be a hindrance to effective implementation of climate change adaptation and mitigation activities. Climate change poses entirely new challenges to Somaliland existing capacities, and people and institutions need to respond in new ways. There is a need to ensure that women have equal access to training and capacity-building programmed to ensure their full participation in climate change initiatives.

7.1.2 Research and Technology

Somaliland recognizes and appreciates the need for research and technology development transfer in climate change adaptation and mitigation. Research will play a significant role in Somaliland mitigation strategies, climate change adaptation, and intervention. Key areas include promotion of rainwater harvesting technologies, development of soil and water conservation, adoption of climate smart agriculture, development of drought tolerant crop and livestock technologies, promotion of energy saving technologies, renewable energy technologies, and development of technologies.

7.1.3 Regional and International Cooperation

Due to global mixing of greenhouse gases (GHGs) in the atmosphere, anthropogenic climate change is a global commons problem. Climate change ignores all borders and unleashed its devastation without regard for the responsibility or resilience of national cooperation both local, regional and international is critical to address the impact of the climate change. There is need to develop close collaboration with counterparts in Djibouti, Ethiopia, Kenya and Somalia as well as with donor nations.

7.1.4 Information and Communication

Somaliland faces major challenges with information and data flow on climate change, including the quality of data, access to data, gathering, sharing and translation of that data. Somaliland requires climate change information and knowledge management to enhance public participation and awareness. Effective strategies should be set up to guide climate-related



data collection, storage, analysis, utilization, and dissemination. Information on how to prepare for extreme climate change and weather impacts, which include floods and droughts, is scarce.

7.1.5 Education and Public Awareness

Public education and awareness of climate change issues is an important strategy for ensuring participation and collaboration. Civic education and public awareness will encourage awareness and establish avenues for exchange and distribution of information.

7.1.6 The Media

The media has an important role of creating awareness on climate change issues amongst stakeholders at all levels including at community level. The dissemination of information should be evidence based and, in this regard, there is need to promote journalism that focuses on environment and natural resource. Messages disseminated by media in a timely manner will empower communities to take necessary action on climate change adaptation, mitigation and disaster risk reduction.

8

MITIGATION MEASURES OF CLIMATE CHANGE

8.1 Energy

In Somaliland, the main source of GHG emissions is the combustion of fossil fuels thereby, Somaliland is one of the least developed countries where energy efficiency is very low. So, this policy is designed to improve energy efficiency and uses of alternative energy sources that contribute less to GHG emissions.

Policy Statements

- 1) Improve practical uses of renewable energy technologies in Somaliland's all socio-economic sectors.
- 2) Promote the uses of environmentally friendly transportation system with less GHG emissions.
- 3) Develop gender sensitive mainstreaming approach for the uses of sustainable green technologies.
- 4) Enhance the access to cleaner fossil fuel commodities with less adverse effect to the environment.
- 5) Establish and maintain GHG emissions monitoring system based on appropriate methodologies in the energy sector.
- 6) Establish and regularly update a national inventory of anthropogenic emissions by sources and removal by sinks of Greenhouse Gases (GHGs).
- 7) Establish a monitoring, reporting and verification (MRV) framework for monitoring GHG inventories towards compliance with NDCs requirements a year before global reporting.

8.2 Agriculture, Livestock and Fishery

Agriculture, Livestock and Fishery sectors in Somaliland produce small amount of GHGs which is the Methane (CH₄) from manure. These three sectors are key productive sectors that are the mainstay of Somaliland economy. To minimise GHG emissions in these sectors are as follows:

Policy Statements:

- 1) Improve proper management of wastes from livestock.
- 2) Strengthen the feeding systems of livestock.

- 3) Increase uses of renewable energy sources for farm irrigation, water pumping and fish cold chain facilities.
- 4) Regulate impacts of agricultural activities on forests, range lands, watersheds and grassing lands to save the trees and reduce emission levels.
- 5) Reduce the contribution of agriculture to GHG emission while improving its role as a carbon sink.
- 6) Maintain fishing boats and use efficient engines and clean fuels in engines.

8.3 Land Use and Forestry Sector

The Somaliland's forestry sector is very crucial in the reduction of GHG emissions as the forests are great pillar in the ecosystem and thereby have great importance in the mitigation of climate change.

The Ministry of Environment and Climate Change recognises that the deforestation is an important factor in the climate change in Somaliland and globally because it is estimated that more than 1.5 billion tons of carbon dioxide are released to the atmosphere due to deforestation, mainly the cutting and burning of forests, every year.

Individual uses of land for various purposes including agriculture, grass reserves, urbanizations, roads, mining/quarrying is increasing. This policy urges to mitigate deforestation to reduce the prospects of climate changes.

Policy Statements:

- 1) Take active measures to reduce deforestation activities.
- 2) Establish national Rangers for forestry conservation to protect and manage forests, rangelands and wildlife.
- 3) Create national and regional governance structure to control charcoal burning to reduce GHG emissions.
- 4) Create continuous national campaigns of planting trees across Somaliland.
- 5) Improve capacity and implementation of REDD+ strategies (reducing emissions from deforestation and forest degradation in developing countries), and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in



Somaliland.

- 6) Build a national carbon registry and accounting system as well as clarify the issues of carbon rights, ownerships, and tenure.
- 7) Promote activities which enhance carbon density, such as reforestation, afforestation and agroforestry initiatives across the country, which also brings benefits to reduce the stress and pressure on natural forest and ecosystems.
- 8) Ensure the sustainable use of forest and wildlife resources to contribute to the livelihoods of the rural communities as they adapt to climate change, and to contribute also to mitigation.

8.4 Industry

Somaliland is not industrialised country at the moment but it's expected that the manufacturing industry will grow fast and thereby the emissions will rise in the future. This policy provides preparative measures to reduce GHG emissions from industries.

Policy Statements:

- 1) Promote the reduction of GHG emissions from all forms of industries.
- 2) Ensure that the industries in Somaliland are developed with environment-friendly schemes to avoid emissions.
- 3) Promote the adoption of renewable energy.
- 4) Ensure that the industries in Somaliland will not have negative environmental and social impacts.
- 5) Provide guidance to the industries not to harm natural habitat.
- 6) Establish a system for promoting green industry in private sector investment.

8.5 Waste

Increasing GHGs causing changes in our climate, and some of these changes can be traced to solid waste. Proper management of waste processes reduce the GHG emissions as the burning of waste for energy, landfill gases and methane from waste increase the emissions.

It was estimated that 1.6 billion tonnes of carbon dioxide equivalent (CO₂-equivalent) GHG emissions were generated from the waste sector in 2016, which was about 5% of global emissions (Kaza et al., 2018)

Waste sector emissions are: methane, carbon dioxide and nitrous oxide emissions resulting from the decay and treatment processes. The majority of the Methane emissions result from solid waste management and wastewater treatment and discharge. The Nitrous oxide (N₂O) emissions arise from activities related to wastewater treatment and discharge in 2015. Carbon dioxide forms only less than 1% of the emissions from the waste sector resulting from open burning of waste.

Policy Statements:

- 1) Promote proper management of waste sector by applying advanced technologies of waste management.
- 2) Promote the reuse and recycling technologies of waste.
- 3) Promote fuel or energy generation from waste.
- 4) Improve the positive flux in waste collection, transportation and processing: currently, most waste management systems collect, move and process a large volume of wastes, which cause the emission of carbon dioxide (CO₂) and nitrous oxide (N₂O) from fossil sources.
- 5) Establish positive flux in waste treatment and disposal to reduce wastes generated every day that often end up in dump sites or low-tech landfills
- 6) Develop high-tech landfills in major cities to improve the management of existing waste disposal facilities to control GHG emissions.
- 7) Improve monitoring systems based on appropriate methodologies to account for GHG emissions in the waste sector.
- 8) Improve capacity of waste sector management.
- 9) Support that the waste sector is managed with environmentally-friendly manner.



8.6 Health

Ministry of Environment and Climate Change recognises that climate change affects the environmental determinants of health such as clean air, safe drinking water, sufficient food and secure shelter. For example, worsening air quality and poor environmental sanitation cause spread of infectious diseases such as cholera outbreaks, air borne diseases and floods contaminating water sources.

Rising temperatures can cause or exacerbate a wide range of severe health problems. Prolonged exposure to extreme heat can cause heatstroke, muscle cramps, worsening of existing conditions, such as respiratory and heart conditions.

The health sector is understood to be vulnerable to climate changes in Somaliland.

Policy Statements:

- 1) Conduct surveillance of diseases attributed to the impacts of climate change in Somaliland.
- 2) Establish early warning systems of fluctuations of weather conditions on temperature, rainfall, droughts, floods and disease outbreaks to vulnerable communities and sectors.
- 3) Strengthen technical capacity to manage climate-change-related health risks.
- 4) Improve data sharing and develop health information management systems for diseases including climate-sensitive diseases at all levels of the health delivery system
- 5) Map disease incidence and identification of vulnerable groups for climate-sensitive diseases.
- 6) Strengthen existing units within the health delivery system to manage climate-related epidemics.
- 7) Mainstream climate change health risks into decision-making at national health policy level.
- 8) Identify, document and incorporate climate-relevant traditional knowledge into health delivery systems and practices.
- 9) Develop structures to effectively manage and disseminate information on climate change health risks.

9

NATIONAL CLIMATE CHANGE POLICY FUNDING MECHANISMS

Since lack of financial resources remain one of the major constraints to the ability of most concerned agencies to enforce existing environmental laws and regulations, it is essential that the Climate Change Adaptation policy initiative and associated activities of all kinds should have sufficient funding and political will to be able to carry out the Strategic Action Plan. Options include creation of a decentralized fund; direct Government grants in addition the Government shall raise funds from other sources as:

- Participation in mechanisms and arrangements under multilateral agreements for enhancing flows of resources for sustainable development.
- Multilateral and global agreements and conventions, Regional and bilateral programs for climate change cooperation.

Climate change impact is a global issue and thus, financing adaptation measures responding to its impacts needs a joint efforts at local to national and at transnational level and deployment of resources drawn from public, private, bilateral and multilateral, including alternative sources that seeks to support mitigation and adaptation actions that increase the ability of society to adapt to the impacts of climate change, and making investment flows consistent with a low GHG emissions and climate-resilient development. It is, therefore, essential that, the Government of Somaliland (GoSL) is committed to assess resource (technical and financial) requirements needed to finance climate change adaptations and how these resources can best be sourced.

Albeit, there has been considerable increase in National Gross Domestic Product (NGP) of the country over the recent years, yet, there is huge financial gap in national expenditure against the cost of financing the current development interventions for each sector in the next five years¹. Because of this gap, it is improbable, the Government of Somaliland (GoSL) alone to meet the resources (financial and technical) needed to address the cost of climate change adaptation and mitigation in the country. Therefore, creative and robust resource mobilisation to finance climate change adaptation effectively is important.

A range of funding sources that are relevant for financing climate-related programs and projects that may be accessible to governmental and non-governmental institutions in Somaliland has been identified and listed below.

9.1 Public Sector.

Ultimately, the financing of the adaptation measures responding to the effects of climate change in the country will rest upon with the Government of Somaliland (GoSL), and in essence, to avoid duplication of efforts, financing of the policy interventions should be aligned with or be part of the budgeting of national development plans and priorities (NDPs) and should be closely linked with strategies for disaster risk management.

9.2 Private Sector

By utilising applications such as “the polluter pays principles”, and to reduce the “free rider problem” and the “tragedy of the commons”, there are opportunities to introduce “Eco tax or green tax” – a tax that can be levied on activities of some sectors, in particular, manufactures and importers of bottled waters and plastic bags and importers of petroleum based fuels, in particular, petrol and diesel, which are considered to be harmful to the environment, largely, in urban settings.

9.3 Local fundraising Initiatives

Use of “philanthropy” - a practice deeply rooted into the religion/culture of the Somali society and often used to mobilise resources at times of disasters should be utilised and measured in formal activities responding to climate change related disasters.

9.4 International Multilateral and Bilateral Climate Funding Opportunities

A range of climate financial mechanisms are available under the United Nations Framework Convention on Climate (UNFCCC), World Bank, Global Environment Fund , Green Climate Fund, African Development Bank (ADB), European Union (EU) and its Member States, USA, Arabian Gulf Cooperation Council (GCC), Japan International Cooperation Agency (JICA) and Global Climate Resilience Partnership (GCRP).

9.5 Non-governmental (Foundations) Climate Finance

Bloomberg, Climate Works Foundation, European Climate Foundation (ECF), Ford Foundation, Hewlett Foundation, KR Foundation, MacArthur Foundation, Mercator Foundation, Minor Foundation, Oak Foundation, Packard Foundation, Rockefeller Foundation are among most known foundations that support initiatives reducing climate change impacts and improve resilience of poor nations and communities.

9.6 Voluntary Schemes Carbon Offsetting

Carbon offsets are initiatives - a practice that has increasingly gained popularity globally with more and more carbon offset providers joining the initiative. The providers which are often private companies mainly invest in clean energy technologies, planting trees, or buying and compensating for the carbon emitted from emissions trading scheme. There are several initiatives of this nature in the region and Somaliland would benefit from accessing these types of schemes.

Effective implementation of the National Climate Change Policy (NCCP) requires commitment at the highest national office, together with strong leadership at ministerial level as well as, adequate resources (financial, human and technical), enabling institutional arrangements, legal frameworks and meaningful stakeholder engagement.



10

**IMPLEMENTATION OF
CLIMATE CHANGE POLICY**

10.1 State Institutions

The general trend in climate-related natural disasters presents a growing and significant challenges, indicating that, failure to take actions to prepare for and respond to climate change impacts collectively across all sectors will be costly in terms of social, economic, ecological and environmental. Therefore, there is a need to move towards more coherent institutional arrangements which is critical for the implementation of this National Climate Change Policy (NCCP) that the country seeks to embark on.

The following governmental institution are recognised as those most relevant in the implementation of the National Climate Change Policy (NCCP) and they will play a key role in the process of climate adaptation and mitigation, through the incorporation and integration of the policy into the existing development and implementation of sectoral policies and interventions.

Table 3: The Role of Government Ministries on Climate Change Policy Implementation

Government Institution	Mandate as relates specifically to Climate Change
Ministry of Environment and Climate Change	MoECC is to develop the climate change sector, protect, conserve and manage the environment through sustainable development aimed at eradication of poverty, improving living standards, and ensuring that a protected and conserved environment is available. The ministry plays an overarching strategic policy leadership role in coordinating the overall environmental and climate related activities with respect to this policy.
Ministry of Transportation and Road Development	The role of Ministry of Transportation and Roads Development is responsible to make sure climate resilient infrastructure specifically all affairs related to the land, air and marine transport constructions and rehabilitation in Somaliland.
Ministry of Agriculture Development	The ministry of Agricultural is responsible to effectively manage potential climate risks related to agricultural production as climate change poses a great challenge for food production. Climate change adaptation and mitigation efforts should be addressed at all stages of food systems including targeted diversification of production systems and climate-smart agriculture.
Ministry of Health Development	The Ministry of Health Development is responsible to ensure and plan to conduct a Climate Risk Vulnerability Assessment across the entire health sector to build climate resilience and preserve public health in the event of a disaster and need to provide and maintain adequate health services before, during, and after natural disasters. The ministry will implement planned programs as a result of the climate risk vulnerability assessment in the health sector.
Ministry of Livestock & Rural Development	Ministry of Livestock and Rural development is mandated to apply climate smart techniques to address and adapt climate-induced risks on livestock and rural communities.
Ministry of Energy and Minerals	Ministry of Energy and Minerals is responsible to conduct comprehensive climate change vulnerability assessment on the energy and extractive sector to benchmark against future changes, improve and promote investment in alternative or sustainable renewable and clean sources of energy.



Ministry of Water Development	The Ministry of Water Development has to align its national on climate related risks, managing and regulating water resources and development of strategic for water points for climate change adaptation. The ministry shall implement water development programs while adopting strategies that will create a community that is resilient to the exacerbating effects of climate change on water sector.
Ministry of Information and Telecommunication Technology	The Ministry of Information and Telecommunication Technology has to, improve telecommunication infrastructure to withstand the effects of climate change related disasters, and improve safety and quality of telecommunication infrastructure to reduce risks of electrocution in the event of weather-related disasters.
Ministry of Education and Science	Ministry of Education and Science will lead set of strategies to revise the national curriculum climate change education for sustainable development across the curriculum, improve teacher training programs to integrate climate change adaptation education for all teachers and awareness campaigns in education centers.
Ministry of Interior/Local Governments	Ministry of interior is mandated institution responsible to protect state security, guiding and overseeing regional and local governments. Therefore, MOI will support the overall programs and initiatives of the ministry of environment and climate change with respect to formulation of policies and guidelines related to decentralization of environment and climate change policy.
Ministry of Finance Development	The Ministry of Finance will lead establishment of climate finance fund and ensure that national level budgets and indicative planning figures integrate climate change through appropriate provisions for the implementation of the climate change policy.
Ministry of Employment, Social Affairs and Family	The ministry of Employment, Social Affairs and Family (MESAF) is mandated to serve specific vulnerable groups of the society, especially women, children, people with disabilities and other socially disadvantaged groups including refugees, asylum seekers, IDPs, returnees and minorities to ensure their rights of accessing basic services, and information related to climate change risks.
Ministry of Public Works, Land and Housing	The ministry of Public Works, Land and Housing responsible and shall implement the overall urban plan and design of architect including land management. The ministry will guide orderly town and city sustainable development that incorporates climate change adaptation and related risks into town and city planning to increase climate resilience of urban infrastructures.
Ministry of Investment and Industrial Development	The Ministry of Investment and Industrial Development is mandated to formulate investment and development policies and promote private sector development by creating conducive climate and environment-friendly industrial investment with respect to climate adaptation.
Ministry of Fishery and Coastal Development	The Ministry of Fishery and Coastal Development is responsible for overseeing of coastal development efforts and in collaboration with the ministry of Environment and Climate Change do assessment on the impact of climate change in coastal areas.

10.2 National Climate Change Coordination Unit (NCCCU)

To overcome the challenges of fragmented policy responses, sound coordination and effective oversight of the policy implementation is very important. Thus, whilst the Ministry of Environment and Climate Change (MoECC) will provide and take leadership of the overall implementation of the National Climate Change Policy (NCCP), the ministry shall; immediately seek to establish a "National Climate Change Coordination Unit (NCCCU)".

The National Climate Change Coordination Unit (NCCCU) shall be a unit based in the Ministry of Environment and Climate Change (MoECC) with representatives from all sectors including the private sector. To effectively discharge its duty, the unit shall be tasked to do the following activities as its core activities:

- i. Assume leadership in the overall implementation of the National Climate Change Policy (NCCP) and provide directions and guidance on climate change issues.
- ii. Ensure that climate change issues are integrated into the national development policies and intervention of all sectors.
- iii. Provide centralized structure on day-to-day coordination of climate change interventions programmes, which feeds from and into the sectoral policies of the relevant line ministries and agencies that are in sectors likely to be affected by climate change.
- iv. Identify and create an information and knowledge base with reference to resources requirements and opportunities in financing climate change adaptation in Somaliland.
- v. Establish standards, process and control procedures in documenting and reporting climate change intervention programmes performed by various governmental and nongovernmental agencies, to ensure availability of up-to-date baseline information at national level and capture lessons learnt from possible adaptation challenges and to inform the development of future interventions and policies.
- vi. Introducing inventorying, reporting and auditing process of greenhouse gas emissions (GHG) from all sectors to monitor emission trends and quantities that will inform development intervention options.
- vii. Promote and engage the public and stakeholders in climate change debate to improve their understanding of climate change, including future projections, impacts, and responses through effectively dissemination of climate change related information.



10.3 Legal Frameworks

There are environmental safeguard provisions in the constitution. However, adverse impacts of climate change are cross-sectoral and multidimensional presenting a growing and significant challenge to all aspects of life. Therefore, effective implementation of this National Climate Change Policy (NCCP) requires coherent legal framework to strengthen existing legal agenda in environmental and natural resource protection to assist attainment of balanced sustainable development. Thus, the Government of Somaliland (GoSL) shall: seek the creation of specific climate change legislation that commits the government institutions, international development partners, businesses, and the wider community to work together in order to strengthen the climate change adaptation capacity and capability of the country and its people within the context of climate-resilient development framework.

10.4 Mainstreaming Climate Change into the Planning Process

Adjusting the National Climate Change Policy (NCCP) considerations into the existing or on-going sectoral development programs and policies, rather than developing standalone policies to equip various economic, social and environmental sectors to effectively respond to the complex challenges of climate change is essential. This requires putting climate change actions at the heart of National Development Plans and priorities. This means harmonising NDP priorities and sectoral policies, thus, monetising climate change action in order to include them in the national expenditure. The National Climate Change Coordination Unit (NCCCU) established in the institutional framework will ensure that, the climate change issues are constantly taken into account, reflected in and integrated into broader decision making processes and development strategies and activities, essentially with the result that this issue becomes broadly accepted and viewed as a serious problem impacting all aspects of people's lives.

10.5 Voluntary Agreements.

Many countries use voluntary agreements to encourage practical actions against climate change impacts and address environmental problems. Owing to inherent weak enforcement of environmental protection laws in Somaliland, the government of Somaliland shall:

- Seek to negotiate voluntary agreement with industry, particularly, manufacturers of plastic products and importers of fossil fuel gases diesel and petrol which are harmful to the environment, largely, in urban settings.

10.6 Research, Technology, and Development

Assessing a changing climate requires understanding the role of feedbacks, thresholds and their implications on society and on the wider ecosystem. Thus, to effectively respond to the effects of climate change, the country needs to promote and increase investment in scientific research and deployment of appropriate tools and technologies.

10.7 Climate Change Opportunities

Despite its unprecedented disruptive force, climate change is creating opportunities for both public and private institutions to work together by fostering “green growth” development strategies that safeguards the environment so it can continue providing the resources and environmental services on which our well-being depends on. Though challenges presented by the climate change are daunting, yet, many businesses are turning these threats into opportunities. For instance, due to the changes in temperature and precipitation patterns, the agriculture sector in mature economies is shifting and using crops and farming techniques suited to the changing climate. Equally, manufacturing sector, energy sector and transport sector are also at the forefront of decarbonising these sectors by optimising renewable and clean sources of energy.

Somaliland is blessed with unlimited renewable source of energy (solar energy in particular). To ensure the sustainable use of natural resources and protection of the environment, the country have the potential to meet its national electricity demand through the development of small and medium scale off grid systems financed by both private and public investment. Thus, the privately-owned electricity generating companies can play a leading role in responding to the effects of climate change opportunities in the country through investment in clean energy technologies. For the government of Somaliland, there are opportunities to access worldwide financing opportunities through the UN and bilateral means to finance climate resilient development interventions that promotes green economy opportunities whilst protecting the environment.



11

NATIONAL CLIMATE CHANGE POLICY (NCCP) LIMITATIONS

Despite the intention of the Government of Somaliland to address effects of climate change issues on the country, there are inherent challenges that will hinder the effective implementation of the policy including the following factors.

11.1 Coordination Challenges

There are several ministries, international partners and scores of local nongovernmental organisations working in sectors susceptible to the risks of climate change. Often, these organisations have inadequate coordination, in terms of sector policies and intervention or development programmes. This can create culture of compartmentalisation of development policies and programmes leading to incoherent development actions.

11.2 Technical, Human and Financial Capacity Limitations

The country lacks both technical capacity to accurately report or forecast climate related data that could otherwise assist the government and other stakeholders to develop detailed climate risks information and prepare appropriate responsive strategies. The limited skilled in human resources, combined with enormous gap in national expenditure can impede the government's ability to meet resource commitment required to respond climate change related disasters in the country tolerably.

11.3 Weak Enforcement of Regulatory Mechanisms

Inherent weakness amongst governmental institutions and sluggish enforcement of laws governing the protection of environment can also impede the country's ability to respond climate change related risks.

11.4 Accessibility of International Resources

Somaliland does not have international recognition, and thus is not a member of the UN and other development partners such African Development Bank. This can bar the country to obtain or directly access certain funds, for example, bilateral, multilateral soft loans and available climate finance funds.



12

MONITORING AND EVALUATION OF THE POLICY

Climate change is an ongoing phenomenon and therefore, the intensity of climate related impacts and our understanding of these impacts could also change. This means current mitigation and adaptation strategies will also need modifications. Therefore, the Government of Somaliland (GoSL) recognizes the importance of tracking implementation of this climate change Policy and evaluating related outcomes. This important task can signal potential weaknesses in design, identify implementation challenges and facilitate policy adjustments.

Based on the above, it is crucial to prioritize rigorous and continuous Monitoring and Evaluation of this Policy among other reasons, the National Climate Change Coordinator Unit (NCCCU) established in the institutional framework will review the policy periodically, at least once every three years, to reflect possible changes in factors that could assist or hinder its implementation.



REFERENCE

- Abdulkadir, (2017). Assessment of Drought Recurrence in Somaliland: Causes, Impacts and Mitigations. Journal of Climatology Weather Forecasting; Available https://www.researchgate.net/publication/317687688_Assessment_of_Drought_Recurrence_in_Somaliland_Causes_Impacts_and_Mitigations.
- Brown, S. (2018). African countries aren't doing enough to prepare for rising sea levels. Published by University of Southampton. Southampton University; Available <https://www.southampton.ac.uk/news/2019/09/sea-levels-coastal-communities.page>.
- Chen, V. O. (2017). Temporal and spatial variability of temperature and precipitation over East Africa from 1951 to 2010, Meteorology and Atmospheric Physics, 2017, Volume 129, Number 2, Page 131. Victor Ongoma, Haishan Chen. Meteorology and Atmospheric Physics.
- Goldsmith, B. (2019). Flight to the future: One land's quest to defuse a climate 'timebomb'. Router; Available from <https://www.reuters.com/article/us-somaliland-climate-migration-exclusive/exclusive-flight-to-the-future-one-lands-quest-to-defuse-a-climate-timebomb-idUSKCN1VV1AD>.
- H. Pörtner, (2019). IPCC, Summary for Policymakers. Special Report on the Ocean and Cryosphere in a Changing Climate (2019) [H.- O.Pörtner, etal.]. IPCC; Available from https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf.
- Heidelberg, S.-V. (2016). Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions; Springer-Verlag Berlin Heidelberg 2016, Research Gate, 2016. Research Gate; Available from https://www.researchgate.net/publication/290194107_Climate_change_impacts_in_Sub-Saharan_Africa_from_physical_changes_to_their_social_repercussions.
- IFRC, (2016). World Disasters Report Resilience: saving lives today, investing for tomorrow. IFRC; Available from <https://www.ifrc.org/en/news-and-media/press-releases/general/world-disasters-report-2016---resilience-saving-lives-today-investing-for-tomorrow/>.
- IPCC, (2007). Fourth Assessment Report - AR4 Climate Change 2007: Synthesis Report. IPCC; Available from <https://www.ipcc.ch/assessment-report/ar4/>.

- IPCC, (2014). AR5 Synthesis Report. Climate Change; The physical Science Base. IPCC.
- IPCC, (2014). IPCC, 2014: Annex II: Glossary [Mach, K.J., S. Planton and C. von Stechow (eds.)]. In: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the IPCC.
- Lindsey, R. (2019). Climate Change: Global Sea Level; Rebecca Lindsey, . <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>.
- Lockwood, M. (2009). "Solar Change and Climate: an update in the light of the current exceptional solar minimum," Proceedings of the Royal Society, December 2009. Proceeding of the Royal Society.
- NASA. (2018). The Effects of Climate Change. NASA; Available <https://climate.nasa.gov/effects/>. Oxfam. (2017). Climate in Crises; How climate change is making drought and humanitarian. Media
- Briefing. Oxfam; Available from <https://www-cdn.oxfam.org/s3fs-public/mb-climate-crisis-east-africa-drought-270417-en.pdf>.
- Pasquini, A. S. (2019). Informing climate services in Africa through climate change risk perceptions.
- Climate Services; Volume 15.
- S Brown, e. (2011). Sea-Level Rise and Impacts in Africa, 2000 to 2100. University of Southampton; Available from https://www.researchgate.net/publication/227008251_Sea-level_rise_impacts_on_Africa_and_the_effects_of_mitigation_and_adaptation_An_applicati_on_of_DIVA.
- Sommerlatte, M. and Umar, A. (2000). An Ecological Assessment of the Coastal Plains of North Western Somalia (Somaliland). UCN; Available from <https://portals.iucn.org/library/node/7783>.
- Ullah, (2016). National Biodiversity Strategy and Action Plan (NBSAP) of Somalia. FAO; Available from <https://www.cbd.int/doc/world/so/so-nbsap-01-en.pdf>.
- UNDP, (2013). Annual Report. UNDP; Available <https://www.undp.org/content/undp/en/home/librarypage/corporate/annual-report-2013.html>.



- UNDP, (2018). Somali Drought Impact and Need Assessment. UNDP; Available from <https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/somalia-drought-impact-and-needs-assessment.html>.
- UNDP, (2018). Somali Drought Impact Need Assessment. UNDP; Available from <https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/somalia-drought-impact-and-needs-assessment.html>.
- UNFCCC, (2012). Slow onset events Technical paper. UNFCCC; Available from <https://unfccc.int/resource/docs/2012/tp/07.pdf>.
- UNFCCC (1992). UNITED NATIONS FRAMEWORK CONVENTION ARTICLE 1. UNFCCC; Available from https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.
- Wilson, T. (2018). Drought in Somaliland; Special Report. Financial Times; Available from <https://www.ft.com/content/c8b475b2-ebf2-11e8-89c8-d36339d835c0>.



**Ministry of Environment and
Climate Change**
Republic of Somliland