



REGIONAL ASSESSMENT ON CLIMATE CHANGE IN THE HORN OF AFRICA (HOA)

Key Findings and Recommendations

Prepared for:

**The Swiss Agency for Development and
Cooperation (SDC)**

13th August 2021

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ABBREVIATIONS AND ACRONYMS

ACTED	Act Today, Invest in Tomorrow
AFF	African Forest Forum
AGRA	Alliance for a Green Revolution in Africa
AMISOM	African Union Mission in Somalia
ASALs	Arid and Semi-Arid Lands
AU	African Union
AWD	Acute Watery Diarrhoea
CABI	Centre for Agriculture and Bioscience International
CBPP	Contagious Bovine Pleuropneumonia
CC HoA	Climate Change in the Horn of Africa
CC	Climate Change
CCAFS	Climate Change Agriculture and Food Security
CCM	Comitato Collaborazione Medica
CDC	Centres for Disease Control and Prevention
CDE	Centre for Development and Environment
CDMCs	Community Disaster Management Committees
CEDRIG	Climate, Environment and Disaster Risk Reduction Integration Guidance
CfW	Cash for Work
CGIAR	Consultative Group on International Agricultural Research
CHASP	Community Health Provision in Somalia Project
CIAT	International Centre for Tropical Agriculture
CIDPs	County Integrated Development Plans
CO ₂	Carbon dioxide
COCOP	Consortium of Cooperating Partners
CRGE	Climate Resilient Green Economy
CSA	Climate Smart Agriculture
CSAIPs	Climate Smart Agriculture Investment Plans
CSG	County Steering Group
CSR	Corporate Social Responsibility
DRR	Disaster Risk Reduction
DSDAC	Regional Support to Durable Solutions for Displacement Affected Communities
ECIC	Ethiopia Climate Innovations Centre
EU	European Union
FAO	Food and Agriculture Organization
FCDC	Frontier Counties Development Council
FEWS NET	Famine Early Warning Systems Network
FGD	Focus Group Discussion
FSNAU	Food Security and Nutrition Analysis Unit for Somalia
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas

GIZ	German Corporation for International Cooperation
HEAL	Humans, Environment, Animals and Livelihoods
HNPP	Herbaceous Net Primary Productivity
HoA	Horn of Africa
HQ	Headquarters
IBM	International Business Machines Corporation
ICPAC	IGAD Climate Predictions and Applications Centre
ICPALD	IGAD Centre for Pastoral Areas and Livestock Development
ICRAF	World Agroforestry Centre
IDDRSI	IGAD Drought Disaster Resilience and Sustainability Initiative
IDPs	Internally Displaced Persons
IEC	Information Education and Communication
IFC	International Finance Corporation
IGAD	Intergovernmental Authority on Development
IGAD-FAO PP	Intergovernmental Authority on Development- Food and Agriculture Organization Partnership Programme
IKEA	<i>Ingvar Kamprad Elmtaryd Agunnaryd</i>
ILRI	International Livestock Research Institute
INDCs	Intended Nationally Determined Contributions
IOM	International Organization of Migration
IPCC	Inter-Governmental Panel on Climate Change Inter-Governmental Panel on Climate Change
JOHI	Jigjiga University One Health Initiative
JPLG	UN Joint Programme on Local Governance and Decentralized Service Delivery
KCB	Kenya Commercial Bank
KCIC	Kenya Climate Innovations Centre
KCSAP	Kenya Climate Smart Agriculture Programme
KEFRI	Kenya Forestry Research Institute
Kenya RAPID	Kenya Resilient Arid Lands Partnership for Integrated Development Programme
KII	Key Informant Interview
KKCF	Kakuma Kalobeyei Challenge Fund
KMD	Kenya Meteorological Department
LSS	Strengthening Livestock Sector in Arid and Semi-Arid Lands Counties of Kenya
LTS	Long-term Low Greenhouse Gas Emission Development Strategies
MPF	Multi-Partner Fund
MSMEs	Micro, Small and Medium Enterprises
MWA	Millennium Water Alliance
NAIP	National Agricultural Investment Plan
NAPs	National Adaptation Plans
NDCs	Nationally Determined Contributions
ND-GAIN	Notre Dame Global Adaptation Initiative
NDMA	National Drought Management Authority- Kenya
NDRMMRC	National Disaster Relief Management Commission- Ethiopia

NPP	Net Primary Productivity
NPS	National Prosopis Strategy- Kenya
NRM	Natural Resource Management
PLAFICO	Platform on Funding International Cooperation on Environmental Issues
PSEK	Private Sector Engagement in Kakuma
RBF	Results-Based Financing
REDD+	Reducing Emissions from Deforestation and Degradation Plus
REVIVE	Regenerative Earthworks and Vegetation in Vulnerable Ecosystems
RVF	Rift Valley Fever
S4L	Promoting Life Skills and Livelihoods in Kakuma Refugee Camp Kenya
SDC	Swiss Agency for Development and Cooperation
SDR-SNRS	Strengthening Drought Resilience in Somali Region
SE	Social Enterprise
SHF	Somalia Humanitarian Fund
SIDA	Swedish International Development Cooperation Agency
SIRA	Somalia Information and Resilience Building Action
SLI	Sequencing, Layering and Integration
SMART	Specific Measurable Achievable Relevant and Time-bound
SMEs	Small and Medium-sized Enterprises
SNV	The Netherlands Development Organisation
SomReP	Somalia Resilience Programme Consortium
SWALIM	Somalia Water and Land Information Management System
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
USAID	United States Agency for International Development
USD	United States Dollar
VSF CH	Vétérinaires sans Frontières Suisse
VSLAs	Village Savings and Loans Associations
WASH	Water Sanitation and Hygiene
WB	World Bank
WoGA	Whole of Government Approach

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EXECUTIVE SUMMARY

The HoA has drawn international attention as a fragile region of extreme conditions. These include extreme climatic conditions and shocks, frequent resource-based conflicts, especially during droughts, and high levels of displacement and migration due to the effects of Climate Change (CC), civil conflicts and social exclusion of some minority groups.

Switzerland has engaged in humanitarian aid, development and peacebuilding initiatives in Kenya and the larger HoA region since the 1970s and 1990s, respectively. In its first Regional Cooperation Strategy for the Horn of Africa (2013-2016/17), Switzerland adopted the Whole of Government (WoGA) approach and established partnerships at local, national, regional and international levels. In its Second Regional Cooperation Strategy Horn of Africa (2018-2021), Switzerland is working towards reducing fragilities and promoting the stability of the HoA by focussing on Governance, Peace and State-building, Food Security, Health and Protection and Migration.

Switzerland's new International Cooperation Strategy 2021-2024 aims to combat CC and its effects and to sustainably manage natural resources. Other goals include: 1) creating decent local jobs, 2) reducing the causes of forced displacement and irregular migration, and 3) promoting the rule of law and good governance. The Regional Cooperation Programme in the Horn of Africa also shares these aims. To back this, the Cooperation Programme HoA commissioned a Regional CC Assessment in the HoA. The Regional CC Assessment in the Horn of Africa (HoA) was carried out from 8th May to 6th August 2021. The objectives of the assessment were to:

1. Assess the extent to which the Swiss HoA portfolio has integrated CC adaptation and mitigation into ongoing projects, and examine any unintended negative impacts of these projects on climate or the environment.
2. Identify entry points for CC adaptation and mitigation for the existing portfolio at the project and strategic level for the next Cooperation Programme in the HoA.

The assessment sought to generate concrete recommendations for integrating CC adaptation and mitigation in the next regional Cooperation Programme at a strategic level, as well as into the HoA portfolio at project level. This qualitative study comprised 34 Key Informant Interviews and Focus Group Discussions with a diverse range of stakeholders. Additionally, the study reviewed applicable literature from SDC and other sources.

I. Key Findings

The main findings of the assessment were:

1. The primary effects of CC in the HoA include rising average temperatures, more frequent, prolonged and severe droughts, unpredictable rainfall seasons, and an increase in intense rainfall events exacerbating flooding. Given the geographical heterogeneity of the HoA, floods and droughts are experienced in different locations at different times. Somalia is highly vulnerable and is on the front line of CC. According to the Notre Dame Global Adaptation Initiative (ND-GAIN) index ranking on vulnerability to Climate Change,

Kenya, Ethiopia and Somalia ranked 143, 163 and 181 respectively out of 181 countries assessed (ND-GAIN, 2019). Somalia is most vulnerable; with low adaptive capacity and the least readiness to combat CC. Since 1990, Somalia has experienced more than 30 climate-related hazard events, including 12 droughts and 19 floods. Most recently in 2019/2020, there was an emergence of desert locusts associated with CC. It is envisaged that should weather and other conditions prevail, the frequency of desert locusts invasions in the region may increase.

2. Frequent droughts threaten food security through increased water scarcity, loss of crops and livestock, and increased resource-based conflicts. Droughts and floods necessitate enhanced mobility, leading to increased displacement, migration, intense pressure on resources, and conflicts between Internally Displaced Persons (IDPs)/migrants and host communities. Droughts exacerbate malnutrition and stunted growth, especially among children, and diseases such as Foot and Mouth disease among livestock. Floods exacerbate incidences of Acute Watery Diarrhoea among humans and diseases such as Rift Valley Fever (RVF) and Contagious Bovine Pleuropneumonia (CBPP) in livestock. Floods also erode topsoil and damage critical infrastructure including roads and Water Sanitation and Hygiene (WASH) infrastructure, among others. This disrupts the transportation of goods and people, causing shortages of essential commodities, thereby pushing up their prices.
3. The impacts of climate change on livestock and crop production in the region is less understood. These include the land carrying capacity for livestock, the mitigative potential in agro-pastoral systems and the agro-ecological linkages between humans, livestock and the environment. Some studies highlight the impact of climate change in drylands, for example, the decline of productivity in hot environments. Increasing temperatures in the HoA are impairing livestock production by limiting growth, meat and milk yield and quality, egg yield, weight, and quality, reproductive performance, metabolic and health status, and immune response (Nardone et al., 2010). Additionally, CC modifies ecological conditions for livestock disease vectors, for example, pronounced periods of RVF virus activity in East Africa occur during periods of heavy, widespread and persistent rainfall (Martini et al., 2008).

Crop production is also prone to the negative impacts of CC. Higher temperatures contribute to low productivity due to the shortening of the number of crop growing days, thus negatively affecting crop yields. Higher temperatures also intensify evapotranspiration, thus negatively affecting water quantities, quality and availability, and consequently crop yields.

4. The effects mentioned above affect SDC's HoA portfolio by delaying the implementation of development interventions, interrupting project implementation and diverting financial and other resources from development to humanitarian response. Currently, various projects in SDC's HoA portfolio are implementing interventions with several CC adaptation, mitigation and environmental benefits. This is despite most of the projects being designed

without explicit CC considerations, nor to explicitly adapt to, or mitigate against CC. These interventions, which also comprise existing entry points for implementing CC adaptation, mitigation and environmental management in the next Regional Cooperation Programme, include:

- Promoting livelihood diversification by supporting the establishment of camel milk value addition and commercial poultry keeping enterprises. These interventions are being implemented by the Strengthening Livestock Sector in Arid and Semi-Arid Counties of Kenya (LSS), and Moving towards Sustainable and Resilient Livelihoods of Pastoralist Communities in Northern Kenya projects. These interventions enable communities to earn livelihoods despite changes in weather conditions and climatic shocks.
- Implementing Disaster Risk Reduction (DRR) interventions. FAO's Somalia Information and Resilience Building Action (SIRA) project produces and disseminates disaster early warning information to various humanitarian and development actors in Somalia. In Ethiopia, the One Health Units for Humans, Environment, Animals and Livelihoods (HEAL), and Jigjiga University One Health Initiative (JOHI) access disaster early warning information from Ethiopia's National Disaster Relief Management Commission (NDRMC). In addition, most projects including the Somalia Resilience Programme (SomReP) implement emergency response interventions when climatic and non-climatic shocks occur. The DRR interventions contribute to preparatory and early response interventions such as procurement and positioning of essential human health and veterinary supplies by the Community Health Provision in Somalia (CHASP), HEAL and JOHI projects.
- Supporting local adaptive and organisational capacity. This is done through various capacity development initiatives in several projects including HEAL and SomReP among others. For instance, capacity development of Community Disaster Management Committees enhances their capacity to mobilise communities, engage in and/or oversee CC adaptation, mitigation and environmental management initiatives in their respective localities.
- Understanding and addressing the underlying causes of vulnerability. Various projects in the Food Security, Health and Migration and Protection domains are implementing interventions that contribute to women's economic empowerment; improved access to water, pasture, health and veterinary services; and good governance rangelands. These include the Kenya Resilient Arid Lands Partnership for Integrated Development Programme (Kenya RAPID), SomReP, HEAL, and Promoting Life Skills and Livelihoods in Kakuma Refugee Camp (S4L) among others. However, according to SDC's Mid Term Evaluation in the Horn of Africa 2018-2021, the underlying causes of vulnerability to CC-related droughts, floods, food insecurity, livelihoods challenges, health challenges, and conflict-related displacement and migration are yet to be addressed. Ongoing interventions mainly focus on response measures (SDC, 2021b). Therefore, SDC needs to delve into the underlying causes. A description of how SDC should tackle underlying causes of vulnerability to CC is provided in recommendation No. 4 in Table 2.

- Supporting an enabling policy environment. The IGAD-FAO PP project on Building Resilience for Agro-Pastoralist Communities is providing policy and institutional support to the district and county governments in the Mandera Triangle in Somalia, Ethiopia and Kenya, on the interpretation of transboundary policies, e.g. on the movement of livestock and people. In addition, the LSS project has supported the county governments of Garissa, Wajir, Mandera, Isiolo, Marsabit, Tana River, Lamu, Samburu, Turkana and West-Pokot to develop various policies on rangeland management, and policy instruments to allow the integration of CC into the county's budgets. These interventions contribute towards strengthening governance in terms of the implementation of policies that enhance CC adaptation and mitigation.
 - Environmental management and conservation. Several projects such as SomReP and SIRA are implementing interventions to remove *Prosopis juliflora*, an invasive shrub, and to add value to its pods by using them as fodder. The Natural Resource Management (NRM) Borena project's rangeland rehabilitation interventions in Ethiopia's lowlands, and HEAL project's rangeland mapping, are contributing towards enhancing rangeland resources management.
 - Climate Change mitigation. The Kenya RAPID project's interventions on installing solar water pumps in boreholes, and conducting virtual water meter readings contribute to CC mitigation by reducing the emission of greenhouse gases (GHGs).
 - Improving access and use of seasonal weather forecast information. The Kenya RAPID, FCDC, CHASP and HEAL projects receive downscaled seasonal weather forecast information from various agencies including the Kenya Meteorological Department (KMD), Somalia Water and Land Information Management System (SWALIM), ICPAC and Famine Early Warning Systems Network (FEWS NET) respectively, among others. The projects reported using the information to adjust their project interventions to respond to changes in contextual conditions. Measures implemented include scaling up response to address increasing needs, e.g. to tackle cholera outbreaks during floods and prevent deterioration of target communities' health conditions by providing critical nutritional supplements in response to drought. The projects also reported activating contingency funds to implement urgent drought response interventions such as water trucking.
5. Contingency funds and flexible mechanisms are helpful. They have enhanced flexibility to respond to climate shocks quickly. For example, in Somalia, the funds have been used to provide critical health services, e.g. interventions to minimise incidences of cholera during floods.
 6. The engagement of the private sector as strategic partners can provide innovative financing and sustainability solutions. The Kenya RAPID project's engagement with private sector entities such as the Coca Cola Company, Davis and Shirliff, the Kenya Commercial Bank (KCB) Foundation, Vitol Foundation, Sweet Sense Incorporated, and the International Business Machines (IBM) Corporation among others, generated greater demand for their

products and expanded the business opportunities for the corporate entities. These include increased demand for solar water pumping systems and virtual water meters among others. This approach has the potential to achieve sustained long-term results whilst contributing positively to CC adaptation and mitigation.

7. The assessment noted that the HoA domain teams and their implementing partners have varied levels of understanding of CC. This was closely associated with the extent to which CC affects the domains' interventions and target beneficiaries. The Food Security Domain demonstrated the greatest understanding, while the Governance domain demonstrated the least understanding of CC.
8. Opportunities for CC mitigation measures and promoting low carbon development in the HoA include:
 - Adoption of Climate-Smart Agriculture e.g. Conservation agriculture technologies, such as minimum tillage. SDC should collaborate with the Kenya Climate Smart Agriculture Project (KCSAP) to enhance learning.
 - Re-seeding and re-greening rangelands through planting grasses and trees. SDC should collaborate with the Millennium Water Alliance (MWA) Kenya to enhance learning.
 - Climate Smart Value Chains: promoting the use of solar energy in agriculture and livestock value chains e.g. in poultry hatcheries, value addition to milk and meat; and solar driers in agricultural and fodder value addition. SDC should collaborate with the MWA Kenya to enhance learning.
 - Promoting the use of biogas for cooking and lighting especially in peri-urban and urban areas where many pastoralists migrate to in search of jobs when drought conditions worsen. SDC should engage with the Swedish International Development Cooperation Agency (SIDA) to enhance learning.
 - Supporting market systems as an incentive for herd size management, thereby potentially reducing pressure on rangelands, and decreasing degradation associated with overstocking. This would contribute to reducing methane emissions from live animals. Note that livestock production remains the primary source of livelihood in the HoA. Therefore, addressing rangelands and other natural resources degradation is critical. This would contribute to sustaining the essential stock which livestock production and livelihoods depend on in the HoA.

II. Unintended Negative Effects of Projects on the Environment, Climate and Communities

The unintended negative effects of SDC's projects on the environment, climate and communities are as follows:

1. Bush clearing in the rangelands, such as by the Sustainable Natural Resource Management for Enhanced Pastoralist Food Security in Borena Zone (NRM) Borena project, could be good for rangelands. However, it may be inadvertently harming the environment and

climate by exposing the soil to erosion and releasing carbon dioxide that was sequestered in soil and plants into the atmosphere (Parker et al., 2010). SDC should mitigate this by ensuring that relevant projects carry out bush clearing just before the rainy seasons. The rains would potentially boost the rapid regeneration of grass from seed banks held in the soil, thus minimise soil erosion, and ensure carbon dioxide (CO₂) sequestration by the new grasses and the soil. Other projects should accompany bush clearing with reseeded of rangelands and tree planting before the rainy seasons to boost the growth of vegetation, thereby enhance pasture and browse for livestock.

2. Some of the water infrastructure interventions aimed at enhancing adaptation to CC, including drilling boreholes and excavating water pans, have some unintended negative impacts. In areas such as Mwangaza in Isiolo, borehole water has been found to have high levels of arsenic, which is toxic. In other areas, the water has high salinity making it unsuitable for human and livestock use. It also causes drying up of crops and soil cracking, thereby limiting crop production. This erodes the intended CC adaptation benefits. SDC should ensure that projects that plan to carry out water infrastructure interventions engage hydro-geological experts to conduct comprehensive and rigorous assessments at potential sites. The assessments should incorporate research and advice on sustainable water recharge and abstraction regimes, to inform the types of water infrastructure interventions to implement, their management, and mitigative measures required to ensure sufficiency, quality and sustainability of the water.

III. Key Recommendations for the Integration of Climate Change Adaptation, Mitigation and Environmental Management into the Regional Cooperation Programme in the HoA

The assessment makes the following key recommendations for the integration of CC adaptation, mitigation and environmental management into the next Regional Cooperation Programme in the Horn of Africa (see list of recommendations and their respective prioritisation in Appendix 1):

1. Mainstream CC adaptation, mitigation and environment into the HoA Cooperation Programme by:

- Reviewing Kenya, Ethiopia, and Somalia's Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), National Agricultural Investments Plans (NAIPs), Climate Smart Agriculture Investment Plans (CSAIPs) and other national strategies targeting adaptation and mitigation to CC (see list of Adaptation and Mitigation priorities in NAPs and NDCs in Appendix 6). Furthermore, identify key CC mitigation and adaptation priorities, that can be addressed in the HoA countries/districts, and that align with SDC's thematic focus areas (domains) in HoA. **High priority – Short-term.**

In addition, it will be important for SDC to keep track of Kenya, Ethiopia and Somalia's development and communication of their Mid-century Long-term Low Greenhouse Gas Emission Development Strategies (LTS), to the United Nations Framework Convention

on Climate Change (UNFCCC) under the Paris Agreement. SDC should review them and identify CC mitigation priorities and support the implementation of the ones that align with SDC's thematic focus areas. **Low priority - Long-term.**

- Accessing and using up-to-date, credible data, information and knowledge on CC in the HoA. This includes data and information on current CC impacts and climate projections in the HoA from the Inter-Governmental Panel on Climate Change (IPCC) Assessment Reports, the SDC Climate Change Foresight Analysis report, ICPAC, and National Meteorological Services data and projections. **High priority - Short-term**
- Marrying the two sets of the information above, with experiences and lessons gained from project implementation to assess potential impacts of CC on each domain's planned results, interventions and operations in future, while being sensitive to the realities on the ground. **High priority - Short-term.**
- Drawing on current approaches and interventions that contribute to CC adaptation and mitigation, and the entry points highlighted below, and making key decisions on the approaches SDC will undertake during the next Cooperation Programme. These approaches may include:
 - i. Deepening implementation of current approaches and interventions among the same target communities and institutions to strengthen results. For example, Kenya RAPID can strengthen its engagement with private sector entities such as Davis and Shirtliff, KCB Foundation, the Coca Cola Company, IBM, among others as strategic partners in the project. This would promote the implementation of Kenya RAPID's current CC adaptation and mitigation approaches and interventions e.g. the construction of water harvesting and storage infrastructure; installation of solar water pumps and virtual monitoring of water, etc. These interventions would contribute to enhancing CC adaptation and mitigation among the target communities. **High priority - Short-term.**
 - ii. Scaling out the implementation of current approaches and interventions to reach new and additional beneficiaries. For example, the LSS, Kenya RAPID, SomReP, IGAD-FAO PP, and Strengthening Drought Resilience in Somali Region (SDR-SNRS) projects could implement current project interventions with new communities and/or in new and additional project sites. For example, the IGAD-FAO PP could implement its CC adaptation and mitigation interventions in Southern Somalia, over and above Southern Ethiopia and North eastern Kenya where it is implementing interventions. **Medium priority - Medium-term.**
 - iii. Piloting the implementation of new approaches and interventions. For example, the LSS project could implement new CC adaptation and mitigation interventions such as supporting the establishment of Small and Medium-sized Enterprises (SMEs) and Micro, Small and Medium Enterprises (MSMEs) to provide CC adaptation, mitigation and environmental solutions e.g. commercial tree-growing, seed bulking, and commercial fodder production among target communities, among others. Such interventions would contribute to enhancing

CC adaptation, mitigation and environmental management in target areas.
Medium priority - Medium-term.

- Guiding the HoA domains to identify, design and implement programmes that capitalise on opportunities for promoting CC adaptation, mitigation and resilience, address key government priorities in the NDCs, NAPS, NAIPs, and CSAIPs and align with SDCs thematic focus areas and priorities in the next Cooperation Programme in the HoA. The programmes and projects should also be designed to address all the components of CC adaptation and mitigation outlined in Section 2.4 across the four domains in a complementary manner. **High priority - Medium-term.**
- Screening all the proposed programmes and projects using the Climate, Environment and Disaster Risk Reduction Integration Guidance (CEDRIG) tool, and refine them to ensure that they concretely incorporate CC adaptation, mitigation and environmental management interventions. **High priority - Short-term.**

This approach may be more efficient than addressing individual projects as it will enable all these levels to integrate CC faster. Additionally, SDC should review its indicators and revise the relevant ones to better capture results for CC adaptation, mitigation and environment (see preliminary revisions to current indicators in Appendix 4). This includes domain indicators explicitly incorporating CC adaptation, mitigation and environmental components; domain indicators explicitly incorporating monitoring of access to, and use of seasonal weather forecasts and climate information; and the effects of these on project and domain results. **High priority - Short-term.**

2. Continue engaging and supporting CC adaptation, mitigation and environmental interventions at the nexus between development, humanitarian and peace efforts in the HoA. This would enable SDC to enhance CC adaptation, mitigation and environmental management, as it continues contributing towards effectively addressing pressing development needs. At the same time, SDC will contribute towards alleviating suffering and saving lives during shocks and crises. **High priority - Short-term.**
3. Build on current successes and existing entry points including allocation and activation of contingency funds, implementation of flexibility mechanisms in the development, humanitarian and peace nexus, and the CC adaptation, mitigation and environmental benefits of ongoing projects. Other key entry points for CC adaptation, mitigation and environmental management include:
 - Reviewing and harmonising trigger indicators for drought and floods early warning, and systematising contingency activation processes to enhance early response to climatic and other disasters. **High priority - Medium-term.**
 - Commissioning studies to unpack the underlying causes of vulnerability in the HoA, and subsequently capitalise on Switzerland's niche on regional approaches to interventions such as the IGAD-FAO PP being implemented in north-eastern Kenya and southern Ethiopia, to design and support transboundary programmes e.g. on re-

greening rangelands in North Eastern Kenya, South-Western Somalia and Southern Ethiopia. **High priority - Medium-term.**

- Capitalising on Switzerland's niche on effective policy engagement and influencing bilateral and multi-lateral policy forums on CC adaptation and mitigation by convening and/or facilitating multi-stakeholder thematic discussions on CC, environment and development. **Medium priority - Medium-term.**
- Applying the Results-Based Financing (RBF) approach to incentivise CC adaptation, mitigation and environmental management by e.g. rewarding community groups that successfully implement and sustain CC adaptation, mitigation and environmental management interventions, and subsequently enhance scaling out of good interventions and results. **Medium priority - Long-term.**
- Embedding access to, and use of seasonal weather forecast and climate information into project design, implementation, monitoring and evaluation across all domains and projects. **High priority - Short-term.**
- Directly contributing to CC mitigation by capitalising on virtual technologies to e.g. conduct meetings and workshops, thereby reducing travel by air and road, thus reducing carbon dioxide emissions. **Medium priority - Medium-term.**

SDC should capitalise on Switzerland's niche in fostering and enhancing effective partnerships at various levels and establish new partnerships to expand opportunities such as:

- Engaging with other countries' donors and agencies, such as the Netherlands Development Cooperation, UN Environment Programme, and the European Union, among others, on shared learning, enhanced interlocation, and development and support of joint programmes in renewable energy, Disaster Risk Reduction (DRR), and CC adaptation, mitigation and resilience in the HoA. **High priority - Short-term.**
 - Partnering with the Kenya Climate Innovations Centre (KCIC) and Ethiopia Climate Innovations Centre (ECIC) to attract and engage additional Small and Medium-sized Enterprises (SMEs) and Micro, Small and Medium Enterprises (MSMEs) to develop innovative and sustainable CC and environmental business solutions in the HoA context. **High priority - Short-term.**
4. Strengthen engagement with the private sector as strategic partners, and augment existing blended financing for CC and the environment. It is recommended that the SDC Headquarters (HQ) commissions a study to review its institutional and administrative systems and processes to better prepare it to engage and partner with the private sector in CC adaptation, mitigation and environmental management in developing countries. **High priority - Short-term.**
 5. Allocate funds towards CC adaptation, mitigation and environmental management, and enhance the Small Actions Grants. This will allow the domains and projects to access funds to pilot innovative solutions for potential up-scaling and strengthen learning. For example,

SDC could pilot Results-Based Financing in CC adaptation, mitigation and environmental management to potentially scale out good, sustainable interventions and results in HoA. In addition, the domains should require ongoing and new projects to allocate 10-15% of total project budgets (separate from contingency funds) towards implementing interventions intersecting with CC. **High priority – Short-term.**

6. Consider strengthening the Regional Cooperation Programme's capacity in CC by taking relevant e-courses provided by the One UN Climate Change Learning Partnership- UN CC: Learn (visit uncclearn.org). Also develop, produce and continuously disseminate appropriate Information Education and Communications (IEC) materials on CC and the environment in the HoA context. This would enhance awareness creation, sensitisation and understanding of CC, and the nexus between it and the four domains among the domain teams and key stakeholders. **High priority - Short-term.**
7. Incorporate all the core elements of CC adaptation, mitigation and environmental management through a programme and/ or the Sequencing, Layering and Integration (SLI) approach. This entails supporting and implementing interventions in Sequenced, Layered and Integrated ways, by leveraging complementary support to groups/local institutions by different organisations through time. This would enhance synergies, strengthen results, and ensure the sustainability of interventions and results. For example, the different domains could implement complementary interventions such as governance and policy engagement on CC, livelihoods and development support, DRR, institutional capacity development geared towards enhancing CC adaptation, mitigation and environmental management among identified target groups in sequenced, layered and integrated ways. **High priority – Short-term.**
8. Develop and/or refine the criteria for assessing ongoing and new projects based on the integration of CC adaptation, mitigation and the environment (see suggested criteria in Table 2 of this report). Also, revise SDC's indicators to concretely track and measure results for CC adaptation, mitigation and environmental management. **High priority – Short-term.**
9. Strengthen inter-domain synergies, information and knowledge sharing on CC, environment and transversal themes by incorporating CC and environmental expertise in inter-disciplinary Steering Committees during the design, implementation and evaluation of mandated projects. This would enhance exchange and learning on CC adaptation, mitigation, environmental management and SDC's transversal themes among staff and implementing partners. **Medium priority - Medium-term.**
10. Appoint a Climate Change Focal Point for the HoA portfolio. **High priority – Short-term.** The CC Focal Point would give more concerted support to the portfolio, and enhance the concrete integration of CC adaptation, mitigation and environmental management into the domains and projects. Additionally, the CC Focal Point would:

- Link the Cooperation Programme HoA to SDC's Climate Change and Environment Network and other key networks and programmes for cross-fertilisation of knowledge.
- Develop clear criteria for assessing new and ongoing projects on integration of CC adaptation, mitigation and environmental management.
- Support the domain teams and implementing partners to access and interpret weather and climate information, and disaster early warning information, and advice on the requisite adjustments to interventions as applicable. Among other key responsibilities.

11. Work closer with research institutions to address specific technical information and knowledge needs in each domain and project. Such institutions include the International Livestock Research Institute (ILRI), World Agroforestry Centre (ICRAF), International Centre for Tropical Agriculture (CIAT), CGIAR Research Programme on Climate Change Agriculture and Food Security (CCAFS) and Kenya Forestry Research Institute (KEFRI) among others. SDC should identify specific technical knowledge gaps across the thematic focus areas, and use this to inform which institution(s) to engage. This would contribute to strengthening project design, implementation and revision based on scientific knowledge on CC. It would also enhance knowledge for the implementation of specific CC adaptation, mitigation and environmental management interventions e.g. Climate-Smart Agriculture (CSA), regenerative agriculture, water infrastructure interventions, drip irrigation etc.

High priority - Medium-term.

SDC's Cooperation Programme HoA and portfolio are encouraged to capitalise on the existing entry points and opportunities highlighted. These include the adoption of the SLI approach to concretely integrate all the components of CC adaptation, mitigation and the environment into their programming. The Cooperation Programme and portfolio are also encouraged to strengthen areas such as addressing the underlying causes of vulnerability, and measurement of CC adaptation, mitigation and environmental results going forward.

1.0. INTRODUCTION

The Horn of Africa (HoA) is the easternmost extension of the African continent. It is the region that is home to Djibouti, Eritrea, Ethiopia, and Somalia, whose cultures are closely linked throughout history. The area also includes parts of Kenya, Sudan, South Sudan and Uganda (Augustyn A., 2019).

The HoA has a shared ecosystem comprising vast tracts of Arid and Semi-Arid Lands (ASALs). It has socio-cultural interlinkages enhanced by transboundary movement amongst the resident population. The region's primary livelihood and economic activities include livestock farming (mainly through nomadic pastoralism), agriculture, fishing, industry and trade.

The HoA is considered fragile with Somalia, Ethiopia and Kenya ranking 2nd, 11th and 32nd respectively out of 178 in the Fragile States Index (The Fund for Peace, 2020). Somalia is rated as the most vulnerable country in the world. It is highly affected by variability in precipitation, food insecurity, and political instability. Eastern and Southern Ethiopia, and Northern Kenya are also rated highly vulnerable due to precipitation variability, food insecurity, and vector, food, and water-borne diseases (Steinemann, Guyer, & Reutimann, 2020).

The HoA is characterised by unique challenges, namely:

1. Low agricultural productivity, low trade of value-added agricultural products intra-regionally and internationally, inadequate and often inefficient input and output markets, low investment and financing in agriculture, and heightened levels of vulnerability to socio-economic and environmental factors. These undermine progress toward improving food security and reducing hunger (FAO, 2018).
2. Extreme climatic conditions and shocks that are characterised by warmer average temperatures and less predictable seasonal rainfall patterns. Rainfall quantities have recently declined in the March to May long rainy season. Incidences of extreme rainfall events, especially in the short rainy season of October to December, have increased (Tierney et al., 2015). These have occasioned more frequent and severe droughts and floods, further exacerbating environmental, economic and health challenges in an already resource-constrained region (Sagal Abshir, 2020). Future climate predictions indicate the likelihood of increased frequency of extreme events (Steinemann et al., 2020).
3. Frequent resource-based conflicts over water, pasture and livestock, especially during droughts; and underlying ethnic and/or clan disputes between host and displaced communities. In addition, protracted armed conflicts affect various parts of the HoA, including South-Central Somalia, South Sudan, and Ethiopia's Tigray regions (The Fund for Peace, 2020). Kenya has also been experiencing incidences of cattle-rustling and banditry in the North.
4. The HoA is a major source and host of refugees, Internally Displaced Persons (IDPs) and migrants. Ethiopia is currently the largest host of refugees in the region; hosting approximately 785,322 refugees from 19 countries including South Sudan, Somalia, Eritrea, Sudan and Yemen among others (UNHCR, 2021). Somalia hosts refugees from Yemen and

migrants from Ethiopia. Kenya hosts refugees from Somalia, South Sudan and Ethiopia, among other Eastern African countries. Yemen hosts economic migrants from Ethiopia. These countries also have Internally Displaced Persons (IDPs) who find themselves forced into this difficult predicament due to civil disturbances and natural disasters. Somalia has approximately 2.9 million IDPs, most of whom have moved from rural areas to urban settlements (SDC, 2020a). In Ethiopia, the military conflict between the Federal government and Tigray forces has contributed to an increase in IDPs.

5. The long-standing armed conflict between the Federal Government of Somalia (FGS), in partnership with the African Union Mission in Somalia (AMISOM), against the Islamist militant group, Al-Shabaab, has occasioned sporadic terrorist attacks in parts of south and central Somalia, and Kenya in recent years.
6. Persistent challenges in governance in the HoA. The national governments of Ethiopia, Kenya, and Somalia continue to insufficiently engage and integrate provinces, districts and counties in the HoA in national development. This is possibly due to the long-standing perception that the region is resource-poor. Inadequate provision of public services, including education, health care, agricultural and veterinary services, and water and sanitation services, characterises much of the HoA, especially in rural areas.

Despite these challenges, there have been some recent positive developments in the HoA. Somalia is re-engaging with the international community and is developing its National Constitution and implementing its ninth National Development Plan (2020-2024), following the change in government since 2012. Kenya has seen improvement in infrastructural and economic development since the promulgation of the new constitution in 2010, and the attendant devolution. Devolution has contributed to improved service delivery and more targeted development interventions in counties. These developments have been experienced against a backdrop of the impacts of CC and insecurity in most parts of the region.

Additionally, there is high penetration of mobile phones; 95% and 48% in Kenya and Somalia respectively, with an estimated 70% of the people in both countries making use of mobile money (SDC, 2021a). This, coupled with a globalised diaspora and widespread entrepreneurship, provides opportunities that can be harnessed for greater sustainable development (op. cit.).

There is also a realisation and strong argument for a regional approach to supplement national efforts in disaster management, enhancing food security and peacebuilding, given the interlinkages and dynamic nature of people and natural resources. Such efforts, for example, resulted in the formation of the Intergovernmental Authority on Drought and Development (IGAD) in 1986.

1.1 Switzerland's Engagement in the Horn of Africa

Switzerland has engaged in humanitarian aid, development, peacebuilding and security initiatives in Kenya and the larger HoA region since the 1970s and 1990s respectively. By adopting the Whole of Government (WoGA) approach for the Regional Cooperation Strategy Horn of Africa (2013-2016/17), it has established partnerships at local, national, regional and international levels. Through this approach, Switzerland has effectively contributed to improved food security and

health service delivery; supported governance, state and peacebuilding, and addressed migration and protection challenges (op. cit.).

As part of the Second Regional Cooperation Strategy Horn of Africa (2018-2021) covering Somalia and the ASAL lowlands of Kenya and Ethiopia, Switzerland is working towards reducing fragilities and strengthening the stability of the HoA by capitalising on the current positive dynamics highlighted above. Its priority sectors are:

1. Governance
2. Food security
3. Health
4. Protection and Migration

In SDC's new Global Strategy for International Cooperation 2021-2024, one of the four goals is to combat CC and its effects and sustainably manage natural resources. This priority will transcend the overall organisational strategy, the Cooperation Programmes, and the operational level. Therefore, development cooperation interventions and, where possible, humanitarian aid, need to systematically integrate CC, environmental and Disaster Risk Reduction (DRR) considerations. The integration of CC across all levels of SDC's engagement in the region is one important aspect in developing the next Regional Cooperation Programme in the HoA.

In 2020, SDC assessed how CC is incorporated into the HoA Food Security (FS) portfolio. It was noted that most of the FS domain projects aim to adapt to CC, but they rarely incorporate CC mitigation. In addition, projects mention CC and its risks in the context but rarely address it in their intervention strategies and/or results frameworks. The review also noted that project proponents rarely analyse unintended potential negative impacts of project activities in the credit proposals.

1.2 Objectives of the Assessment

This assessment draws lessons and makes recommendations for integrating CC adaptation and mitigation measures in the SDC's next Cooperation Programme HoA. It will contribute to the achievement of the SDC's new Global Strategy for International Cooperation 2021-2024 goal to combat CC and its effects and sustainably manage natural resources.

The objectives of the assessment are to:

1. Assess the extent to which the Swiss portfolio in the HoA's domains have integrated CC adaptation and mitigation into ongoing projects, and examine any unintended negative impacts of these projects on climate or the environment.
2. Identify entry points for CC adaptation and mitigation for the existing portfolio at the project and strategic level for the next regional HoA Cooperation Programme.

1.3 Scope of the Assessment and Guiding Questions

The assessment mainly focuses on generating concrete recommendations for integrating CC adaptation and mitigation at the strategic level for the next Cooperation Programme HoA and its four domains.

The assessment mainly focuses on the guiding questions outlined below:

1. How do the projects already integrate climate considerations?
 - Where are adaptation and mitigation measures included in the projects?
2. Unintended negative impacts:
 - Does the current programme increase the vulnerability of beneficiaries / of natural systems and resources?
 - Does the programme contribute to maladaptation, increasing dependency on resources threatened by climate change or contributing to development trajectories that might be unsustainable under future climatic conditions?
3. Climate change adaptation and mitigation:
 - What are opportunities for promoting climate resilience and adaptation in SDC's HoA projects?
 - What are opportunities for mitigation measures and promoting low-carbon development in SDC's HoA projects?
 - How can climate change considerations be mainstreamed into all four domains (Health, Migration/Protection, Governance, and Food Security)? For example: How are climate change, conflict and forced displacement interlinked?
 - How will climate change affect the approach to Durable Solutions?
 - How can the One-Health approach contribute further to climate change adaptation and mitigation?
 - What are the entry points in the HoA for mitigation measures in the livestock sector?
4. How can the next regional HoA Cooperation Programme integrate climate change considerations at a strategic level?
 - Given the existing interventions on climate change by other stakeholders and existing needs and goals, what are specific entry points for adaptation and mitigation measures and niches for Swiss engagement at the policy/advocacy, coordination and programmatic level?
 - How can these climate change measures be incorporated into the new results framework?
5. Funding landscape:
 - Who are the major donors funding climate change interventions in the HoA?
 - What are their priorities?
 - What are the gaps in interventions?

A summary of SDC's projects analysed in each of the four domains for this assessment is provided in Table 1.

Table 1: SDC's Domains and Respective Projects in the HoA that were analysed for this Assessment

DOMAIN	PROJECT TITLE	IMPLEMENTING PARTNER(S)
Food Security	1. Strengthening Livestock Sector in Arid and Semi-Arid Counties of Kenya (LSS)	FCDC
	2. IGAD-FAO Partnership Programme (PP) on Building Resilience for Agro-pastoralist communities (IGAD-FAO PP)	IGAD & FAO
	3. Kenya Resilient Arid Lands Partnerships for Integrated Development (Kenya RAPID)	Kenya RAPID (MWA)
	4. Sustainable Natural Resources Management for Enhanced Pastoralist Food Security in the Borena Zone, Ethiopia (NRM Borena)	Helvetas
	5. Strengthening Drought Resilience in Somali Region (SDR – SNRS)	GIZ
	6. Somalia Information and Resilience Building Action (SIRA)	FAO
	7. Somalia Resilience Programme SomReP)	SomReP Consortium
Governance	Somalia-UN Joint Programme on Local Governance and Decentralized Service Delivery (JPLG)	UN (UNDP, UN-Habitat, UNCDF, UNICEF) and the Government of Somalia
Health	1. One Health Units for Humans, Environment, Animals and Livelihoods (HEAL)	VSF-Suisse, CCM & ILRI
	2. Jigjiga University One Health Initiative (JOHI)	Jigjiga University + SwissTPH, and Armauer Hansen Research Institute (AHRI)
	3. Community Health Provision in Somalia CHASP	Save the Children SCI
Migration & Protection	1. Private Sector Solutions for Refugees & Host Communities in Kakuma (Kenya)	IFC
	2. UN Joint Programme Saameynta	IOM, UN-Habitat, UNDP with support of IOM

1.4 Study Limitations

The limitations of the Regional CC Assessment in the HoA are outlined below:

1. The assessment's guiding questions cover a range of topics outlined in Section 1.3, thus requiring the engagement of a fairly wide range of stakeholders and literature. This necessitated the preparation of eight KII and FGD tools to accommodate the different categories of informants (see Annex 1 (I-VIII); enclosed separately).
2. Time constraints and the wide scope of the assessment limited the depth and breadth of analysis of some topics (see areas for further study in Section 4.2).
3. Covid-19 restrictions made it difficult to visit Ethiopia and Somalia. Consequently, primary data collection in the project sites was shifted to Isiolo and Mandera counties in Kenya. The report, therefore, draws heavier on examples from Kenya following a visit to projects and stakeholders in Isiolo County. However, it also includes examples from Somalia and Ethiopia to substantiate findings and inform some of the recommendations.
4. Security risks and inaccessibility of Mandera. Various parts of Mandera County suffered several terrorist attacks in the weeks leading up to the assessment; with the most recent ones reported in Kenya's Daily Nation newspaper on 29th May and 22nd June 2021. This, coupled with the cessation of commercial passenger flights from Nairobi to Mandera necessitated a change in planned interviews in Mandera from physical to virtual.

1.5 Methodology of the Assessment

The Regional CC assessment in HoA was conducted from 8th May to 6th August 2021. The bulk of this qualitative study was conducted virtually due to the Covid-19 pandemic and the diverse locations of most key informants.

The assessment team reviewed various pieces of literature from SDC and partner organisations including ACTED, IGAD, IOM, and FAO among others. In addition, the team conducted 32 Key Informant Interviews (KIIs) and 2 Focus Group Discussions (FGDs) in two phases. Phase one ran from 17th to 21st May 2021. KIIs and FGDs were held with SDC HoA domain teams, project implementing partners and beneficiary communities in Isiolo County, SDC HoA management, and SDC staff in HQ in Bern. (See the list of FDG participants in Annex 2; enclosed separately)

The assessment team undertook the initial data analysis and presented preliminary findings and recommendations at the SDC CEDRIG workshop on 27th May 2021. The team subsequently undertook phase two of KIIs with project implementing partners in Mandera and Nairobi counties, SDC staff in HQ in Bern, other donor agencies and specialised institutions from 31st May to 7th June 2021 (see the list of KII interviewees in Appendix 5).

The data and information gathered from the primary and secondary sources above were analysed qualitatively using the Framework Analysis method. Framework Analysis involves reviewing the information and data to generate insights, identify patterns, make sense and meaning out of available data compared to the study's purpose and/or ideal situations.

2.0. ASSESSMENT FINDINGS

This section presents the assessment's main findings on the implications of CC and natural disasters on the HoA Programme domains. It elucidates the link between the effects of CC and conflict, displacement, human health, infrastructure, cost of essential commodities, desert locusts invasion, and food security, based on recent data below.

It also highlights the integration of CC adaptation and mitigation measures into ongoing projects, and the unintended negative impacts of projects on the environment and communities.

2.1. Implications of Climate Change and Natural Disasters on the Horn of Africa Programme

1. Key Manifestations and Effects of Climate Change in the Horn of Africa

The primary effects of CC in the HoA include rising average temperatures; lower temperatures in some cold seasons in several areas; more frequent, prolonged and severe droughts; unpredictable rainfall seasons; and rainfall occurring in more intense events in some areas, thereby exacerbating incidences of flooding.

2. Effects of Climate Change on Displacement

More frequent, prolonged and severe droughts in various parts of HoA are contributing to increased displacement. This is because, in some instances, recurrent droughts don't allow communities' critical livelihood resources such as livestock, water, and pasture to recover. As a result, such communities, e.g. pastoralists, are unable to engage in their livelihood activities, forcing them to abandon them. Since the land may not sustain viable alternatives, such communities move to urban areas, where they at times move to IDP settlements.

Various parts of the HoA are currently experiencing drought. These include Southern Ethiopia, parts of North Eastern Kenya and Somalia. Somalia is on the front line of CC. According to the ND-GAIN index ranking on vulnerability to Climate Change, Kenya, Ethiopia and Somalia ranked 143, 163 and 181 respectively out of 181 countries assessed (ND-GAIN, 2019). Somalia is most vulnerable; with low adaptive capacity and the least readiness to combat CC. Since 1990, Somalia has experienced more than 30 climate-related hazard events, including 12 droughts and 19 floods (UN OCHA, May 2021a). As of May 2021, more than 80 per cent of Somalia was experiencing moderate to severe drought conditions. Over 116,000 people were displaced by severe water shortages and drought conditions between October 2020 and March 2021 (ibid).

3. Effects of Climate Change on Infrastructure, Transport and Costs of Basic Commodities

In some areas, floods may damage farmland, rangelands, roads, bridges, telecommunications and Water Sanitation and Hygiene (WASH) infrastructure. Damage to roads and bridges may cause interruptions to the transportation of people and goods. This may lead to shortages of essential commodities such as foodstuff, fuel and medicines, resulting in price hikes.

Somalia experienced flash floods in the Middle Shabelle area following rains in April 2021 in the Shabelle River's catchment area in Ethiopia and upstream in Somalia. Flash flooding was common in Jowhar and Belet Weyne districts due to rainfall and bursting of river banks upstream. The floods affected 11,000 households in 27 villages, destroyed over 40,000 hectares of farmland and disrupted learning in 11 schools. They also damaged 82 per cent of all WASH infrastructure in the assessed villages, including over 62 shallow wells and 1,646 latrines (UN OCHA, May 2021b). In Baarey, the river breakage affected the transportation of food supplies, pushing up prices of key commodities. There was a slight increase of between \$0.10 and \$0.25 in retail prices of some commodities in the main markets, despite there being no shortage of basic food supplies in Jowhar (ibid).

4. Effects of Climate Change on Human Health

Drought and the associated food shortages and malnutrition exacerbate stunting, especially in children. Furthermore, flood damage to water and WASH infrastructure e.g. wells and pit latrines may result in contamination of water sources, thereby exacerbating outbreaks of waterborne diseases such as cholera.

Increases in Acute Watery Diarrhoea (AWD)/Cholera cases in various flood-affected regions have been reported. In Lower Shabelle, a total of 87 cases were recorded in Qoryooley, Afgooye and Marka regions. In Jubaland, a total of 176 AWD admissions with one associated death were recorded. Key causes of AWD include consumption of unsafe water, inadequate awareness of AWD prevention in the community, the inaccessibility to clean water by host communities and IDPs, and poor hygiene and sanitation practices (ibid).

5. Climate Change, Conflict, Displacement and Food Insecurity

Climate changes manifested in weather (increase in temperature and changes in rainfall quantity and patterns), and the frequency of extreme events e.g. droughts and floods, will have serious impacts on livelihoods, food and water security, ecosystems and infrastructure in the HoA. The impacts will differ per country, community and individual depending on the level of vulnerability (Ministry of Foreign Affairs of the Netherlands, 2018). Climate change will affect livestock production in different ways e.g. major fluctuations in rainfall quantities may negatively impact the quantities and quality of feed crops and forage; water availability, and subsequently meat and milk production. In addition, changes in rainfall and temperature may exacerbate various livestock diseases, and negatively impact livestock reproduction, and biodiversity (Rojas-Downing et. al.2017).

A large proportion of the HoA's vast area is classified as ASALs. In ASALs, rangeland productivity plays an important role in extensive livestock production, which is the mainstay of communities. Droughts have negative effects on livestock production due to reduced fodder availability. Forage and browse production in rangelands is expected to decline in the future due to CC; posing a substantial threat to rangeland production systems (Boone et al., 2018). In particular, the decline in rangeland productivity (commonly quantified using parameters such as NPP¹, HNPP² or carbon

¹ NPP=Net Primary Productivity is the net amount of carbon assimilated after photosynthesis and autotrophic respiration over a given period of time.

² Herbaceous Net Primary Productivity

storage) will consequently prompt significant changes in livestock feed resources, and therefore livestock management practices. In the HoA, it has already been observed that some pastoralist and agro-pastoralist communities are changing herd composition by reducing cattle numbers, and increasing camels, goats and sheep numbers. The latter are more resilient to warmer and drier weather conditions and can cope better in HoA's changing climate.

Changes in rainfall patterns have a direct impact on water availability. Livestock herders rely mostly on rainfall harvested by an extensive network of reservoirs. Seasonal variations in rainfall affect water availability in the rivers, streams and other surface and underground reservoirs. The surface reservoirs are also subjected to siltation, thus negatively affecting water quality. Due to increased droughts in the HoA, increased demand and competition for water by very high numbers of livestock and people concentrated in relatively few water points occasionally results in violent conflicts. Droughts have also been linked to deteriorating livestock health, body condition, and productivity, as well as higher mortality (World Bank and FAO, 2018).

Livestock productivity declines in hot environments. The HoA is experiencing an increase in temperatures, and there is a likelihood of an increase in heatwaves (Abshir, 2020). As a result, livestock production namely; growth of animals, meat and milk yield and quality, egg yield, weight, and quality, reproductive performance, metabolic and health status, and immune response will be impaired (Nardone et al., 2010). Additionally, CC modifies the ecological conditions for livestock disease vectors. For example, pronounced periods of RVF virus activity in East Africa occur during periods of heavy, widespread and persistent rainfall (Martini et al., 2008).

Crop production and other subsectors such as apiculture are increasingly being promoted as diversification options to livestock production in the region. These subsectors are also prone to the negative impacts of CC. Higher temperatures contribute to low productivity due to the shortening of the number of crop growing days, thus negatively impacting crop yields. Higher temperatures also lead to higher evapotranspiration of water, thus negatively impacting water availability and quality, therefore negatively affecting crop yields.

Increasing levels of CO₂ in the atmosphere has been shown to increase biomass but reduce the nutritional quality of crops. In some instances, increased CO₂ has been shown to negate the effects of rising temperatures. However, there is a large variation in the effect of CO₂ on crop yields, even with ample water and nutrients, due to interactions between CO₂ and other factors (Jeffrey S., 2001).

Floods damage agricultural land and property, thereby affecting communities living near riparian areas. Recurrent flooding leads to repeated loss of crops and livestock and deterioration of soil health, thereby exacerbating food insecurity. In addition, affected communities tend to temporarily migrate to safer areas, thereby becoming displaced from time to time.

Drought often exacerbates the shortages of water and pasture in the HoA. Subsequently, community members, especially pastoralists tend to congregate at the few remaining water points to water their livestock. Increased demand and competition for water from very high numbers of livestock and people occasionally results in violent conflicts. These violent conflicts at times force nearby community members to flee in order to safeguard their lives and property. In some instances, the affected community members become displaced.

As of June 2021, 5.9 million people in Somalia required humanitarian assistance, 2.9 million people were displaced by conflict and natural disasters across the country and 1.6 million people are experiencing acute food insecurity (ibid). It is projected that the flash floods will affect food security and livelihoods, with the 2021 Gu' season cereal production expected to be 20-40% below average.

In 2021, drought conditions in the HoA are expected to increase displacement and have a lasting negative impact on livelihoods and food security outcomes. At least 3.4 million people are projected to be affected by drought conditions by the end of 2021, of which around 380,000 are expected to be displaced (UN OCHA 2021).

6. The Link between Climatic Conditions, Pests, Diseases and Food Security

Climatic conditions also influence the prevalence and dynamics of pests and diseases (St. Clair and Lynch, 2010), and pollination services (Thomson Reuters Foundation, 2018). Under changing climatic conditions, the dynamics in pests and diseases will continue changing.

For example, there may be increases in the frequency of new pest introductions, pest outbreaks, and the risk of pesticide residues in food (Dhanush et al., 2015). The HoA has also been experiencing a desert locust invasion since 2019 (FAO, 2020). The desert locust invasion was favoured by a combination of heavy rains, strong winds and soaked land, associated with powerful cyclones due to the fast-warming western Indian Ocean. These phenomena created ideal conditions for the breeding and spread of desert locusts in the region (Hugh, 2021).

In Somalia, there are concerns of another surge of desert locusts, particularly in northern parts of the country due to favourable conditions following the Gu' rains in the area. The spread of existing and newly formed swarms is likely to cause significant losses to crop and pasture availability which has already been adversely impacted by drought conditions, thereby exacerbating food insecurity in high-risk areas of Somaliland, Puntland and parts of South West State.

2.2. Potential Effects of Climate Change on Durable Solutions

The SDC's HoA Migration and Protection domain supports the implementation of Durable Solutions in Kakuma Refugee Camp and surrounding areas in Kenya, and in the cities of Baidoa, Beletweyne and Bossaso in Somalia. The effects of CC, particularly increased incidences of droughts and floods may affect the projects' interventions in the ways highlighted below:

1. The Skills for Life (S4L) project in Kakuma

Droughts and floods may negatively affect the participation of enrolled refugees and members of the host community in the short-term, non-formal vocational and basic literacy courses. This is because the affected community members may shift their attention to survival by spending more time searching for food, water and pasture for their livestock. In addition, floods may damage classrooms and refugee shelters, thereby occasioning temporary displacements. This would likely interfere with the availability of course instructors and enrolled participants in the courses. Consequently, this may delay the achievement of marketable skills, self-reliance and interrupt social inclusion among the refugees and host communities.

2. The Private Sector Solutions for Refugees and Host Communities project

Frequent droughts and floods may negatively affect private sector investments in Kakuma and Kalobeyei. Floods may damage transport and other infrastructure such as major roads and bridges in parts of Turkana County, thereby rendering the project sites inaccessible. Subsequently, this would potentially interrupt the supply of essential goods and services traded by the project's supported small and medium enterprises, such as agricultural inputs and water supply equipment among others. On the other hand, droughts and the associated resource-based conflicts may make the project sites insecure and inaccessible as well. This could potentially make the areas unattractive for business among potential private investors, thereby negatively affecting project results.

3. The UN Joint Programme Saameynta

This programme aims to scale up durable solutions for displacement-affected communities in Somalia. Floods may damage public works and infrastructure investments put up by the project. This may erode the improvements on land, and occasion financial losses to the project. On the other hand, droughts may also necessitate a shift of focus towards survival among the displaced and host communities. As a result, they may not effectively participate in governance and decision-making during crises, thereby potentially affecting the achievement of project results.

2.3. Implications of Climate Change and Natural Disasters on SDC's Horn of Africa Domains

The implications of CC and natural disasters on communities in the HoA under SDC's thematic areas of focus are summarised in Figure 1.

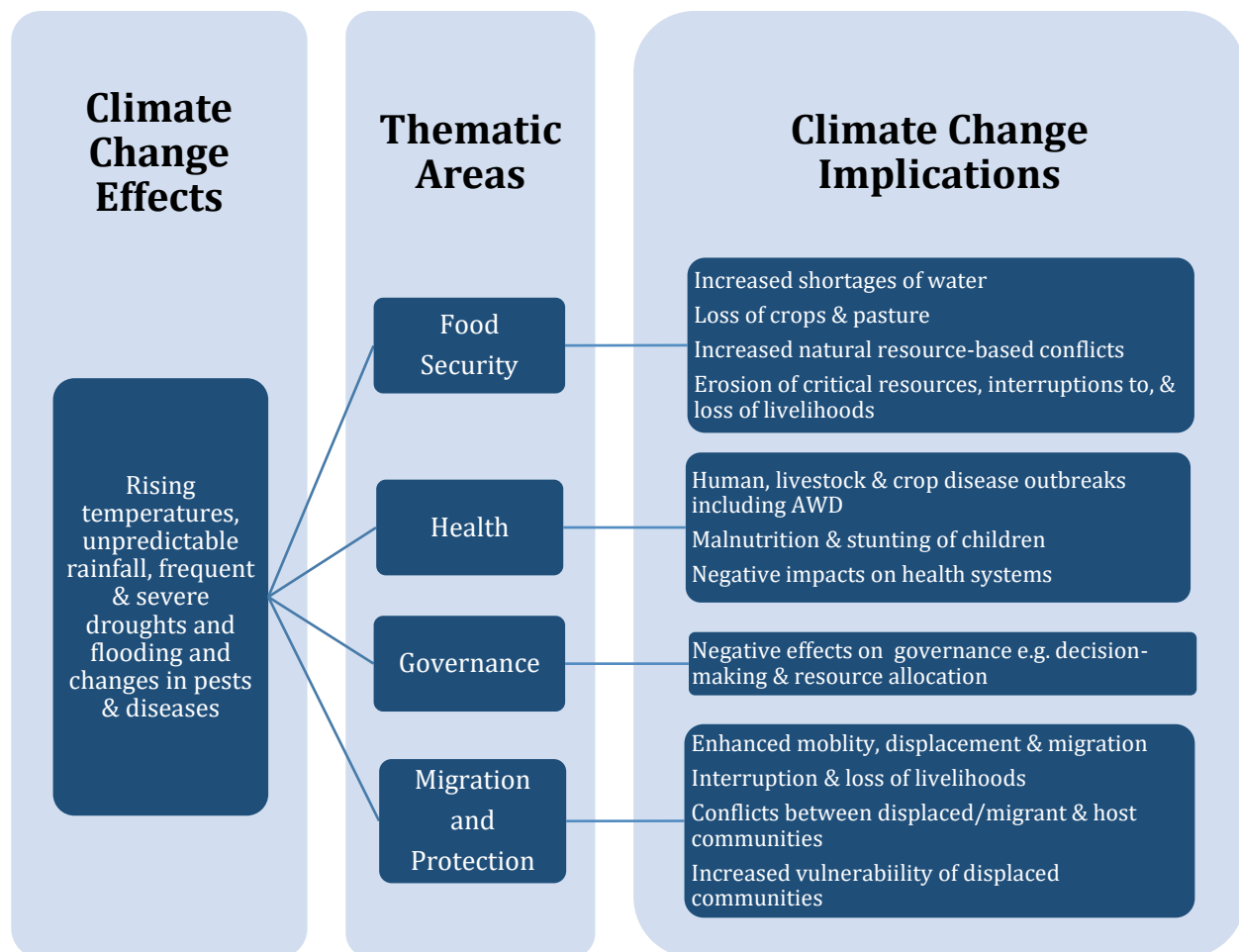


Figure 1: Implications of Climate Change effects on SDC's HoA Thematic Areas

Overall, the effects of CC and natural disasters identified erode HoA communities' adaptive capacity. In addition, some of the immediate coping strategies adopted by communities, such as cutting trees and burning charcoal for sale, negatively affect the environment. For example, increased cutting of trees fuelled by the demand for firewood and charcoal exposes soils to increased erosion, leading to land degradation. Additionally, carbon sequestered in trees and soils is released into the atmosphere thereby inadvertently contributing to Greenhouse Gas (GHG) emissions. Frequent interruptions to, and loss of livelihoods and displacement and migration into IDP camps in urban areas also exacerbate inequality and vulnerability.

Across SDC's Food Security, Health, and Migration and Protection domains, unpredictable rains, droughts, floods and natural disasters, e.g. desert locust invasion, are reported to have caused:

1. Delays in project implementation.

For example, the NRM Borena project began implementing development interventions two years late (2018). This is because there was a drought in Southern Ethiopia at the start of the project in 2016. The project was therefore compelled to implement emergency drought response interventions in 2016 and 2017.

2. Interruptions to project implementation.

Projects are compelled to shift from implementing development interventions to emergency humanitarian response, thereby potentially delaying the achievement of development results. The NRM Borena project reported implementing another round of drought response interventions in 2021 alongside planned development interventions to respond to the ongoing drought, and safeguard the project's development investments since 2018. This complementary approach seeks to ensure that the project continues implementing its development interventions despite the occurrence of CC-related shocks and stresses, thereby achieving its objectives. The NRM Borena project also recruited an expert to work on humanitarian interventions for the duration of the crises, to ensure effective project implementation. The One Health project also reported shifting from the implementation of development interventions to humanitarian response during droughts and floods.

3. Diversion of development resources.

Projects that have not built-in contingency funds e.g. the Private Sector Solutions for Refugee and Host Communities in Kakuma (Kenya) and the UN Joint Programme Saameynta in the Migration and Protection domain, and the SIRA project in the Food Security domain, divert development funds and other resources to humanitarian response when climatic shocks and stresses occur. This eats into development resources, thereby potentially weakening the achievement of long term sustainable development results. However, in the Food Security domain, projects that have allocated contingency funds such as the LSS, Kenya RAPID, and SomReP can seek additional contingency funds and support from multilateral agencies in instances where their allocated contingency funds may be insufficient to address various humanitarian crises. This would augment their allocated contingency funds.

2.4 Findings on Integration of Climate Change Adaptation and Mitigation into SDC's Projects in the Horn of Africa

This section presents the avenues through which SDC's HoA projects are currently incorporating various components of CC adaptation and mitigation. They provide important entry points for SDC to promote CC adaptation and resilience in the HoA in its next Cooperation Programme. Additional opportunities for promoting climate resilience and adaptation are elaborated in the recommendations in Section 4.

The effective integration of CC adaptation and mitigation into projects and programmes entails the elements and inter-relationships presented in Figure 2. This was adapted from the CARE Adaptation Learning Programme in Africa.

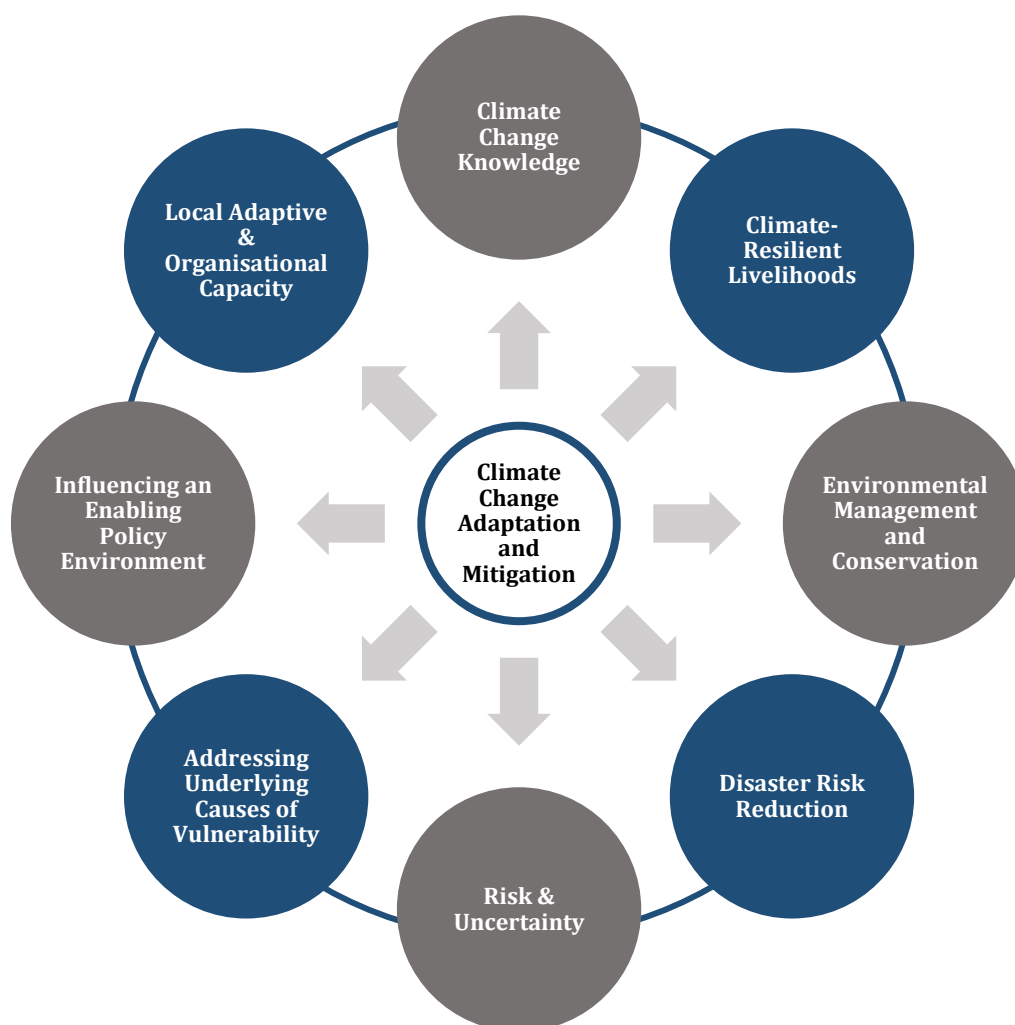


Figure 2: Components for Integration of Climate Change Adaptation and Mitigation. Adapted from CARE Adaptation Learning Programme in Africa

Various projects in SDC's HoA Food Security, Health, and Migration and Protection domains are implementing interventions that have several CC adaptation, mitigation and environmental benefits. This is despite the projects being designed without explicit CC considerations, nor to explicitly adapt to, or mitigate against CC. The projects and their respective CC adaptation and mitigation components are highlighted below.

1. Climate-Resilient Livelihoods

The Strengthening Livestock Sector in Arid and Semi-Arid Counties of Kenya (LSS), and Kenya RAPID Moving towards Sustainable and Resilient Livelihoods of Pastoralist Communities in Northern Kenya projects are implementing livelihood diversification interventions. These include

support towards establishing enterprises such as camel milk value addition and commercial poultry keeping (see Figure 3 and Figure 4).



Figure 3: Banana production in a kitchen garden by Courage Group in Isiolo ©Kitinya Kirina



Figure 4: Poultry production by Courage Group in Isiolo ©Kitinya Kirina

2. Disaster Risk Reduction

The Somalia Information and Resilience Building Action (SIRA) by FAO produces and disseminates disaster early warning information to various humanitarian and development actors in Somalia. This contributes to preparatory and early response interventions such as procurement and positioning of essential human health supplies by the Community Health Provision in Somalia (CHASP) project. In addition, the Somalia Humanitarian Fund (SHF) which SDC contributes to, generates disaster early warning information via UN partner agencies staff in the field. Some of the programmes in the nine clusters access and use this information to conduct rapid assessments that subsequently inform early response interventions such as early procurement and positioning of essential supplies.

In Ethiopia, the One Health Units for Humans, Environment, Animals and Livelihoods (HEAL), and Jigjiga University One Health Initiative (JOHI) access disaster early warning information from Ethiopia's National Disaster Relief Management Commission (NDRMC) via the Disaster Preparedness Learning Bureaus at Woreda level. The projects also use this information to procure and position essential human health and veterinary supplies.

These, coupled with emergency response interventions implemented by most projects in the Food Security, Health and Migration and Protection domains when climate shocks occur, may contribute to reducing the negative effects of climatic shocks and natural disasters on communities.

3. Local adaptive and organisational capacity

The Kenya RAPID team employs the SLI approach. This entails Sequencing, Layering and Integration of interventions with complementary support to groups/local institutions by different organisations through time. For example, an organisation may support local groups to engage in climate-resilient livelihood activities, another may link the groups to critical information, services

and markets, another organisation may facilitate the requisite capacity development, while another organisation may facilitate the groups to engage in local governance etc.

4. Understanding and addressing the underlying causes of vulnerability

In Kenya, SDC commissioned studies on gender, environment, water feasibility study in Kakuma, and a social assessment for the multi-donors Kakuma- Kalobeyei Challenge Fund (KKCF). In this project, SDC is working together with the International Finance Corporation (IFC) to engage the private sector to bring innovations and solutions in the refugee context. The KKCF recently commissioned a feasibility study on water resources in Kakuma and Kalobeyei. The study focused on the surface and groundwater volumes and quality. It generated information on the potential for water harvesting and storage, and its viability for commercial use in livestock production and agribusiness in Kakuma and Kalobeyei (Deltares, 2021).

Effective implementation of interventions informed by this study, and the shift in refugee assistance to socio-economic inclusion may contribute positively to refugees and host communities' adaptation to impacts of CC. The findings of these studies could contribute to a greater understanding of some of the underlying causes of vulnerability among targeted groups. Socio-economic inclusion interventions could also contribute towards reducing the vulnerability of refugees and host communities.

Various projects in the Food Security, Health and Migration and Protection domains are implementing interventions that contribute towards women's economic empowerment; improved access to water, pasture, health and veterinary services; and good governance of rangelands. However, according to SDC's Mid Term Evaluation in the Horn of Africa 2018-2021, projects have not yet addressed the underlying causes of vulnerability to drought, floods, CC-related food insecurity, livelihoods challenges, health challenges, and conflict-related displacement and migration. It was reported that ongoing interventions mainly focus on response measures (SDC, 2021b). Therefore, SDC needs to delve into the underlying causes of vulnerability. A description of how SDC should tackle underlying causes of vulnerability to CC is provided in recommendation No. 4 in Table 2 below.

5. Influencing an enabling policy environment

Switzerland is providing technical support through secondments of specialised staff to various UN agencies to enhance their operational capacity. They engage in policy dialogue, coordination and information sharing and work at the highest levels in different spaces to influence critical issues both regionally and globally.

The IGAD-FAO PP on Building Resilience for Agro-pastoralist communities is providing policy and institutional support to the district/county governments in the Mandera Triangle in Somalia, Ethiopia and Kenya, on the interpretation of transboundary policies e.g. on the movement of livestock and people. The project is also undertaking a resilience baseline and conflict analysis to inform investments in the region. In addition, it is supporting the capacity development of IGAD and its specialised agencies to enable them to deliver on their respective mandates. For example, the project supported the IGAD Centre for Pastoral Areas and Livestock Development (ICPALD) to establish a robust financial management system. It also supported ICPAC to set up an automatic

weather station in Dolo Ado to strengthen drought monitoring and partnered with the Sheikh School to offer academic courses on agro-pastoral field studies.

SDC has also supported projects with policy advocacy objectives to unlock the potential of the region. The FCDC project has supported the county governments of Garissa, Wajir, Mandera, Isiolo, Marsabit, Tana River, Lamu, Samburu, Turkana and West-Pokot to develop various policies on rangeland management, and policy instruments to allow the integration of CC into the counties' budgets.

6. Environmental management and conservation

SDC is implementing the Global Programme on Food Security- Woody Weeds Plus project together with the Centre for Agriculture and Bioscience International (CABI) Switzerland, the Centre for Development and Environment (CDE) at the University of Bern and the Kenya Forestry Research Institute (KEFRI). The project is coaching the Kenya government's National Prosopis Strategy's (NPS) efforts to manage *Prosopis juliflora* sustainably. It is also implementing a multi-stakeholder approach to address pastoralist livelihoods and to restore pastures and ecosystem services in ASALs (SDC, 2020b).

The NRM Borena project's rangeland rehabilitation interventions in Ethiopia's lowlands have gained recognition by the Federal Government of Ethiopia. It was reported that the government has started scaling out the good rangeland management practices in the lowlands.

The HEAL project has a strong focus on NRM. It is mapping rangelands. The project is planning to undertake basic environmental awareness raising in its integrated health services delivery component. The SomReP and SIRA projects (with support from FAO) are implementing interventions to remove *Prosopis juliflora* and add value to its pods to provide fodder.

7. Contribution towards Climate Change Mitigation

The Kenya RAPID project's interventions on installing solar water pumps in boreholes, and remote/virtual water monitoring contribute to CC mitigation by reducing the emission of GHGs (Figure 5).



Figure 5: Solar-powered Irrigation System in Aktir, Isiolo (K-RAPID project) ©Kitinya Kirina

8. Access to and use of Seasonal Weather Forecast Information in Projects

The Food Security domain reported receiving seasonal weather forecast information through donor meetings, online platforms, including the Famine Early Warning Systems Network (FEWS NET), the Food Cluster and Resilience meetings in Somalia. Information usually comprises seasonal rainfall predictions, expected effects, e.g. flooding when applicable, and expected rainfall start dates. This information is used to adjust project interventions.

In Isiolo, Kenya RAPID and FCDC participate in the County Steering Group (CSG) meetings. Here, they receive and review downscaled seasonal weather forecast information from the Kenya Meteorological Department (KMD), and jointly develop sector-specific advisories.

In the CHASP project, seasonal weather forecast information is obtained from ICPAC, FEWS NET, SWALIM and community DRR committees. The project's National Country Humanitarian Advisor consolidates the forecast and conveys it to the team. The project reported using the information to adjust their response plans given the changes in contextual conditions. Measures implemented include scaling up response to address increasing needs, e.g. to tackle cholera outbreaks during floods and prevent deterioration of target communities health conditions e.g. by providing critical nutritional supplements in response to drought. The project also reported activating contingency funds to cater to increased needs for health, nutrition and WASH services during crises to protect the normal health service delivery.

The JOHI and HEAL projects reported that they are accessing and using weather forecast information. In the JOHI project, the integrated surveillance and response intervention reported accessing and using weather forecast information. The HEAL project recently reported supporting the introduction of new data systems in North Horr, which integrate weather data and health emergencies.

9. Contingency funds and flexible mechanisms in some domains and projects are beneficial.

Switzerland is regarded highly because it integrates contingency funds/crisis modifiers in funding support. Several projects in the Food Security and Health domains have built-in contingency funds/crisis modifiers. These include the CHASP project which has an in-built dedicated contingency fund of 200,000-300,000 Swiss francs; the HEAL and JOHI projects which have dedicated 114,000 and 250,000 Swiss francs respectively; the SomReP; SIRA has an in-built dedicated contingency fund of approximately 120,000 US dollars; the LSS project has flexible funds in its annual budgets for immediate response to shocks; and the NRM Borena project also reported having built-in contingency funds.

The contingency funds have enhanced flexibility to quickly respond to shocks. For example, in Somalia, the funds have been used to provide critical health services, e.g. interventions to minimise incidences of cholera during floods. In Ethiopia and Kenya, contingency funds have enabled early response actions in localised areas, as the affected regions await resources from larger humanitarian support appeals, which are usually disbursed a little later.

Several challenges were identified concerning the activation of contingency funds. These include variations in the identification of crisis trigger indicators, and processes for approval and

accessing the funds. In addition, relatively long lag times before the official declaration of crises and/or disasters by the official government agencies such as the National Drought Management Authority (NDMA) in Kenya. This, together with bureaucratic processes involved in the approval and release of contingency funds, causes delayed preparation and response at times.

SDC has also contributed 2 million Swiss francs to the larger HoA desert locust infestation regional appeal by FAO. The HoA desert locust appeal fund covers desert locust control, enhancing coordination and information sharing, and livelihoods support to affected communities.

10. The engagement of the private sector as strategic partners can provide innovative financing and sustainable solutions.

The Kenya RAPID project engaged private sector entities namely, Davis and Shirtliff Company in the supply, installation and maintenance of solar water pumps and remote monitoring of water levels in boreholes. This generated greater demand and expanded the business opportunities for the corporate entities. This approach has the potential to achieve sustained results in the long term, whilst contributing positively to CC mitigation. The KKCF's private sector engagement component also has the potential to generate innovative and sustainable solutions in the refugee support context (SDC. 2021d).

It was noted that at the strategic level, SDC is not optimally structured for effectively engaging with the private sector as a source of blended financing for CC and environmental solutions. It was reported that private sector engagement is still a relatively new area for SDC HQ. Some private sector entities in Switzerland perceive SDC's administrative systems to be complex, thus unfriendly. It was also reported that so far, there are challenges in harmonising the goals and objectives of SDC with those of some private sector entities in Switzerland. Private sector entities are keen on making profits, while SDC is keen on contributing to poverty reduction and humanitarian support in developing countries. Therefore, this mismatch poses challenges to the fruitful engagement of private sector entities in co-financing development and poverty reduction at times.

2.5 Unintended Negative Effects of SDC's Projects on the Environment, Climate and Communities

The unintended negative effects of SDC's projects on the environment, climate and communities are:

1. The NRM Borena project's bush clearing in the rangelands in Ethiopia may be good for rangelands. However, it may be inadvertently harming the environment and climate by exposing the soil to erosion and releasing carbon dioxide sequestered in soil and plants into the atmosphere (op. cit). It would be important for the project to mitigate this by ensuring that it conducts bush clearing just before the rainy seasons. The rains would potentially boost the rapid regeneration of grass from seed banks held in the soil, thus minimise soil erosion, and ensure CO₂ sequestration by the new grasses and the cover they provide to the soil. Other projects should accompany bush clearing with reseedling of rangelands and tree planting

before the rainy seasons to boost the growth of grasses and trees, thereby enhance pasture and browse for livestock.

2. The HEAL project in the Borena zone reported that a health facility was improperly disposing of medical waste in its surrounding area. The project addressed this by constructing an incinerator for proper waste disposal. It would be good for the project to monitor changes in waste disposal and the environmental conditions in the surrounding area to assess the effects of this intervention.
3. The Migration and Protection domain reported that concentrating refugees and IDPs in designated camps contributes to environmental degradation through the intensive cutting of trees for firewood. Grazing of livestock in areas surrounding their camps regardless of the carrying capacities also exacerbates the pressure on rangelands and environmental degradation. While this is not a direct effect of the project's interventions, it would be good for SDC to consider implementing and supporting rangeland management interventions such as reseedling and tree-planting by refugees, IDPs and host communities. This would contribute to improving the environment, reducing conflicts (enhance social cohesion), and sustaining critical rangeland and livelihood resources.
4. By providing basic needs and relief to refugees and IDPs, refugee assistance may be inadvertently creating and encouraging dependency among target communities. However, the shift to socio-economic inclusion and social cohesion may remediate this in future.
5. Some of the water infrastructure interventions, e.g. drilling boreholes, excavating water pans etc., have some unintended negative impacts. In areas such as Mwangaza in Isiolo, borehole water has been found to have high levels of arsenic, which is toxic. In other areas, the water has high salinity making it unsuitable for humans, livestock and crops (Figure 6). These challenges in water quality, as well as challenges in the management of the said infrastructure (e.g. livestock drinking water directly from some water pans thereby polluting it), are associated with increased incidences of diseases such as H Pylori and Kidney stones among adjacent communities. Saline water also causes the drying up of crops, with some failing completely. It was also reported to cause soil cracking, thereby reducing its suitability for crop production. These negative effects may erode the intended CC adaptation benefits of the interventions to communities. SDC should ensure that projects that plan to carry out water infrastructure interventions engage hydro-geological experts to conduct comprehensive and rigorous assessments at potential sites. The assessments should incorporate, study and advise on sustainable water recharge and abstraction regimes, to inform the types of water infrastructure interventions to implement, their management, and mitigative measures required to ensure sufficiency, quality and sustainability of the water.



Figure 6: Salt accumulation causing rusting of irrigation equipment in Aktir Isiolo ©Kitinya Kirina

2.6. Current Understanding of Climate Change in SDC's Horn of Africa Portfolio

The assessment noted that different HoA Programme domain teams and their implementing partners have varied levels of understanding of CC.

The Food Security domain had the highest level of understanding, partially because CC affects their interventions and results most directly. The Health and Migration and Protection domain teams also demonstrated a strong understanding of the nexus between CC and their focus areas. However, the Governance domain demonstrated a weak understanding of CC. This is despite the domain addressing natural-resource-based conflicts, which have a direct link with CC in the HoA.

There is an indirect link between other programmes in the Governance domain and CC. The JPLG, with support from the World Bank (WB), is undertaking various engagements on governance at institutional and community levels and is providing support on infrastructure development. The Food Security domain's engagement at policy level and institutional capacity building, e.g. Kenya RAPID and LSS projects' engagement in influencing Isiolo county government to mainstream CC in its budget, is contributing positively to governance. The Migration and Protection domain's shift from refugee assistance to socio-economic integration through its Promoting Life Skills and Livelihoods in Kakuma Refugee Camp (S4L), Regional Support to Durable Solutions for Displacement Affected Communities (DSDAC), and Private Sector Engagement in Kakuma (PSEK) projects.

3.0. OPPORTUNITIES FOR CLIMATE CHANGE MITIGATION MEASURES AND PROMOTING LOW CARBON DEVELOPMENT IN SDC'S PROJECTS IN THE HORN OF AFRICA

Given the predominantly Arid and Semi-Arid nature of the HoA and the types of livelihoods there, CC mitigation requires contextualised thinking and modification to fit within this system for it to be sustainable. Opportunities for integration of CC mitigation measures across key sectors in the HoA are highlighted below.

3.1. Entry Points for Climate Change Mitigation in Food Security

3.1.1 Agriculture

In the HoA, a large proportion of livelihoods and income rely on livestock production and dryland farming. Given major challenges namely droughts, floods, soil erosion and land degradation, potential opportunities for promoting CC mitigation and low carbon development are presented below.

Adoption of Climate-Smart Agriculture (CSA) practices e.g. conservation agriculture technologies, like stone mulching and minimum tillage, allow for biomass accumulation in the soil. These interventions also promote carbon sequestration in soil and plants. It is important to carry out re-seeding of rangelands using adaptable local varieties/ improved varieties of grasses for pasture. Apart from providing livestock feed, these grasses provide cover to the soil, thereby reducing soil erosion. In addition, the grasses build and retain carbon stock above and below ground. Key entry points for SDC to promote CC mitigation in the HoA include support towards commercial production of fodder and livestock feed. In addition, SDC should support the strengthening of effective traditional rangeland governance and management strategies, e.g. in Borena zones in the HoA, and advocate for the incorporation of these measures into district/county government policy formulation, institutionalisation and implementation as feasible.

Another opportunity lies in the infusion of renewable energy in agricultural value chains. SDC should build on the use of solar energy in the irrigation systems installed by the Kenya RAPID project. SDC should capitalise on this, and support the expansion of solar energy in water abstraction, water treatment and distribution as feasible. In addition, SDC should support the use of solar energy in poultry production, and value addition to agricultural products e.g. milk, meat, vegetables and cereals. This would reduce reliance on diesel power, thus reduce the emission of carbon dioxide into the atmosphere. At the same time, it would enable communities and business owners to take advantage of the abundant sunshine found in the HoA. As SDC promotes the adoption of solar technologies, it should mitigate the potential future challenge of improper disposal of redundant solar equipment by engaging the solar equipment companies in a buy-back and/or waste collection endeavour in the long term.

There is an opportunity to increase tree cover in the HoA, and contribute to carbon sequestration in soil and plants. SDC can support interventions on the commercial establishment of tree

nurseries, e.g. through KKCF. SDC can also support agroforestry, targeting economically beneficial native and other tree species suitable in the HoA, including multi-purpose tree species. Examples include trees that provide browse for livestock, e.g. goats and camels, trees with medicinal products, fruit trees, and trees that provide gums and raisins e.g. Gum Arabica. It is recommended that SDC partners with the World Agroforestry Centre (ICRAF), the Kenya Forestry Research Institute (KEFRI), to provide technical advice, material inputs including appropriate tree seeds and seedlings, and capacity development on the establishment of tree nurseries, tree growing and management, and sustainable harvesting of economic products from trees. Agro-forestry is best combined with related livelihood activities, e.g. apiculture, as an additional layer to achieving resilience and acting as a buffer in forest protection.

SDC should also implement the regional approach and support the ecosystem and/or basin conservation by promoting agroforestry, afforestation and reforestation in the highlands/watershed areas to minimise flooding in the ASAL low lands in HoA. This would reduce the loss of carbon through soil erosion during flooding.

3.1.2 Livestock Sector

Proper and timely livestock offtake could promote better herd size management, thereby contributing towards the mitigation of CC in the livestock sector. This is by contributing towards the appropriate reduction of livestock numbers, and the attendant levels of methane gas emitted by them. SDC can promote timely livestock offtake by supporting market systems in livestock value chains. For example, the efficient and sustainable operation of slaughterhouses and abattoirs in HoA counties/districts will provide ready markets for livestock. Consequently, the competitive prices offered for livestock will provide incentives for pastoralists to sell livestock to the slaughterhouses and/or abattoirs, thereby off taking livestock and consequently improving the management of herd sizes. Slaughterhouses and abattoirs should be located at strategic points in all the HoA counties/districts and countries to help reduce livestock movement across borders. In addition, the slaughterhouses and abattoirs should be constructed together with feedlots to improve the meat value chain in livestock. SDC should also lobby the national and district/county governments to use appropriate economic instruments e.g. provide conditional subsidies to slaughterhouses and abattoirs in the HoA during the early onset of droughts, to facilitate enhanced purchase, slaughter and processing of livestock and their products from communities before livestock body conditions deteriorate considerably. SDC should also promote the cyclic economy in agro-pastoral systems, by promoting the use of crop residues as livestock feed, and livestock waste products as fertilizer for crop production.

Infusing renewable energy in livestock value chains can contribute to CC mitigation. For example, switching from the use of diesel to solar power in meat and milk processing can reduce the emission of carbon dioxide into the atmosphere. In addition, proper disposal of livestock waste e.g. appropriately burying or incinerating remainders of carcasses after slaughter could help contain the emitted gasses. SDC could support the proposed abattoir in Isiolo County to incorporate renewable energy and appropriate waste disposal technologies into its design, construction and operation.

The promotion and use of biogas energy in peri-urban and urban areas where some pastoralists migrate to in search of jobs when drought conditions worsen, is an important entry point for CC

mitigation in the livestock sector. SDC should capitalise on Switzerland's niche in fostering effective partnerships, and partner with the Swedish International Development Agency (SIDA) to learn and adopt interventions on the production of biogas using animal dung, and use of biogas energy for cooking and lighting among SDC's target communities in peri-urban and urban areas. SIDA is implementing this intervention under the Integrated Management of Natural Resources for Resilience in Arid and Semi-Arid Counties (IMARA) project. SDC could contribute towards scaling out such interventions and their results in its areas of operation.

3.2 Entry Points for Climate Change Mitigation in the Health Domain

Energy and WASH are critical issues in the region with a direct impact on health. Adoption of clean energy improves the quality of life, and more so for women and children. Traditionally, women tend to play more roles in the kitchen. Continued use of firewood and charcoal could be detrimental to their health in the long run. Mitigation opportunities in water treatment and supply may benefit from the use of solar-powered systems. To some extent, this is being implemented through various projects like Kenya RAPID. The Promotion of Climate-Friendly Cooking Project being undertaken by the Ministry of Energy and the Netherlands Development Organisation (SNV) promotes solar lighting and energy-saving cookstoves for households in peri-urban and urban centres. Collaboration to upscale adoption of these technologies will potentially reduce demand for charcoal and consequently minimise deforestation. At a community level, alternative energy options, such as community mobile solar cooking systems, could be assessed and promoted. However, there is a need to undertake a feasibility assessment to determine their sustainability under the displacement and nomadic pastoralism contexts.

3.3 Entry Points for Climate Change Mitigation in the Governance Domain

The current work through the LSS and Kenya RAPID supporting sub-county development in Isiolo is a good starting point to create an enabling environment for CC adaptation and mitigation. Regionally, harmonising interventions/programmes to country contexts would be a more appropriate way to achieve more impact. Such programmes can only thrive where there is an enabling environment. For example, despite the availability of country-specific NDCs within the region, the low achievement of the targets is partly linked to misaligned policies and partly by financial constraints (Bhandary, 2021). The process of aligning such policies is best informed by experience and knowledge gained through sharing and learning. In the current projects, for example, there are very few cross-border interactions and knowledge sharing. Learning by interaction creates opportunities for tapping into the experiences to build regional programmes. The majority of interventions in policy advocacy have mainly looked at CC from an adaptation lens, which answers to the immediate needs. However, long term thinking infusing mitigation in policies in the region is a gap and an opportunity to engage stakeholders in the region.

3.4 Entry Points for Climate Change Mitigation in the Migration and Protection Domain

Refugee settlements act as a market for goods and services. An assessment by SDC to determine business opportunities for solar energy systems in refugee camps can be extended to waste management (incorporating biogas) for community energy use and waste recycling, especially

among peri-urban and urban communities, to promote a cyclic economy. The outcome of such an assessment, especially if there is a strong business case, can be packaged and sold to the private sector for implementation.

3.5. The Link between One Health Approach and Climate Change Adaptation and Mitigation

The Swiss One-Health Partners in the HoA define One Health as “any added value in terms of better health and well-being for humans and animals, financial savings and improved environmental services achieved from closer cooperation between practitioners and scholars concerned with human, animal, and environmental health and related outcomes, beyond what can be achieved by working alone” (Zinsstag et al., 2015).

One Health³ is a collaborative, multi-sectoral, and transdisciplinary approach working at the local, regional, national, and global levels to achieve optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment (CDC, 2018). The One Health approach supports global health security by improving coordination, collaboration and communication at the human-animal-environment interface to address shared health threats such as zoonotic diseases, antimicrobial resistance, food safety and others. The concept of One Health is the unity of multiple practices that work together locally, nationally, and globally to help achieve optimal health for people, animals, and the environment (ibid).

SDC is implementing the One Health approach through the HEAL and JOHI projects. These projects have environmental components which provide good entry points for CC adaptation and mitigation. For example, the HEAL project could implement re-greening of rangelands through tree-growing and reseedling of rangelands, thus contribute to CC mitigation. The planned One Health clinics could also install and use solar energy systems to power their premises and electrical equipment, thus contribute to reducing GHG emissions.

The One Health projects contribute to CC adaptation through access to, and use of disaster early warning information via the multi-stakeholder community platforms. These platforms also provide a good entry point for access to and use of community weather forecasts, which are reportedly more reliable, in project interventions. The HEAL Project is also implementing adaptive management strategies and has built-in contingency funds, used to respond to climatic shocks e.g. drought, and flood-related human and livestock diseases such as cholera and RVF among others. These interventions go a long way in helping communities to adapt to the impacts of CC.

3.6. The Climate Finance Landscape

Globally, climate finance inflows have increased from USD 360 billion in 2012 to USD 622 billion in 2020 (Macquarie et al., 2020). In 2018, out of the total USD 540 billion realised that year, USD 490 billion went into CC mitigation, with the bulk of it (95%) going into renewable energy

³ “any added value in terms of better health and well-being for humans and animals, financial savings and improved environmental services achieved from closer cooperation between practitioners and scholars concerned with human, animal, and environmental health and related outcomes, beyond what can be achieved by working alone” (Zinsstag et al., 2015).”

generation, energy efficiency technologies and low-carbon technologies. Climate change adaptation accounted for only USD 35 billion, with the most significant shares going into Agriculture (20%), Disaster risk management (23%), and Water and water management (31%). Despite the upward trend, climate finance inflows into Sub-Saharan Africa are still low, accounting for only 4% of the total USD 541 billion disbursed in 2018 (Macquarie et al., 2020). These funds are drawn from the public and private sector, in roughly equal proportions and are channelled through different instruments, including equity, debts and grants.

International public and private organisations may have slight variations in focus but are nonetheless more inclined to fund interventions that mainstream CC adaptation and mitigation; taking into account the local contexts. For example, the World Bank has supported interventions in Kenya through the Kenya Climate Smart Agriculture project (KCSAP). The project is designed to address local CC adaptation and mitigation needs based on specific areas of implementation. For example, in Kitui County, the focus is on water management, while in ASAL areas of Isiolo, Wajir, the livestock sector is the main target.

The Netherlands government is very active in CC financing, more so in food security and water management. The country hosts the CCAFS programme, a Consultative Group on International Agricultural Research (CGIAR) flagship programme on CC and food security. In addition, there is a potential funding stream for research for development programmes that explores and scales green innovations through partnerships involving research institutions. The benefit of such collaboration is that it meets the expectation of donors who seek interventions informed by scientific evidence that boost their success and sustainability (SDC, 2021c).

The US government, through the United States Agency for International Development (USAID), has previously been instrumental in the CC funding landscape. However, with changes in CC policies in the last four years, they have not been active. Currently, they are developing a CC strategy in the region (personal communication - USAID 7, June 2021). In the HoA region, the new USAID strategy will focus on better management of natural resources based on scientific evidence. Additionally, foundations like *Ingvar Kamprad Elmtaryd Agunnaryd* (IKEA) are now keen on agriculture and CC. Currently, they are sponsoring two projects in Kenya promoting regenerative agriculture: the Farm Africa Regenerative Agriculture Project and the SNV Veggies for People and Planets project. Such private finance requires that CC mitigation and resilience are more closely linked. Additionally, blended finance instruments that consider multiple dimensions of resilience in energy and health targeting vulnerable communities are projected to have a healthy financial stream moving forward, especially in light of COVID-19 (Macquarie et al., 2020). A list of potential CC financial partners is included in Appendix 2

Switzerland is a board member of the Global Environment Facility (GEF) and, through Platform on Funding International Cooperation on Environmental Issues (PLAFICO), SDC, is a board member of the Green Climate Fund (GCF). The GCF is a critical player in supporting CC adaptation and mitigation interventions by accredited institutions. In light of the rigorous accreditation process, SDC should work closely with already accredited bodies in developing countries by identifying gaps and entry points in their NDCs. For example, countries within HoA have designated national and sub-national climate funds for mainstreaming CC. In Kenya, for instance, GCF has approved USD 151 million towards implementing NDCs for the period 2020-2022. However, the water and blue economy has been identified as one area with the highest financial gap, realising only 15% of

the targeted Ksh 100 billion (Odhengo et al., 2021). Similarly, Ethiopia's Climate Resilient Green Economy (CRGE) Facility (Bhandary, 2021) has been developed to help the country move towards a green economy. Under this strategy, protecting and re-establishing forests is one key pillar of the CRGE Strategy (GoE, 2013). In Somalia, GCF funding is limited. The country is still in the preparatory stages to be GCF- ready. There is a considerable gap in technical assistance to fully prepare Somalia for climate financing and eventually boost financial inflows. These efforts are a significant step forward to ensure financial flows into the region but are not sufficient. There is a need for their countries and their relevant institutions to develop detailed plans to remove bottlenecks that limit the ability of policies to attract the finance desired, and particularly spell out the contribution of the vulnerable regions to their respective NDCs.

Apart from the NDCs, countries have developed National Agricultural Investments Plans (NAIPs). Kenya's NAIP plan has been cascaded to county level. The World Bank has also supported countries to develop Climate Smart Agriculture Investment Plans (CSAIPs). Based on Kenya's NAIP, it is estimated that the country will require a total of USD 4.2 billion in agriculture to support the sector for the period 2019-2024. These investments include agricultural-specific investments and supportive agricultural costs for roads and power infrastructure (Government of Kenya, 2019). In Ethiopia, it is estimated that the investment needs for agriculture water management alone are about USD 654 – 3,273 Million (FAO; AG Water Solutions, 2020). These plans and strategies provide promising twin avenues for impact at scale, and additional financial streams if programmes are aligned to their goals.

The HoA region generally attracts much funding for peacebuilding and resilience development through various organisations working in the area. Regionally, SDC is already engaging with organisations like IGAD to implement their IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI); with an element of peacebuilding. In the agriculture sector, the Alliance for a Green Revolution in Africa (AGRA), with its ambition to have 25 million smallholder farmers adopting CSA by 2025, provides an opportunity for collaboration. Additionally, SDC's thematic areas of focus are aligned to the global focus on development, e.g. SDGs, and the Swiss federal government strategy that encompasses the HoA, and are better positioned to attract funding for interventions of mutual interest. The significant adjustment would require packaging of interventions promoting a mainstreaming plan, and integrating the thematic areas for more impact. The strategy cascading programmes and projects interventions also needs to be intentional about sustainability. Lastly, better coordination of regional interventions coupled with strong partnerships would be more effective and consequently be attractive to donors. See the list of potential GCF accredited partners interested in or already working in the HoA in Appendix 3.

4.0. RECOMMENDATIONS

4.1 Integration of Climate Change Adaptation, Mitigation and Environmental Management in SDC's Horn of Africa Cooperation Programme

This section outlines additional opportunities for integration of CC adaptation and mitigation into SDC's HoA four domains and their respective projects in the next Cooperation Programme. It presents the opportunities for promoting climate resilience and adaptation in the HoA projects and draws on them to make recommendations for SDC to integrate CC into the HoA portfolio. It is recommended that the SDC applies a nuanced approach when implementing these recommendations, accounting for the heterogeneity of the different countries, project operational areas and capacities of implementing partners and other key stakeholders. Each recommendation has been designated a prioritisation level based on the criteria detailed in Appendix 1.

1. To effectively implement CC adaption, mitigation and environmental management, the HoA portfolio should aim to incorporate all the core elements of CC adaptation and mitigation listed in Section 2.4. *High priority - Short-term*

This can be done through a programme and/or the SLI approach, where different domains implement complementary interventions such as governance and policy engagement, development support, DRR, institutional capacity development and addressing the underlying causes of vulnerability among target groups. Project and programme design should take into account variations in the HoA countries and operational areas' respective contexts and priorities. It should concretely reflect partner selection, implementation, monitoring and evaluation, and learning. Projects and programmes should plan and action all the components above based on nuanced and adaptive management approaches. These should be informed by CC knowledge (including local and scientific and community weather forecasts and climate projections); risk and uncertainty; information and knowledge on the local context and conditions e.g. emerging economic and/or political opportunities and threats among other factors.

2. Build on current successes and existing entry points including allocation and activation of contingency funds, implementation of flexibility mechanisms in the development, humanitarian and peace nexus, and ongoing projects' climate change adaptation, mitigation and environmental benefits. *High Priority – Short-term*

Here, the HoA Cooperation Programme should continue:

- i. Allocating and disbursing contingency funds, and expand them to all the domains and projects.
- ii. Designing and implementing flexibility mechanisms in its programming to prepare for, and respond to the dynamics in the HoA climate and context.
- iii. Engaging with key staff at SDC's headquarters, and provide learning and messaging that HQ can transmit further up in its policy engagement in Switzerland, in relevant bilateral engagements with key partners, and at the IGAD, AU, EAC, UNFCCC, AFF, NAP Global Network among others as feasible.

Current entry points to build on and/or expand include:

- i. The human and livestock clinics under the One Health Initiative.
- ii. The successful engagement with the private sector under Kenya RAPID, KKCF, Skills 4 Life and Private Sector Solutions for Refugees and Host Communities projects.
- iii. The Regenerative Earthworks and Vegetation in Vulnerable Ecosystems (REVIVE) approach in Somaliland by ACTED.
- iv. The Durable Solutions under Skills 4 Life project, livelihood diversification and rangeland management under the FCDC's Strengthening Livestock Sector in Arid and Semi-Arid Counties of Kenya, and Kenya RAPID's Moving towards Sustainable, Resilient Livelihoods of Pastoralist Communities in Northern Kenya and the NRM Borena projects.
- v. Successes in policy engagement, e.g. the IGAD Protocol on Free Movement of Persons in the IGAD Region, ongoing progress towards the endorsement of the IGAD Protocol on Transhumance, and support to the Government of Kenya towards the implementation of the NPS Strategy.
- vi. The UN Joint Programme on Local Governance and Decentralized Service Delivery (JPLG) provides a potential entry point for the Governance domain to engage in CC adaptation, mitigation and environment. This is particularly through the District Development Committees (DDCs) in Somalia, which the domain can engage to strengthen various components of CC adaptation and mitigation such as livelihood diversification, DRR, and natural resource management.
- vii. Rehabilitation of rangelands and restoration of degraded land by the NRM Borena, Kenya RAPID, and LSS projects, as entry points for enhancing carbon sequestration in soil, thus contributing to CC mitigation.

SDC should capitalise on Switzerland's niche in fostering and enhancing effective partnerships at various levels and establish new partnerships to expand opportunities for private sector engagement in sustainable solutions and learning. It is recommended that SDC establish a new partnership with the KCIC and ECIC to attract additional SMEs and MSMEs to develop innovative and sustainable CC and environmental business solutions in the HoA context. Together, they can develop and disseminate Calls for Innovative Business Proposals for SMEs and MSMEs in the HoA to solve local challenges. These could include agri-business, small to medium renewable energy solutions, commercial fodder production, and digital marketing solutions, among others.

The HoA Cooperation Programme should also engage with new entry points including:

- i. Engaging with the EU's Team Europe Initiative and the ongoing Multi-Year Planning Process in the HoA with a view to:
 - Undertake joint programming e.g. in renewable energy in Somalia under the Green Deal, and contribute to strengthening EU's engagement in DRR.
 - Share learning e.g. on resilience to CC in the HoA.
 - Strengthen the implementation of regional programmes in the HoA.

High priority - Short-term

- ii. Engaging with additional regional research organisations e.g. ILRI, ICRAF, CIAT, CCAFS and AGRA and national research centres such as KEFRI among others on CSA and/or

regenerative agriculture, development of drought-tolerant agricultural seeds, dual-purpose crop varieties, dryland economic tree varieties, and seed system support for the HoA. SDC should capitalise on Switzerland's niche in fostering and enhancing effective partnerships, and its strengths in policy engagement and dialogue to foster the strengthening and integration of policies and strategies that enhance CC adaptation, mitigation and environmental management in the HoA. For example, SDC can support the implementation of programmes that address the HoA countries' priority CC adaptation and mitigation needs in the agriculture sector. *High priority - Medium-term.*

- iii. Engaging with other countries Cooperation Programmes and agencies e.g. the Netherlands among others on shared learning, and development of and/or support for complementary programmes as feasible. The HoA Cooperation Programme should learn more on effective private sector engagement, and the development of other innovative business solutions for climate and the environment; drawing from the Netherlands' extensive experience in this area. *High priority - Medium-term.*
- iv. Engaging with the UN Environment Advisor to Somalia and the EU Climate Change Advisor to Somalia as additional interlocutors to support SDC's linkages with key Federal and Regional government ministries and other key stakeholders. SDC should capitalise on the WOGA to optimise synergies and improve its leverage in contributing towards CC adaptation and mitigation, and peace and inclusivity in the HoA. This could help further strengthen SDC's work in Somalia e.g. the JPLG, and CHASP projects. The interlocutors could also open entry points for SDC HoA Cooperation Programme to engage with the Federal and Regional governments of Somalia on the formulation of CC adaptation and mitigation policies, and the development of associated programmes going forward. *Medium priority - Medium-term.*
- v. Inventorying and measuring GHG emissions in HoA is another important entry point. SDC should invest in, and provide technical support for capacity development in the measurement and monitoring of changes in GHG emissions in the HoA as a strategic intervention in the next Cooperation Programme. This would address the current gaps in GHG measurement and inventorying among HoA countries. In addition, it would contribute significantly to the countries monitoring and reporting on GHG emissions to the UNFCCC. This should be informed by an overview of the current status, and future plans for GHG measurements and monitoring, under the framework of regional/global initiatives in this field, including the World Meteorological Organisation (WMO), UNFCCC-SEC, etc. *Low priority - Long-term.*

3. Allocate dedicated funds towards CC and environment, and strengthen the capacity of domains and projects to access and use the Small Actions Grants. *High priority - Short-term*

This will allow the domains and projects to access funds to pilot innovative solutions for potential scaling out and strengthen learning at the HoA Cooperation Programme. For example, Results-Based Financing provides an innovative financing mechanism, and can potentially enhance the scaling out of CC adaptation and mitigation interventions and results in the HoA. The Small Action Grants also provide an innovative financing mechanism that can strengthen bottom-up

approaches, and enable piloting and testing of new and/or innovative CC adaptation, mitigation and environmental management project interventions, e.g. regenerative agriculture, small scale solar power technologies for agricultural value addition among others.

This would enhance the piloting of interventions that could subsequently be scaled out, and support various learning activities on CC adaptation, mitigation and environment. The domains should require ongoing and new projects to allocate 10-15% of total project budgets (separate from contingency funds) towards implementation of interventions at the nexus between the domains focus and CC. These funds could also be used to:

- i. Access and use climate information in project implementation.
- ii. Augment current interventions that have CC adaptation, mitigation and environmental benefits (highlighted in Section 2.4).
- iii. Implement CC adaptation interventions including, climate-smart agriculture amongst agro-pastoralists, ecological/regenerative agriculture, environmental management, CC mitigation, and climate-proof water and other infrastructure investments among others.
- iv. Support policy engagement on CC adaptation, mitigation and the environment at local, national, regional and international levels.
- v. Support learning on CC adaptation, mitigation and environment.
- vi. Expand the CfW approaches, and Results-Based Financing targeting green projects

4. Refine and apply guidelines for assessing ongoing and new projects on integration of CC and the environment. *High Priority – Short-term*

Key proposed guidelines are provided in Table 2 below. Switzerland's niche and concrete entry points are provided in the accompanying notes under the respective boxes.

5. Require all new phases of ongoing projects and new ones to explicitly integrate climate change adaptation, mitigation and environment into the design, implementation, and monitoring and evaluation. *High Priority – Short-term*

The portfolio should provide clear, explicit requirements in their Calls for Proposals, and evaluate submitted Entry and Credit Proposals against the guidelines provided in Table 2. Where feasible, the domain teams should support organisations with good proposals to concretely include these aspects where they may be weak. In addition, the HoA domain teams and implementing partners should apply the CEDRIG tool (visit cedrig.org) to all selected projects to inform and strengthen the integration of CC and the environment into their design and implementation going forward.

6. Support and implement interventions in climate-smart ways. *High priority – Short-term*

It is recommended that SDC consider the potential impacts of CC on alternative livelihoods interventions that it is promoting and supporting in the HoA now and in future. Depending on feasibility, SDC should promote and support a combination of alternative and sustainable livelihood interventions that are not heavily reliant on weather conditions such as mining, trade in goods and services, and the establishment of relevant cottage industries among others. At the same time, SDC should design and support the implementation of alternative livelihood

interventions that rely on climatic conditions in a climate-smart way. For example, regenerative and climate-smart agriculture interventions such as minimum tillage among agro-pastoralists should incorporate drought and heat-tolerant crops and seed varieties and water-efficient drip irrigation systems. SDC should also promote the cyclic economy in agro-pastoral systems, by promoting the cultivation of dual crops that have good grain yields and provide inputs for fodder production from their residues e.g. sorghum, millet among others; and promoting the use of crop residues as livestock feed, and livestock waste products as fertilizer for crop production as feasible. These interventions would potentially sustain and/or enhance agricultural yields, enhance the complementarity of crop and livestock production, and boost household incomes under changing climatic conditions.

SDC should also promote safety nets for vulnerable communities during periods of stress and crises in the HoA. Building on the SomReP project, SDC should incorporate the establishment, operation and expansion of Village Savings and Loans Associations (VSLAs) to expand access to credit and establishment of small scale businesses. SDC should also expand the unconditional Cash for Work (CfW) initiatives during stresses and crises; support school feeding programmes for pupils and students; support target communities to access weather index-based livestock and crop insurance; and strengthen existing social safety nets including financial and material donations by the Somali community in the diaspora, among others. Other potential safety nets include family or clan support provided in the form of donations of livestock, money, and household goods to community members who have suffered severe losses due to climate impacts; as well as distribution of food, livestock and agricultural inputs to vulnerable communities to provide relief and recovery from disasters where feasible.

Table 2: Proposed Guidelines for Integration of Climate Change and Environment into SDC Projects

KEY TARGETS	GUIDELINES FOR SDC
1. Climate-Resilient Livelihoods ▪ Promote a combination of new and/or improved climate- and non-climate-dependent livelihood activities e.g. leather processing, apiculture, commercial meat drying, commercial production of livestock feed using crop and animal residues, etc. ▪ Promote interventions that enhance sustainable sources of income provided in the examples above ▪ Promote interventions that ensure sustainable use of productive resources e.g. land, water, livestock, crops, money etc. Examples include the use of drip irrigation technologies, rainwater harvesting, and conservation agriculture.	SDC should capitalise on its niche in fostering and enhancing effective partnerships and engage with KCIC to develop innovative and sustainable business solutions drawing on the examples highlighted above in the HoA counties and districts. SDC should also expand the KKCF Challenge Fund and support the implementation of the innovative business solutions listed. In Dadaab Refugee Camp, for example, include interventions such as support towards commercial water supply, and provision of quality WASH services among others. SDC should partner with relevant CGIAR institutions e.g. International Centre for Tropical Agriculture (CIAT), which is conducting Participatory Action Research in conservation agriculture, to scale out these approaches across the domains in the HoA.
2. Disaster Risk Reduction • Support and enhance production, dissemination and access to disaster early warning information. The disaster early warning information could include messaging of potential impacts of e.g. floods on human and livestock health, and incorporate advisories on actions to minimise the negative impacts. • Support and enhance contingency planning and budgeting. • Support timely and sufficient implementation of preparatory, emergency response and recovery interventions as required.	SDC should implement a regional approach and collaborate with regional, national, county/district and community level Disaster Management institutions to further strengthen the production, dissemination and use of disaster early warning information in the HoA. SDC should also review and harmonise trigger indicators for drought and floods early warning in the HoA. In addition, SDC should systematise contingency activation and implementation processes to enhance early action and response, among other relevant functions. SDC should strengthen policy dialogue on ending drought emergencies with regional, national and county/district government and non-governmental agencies to influence them to adopt the harmonised trigger indicators and promote the timely declaration of disasters, thereby trigger appropriate preparatory, response and recovery interventions among stakeholders. In Somalia for example, there is an opportunity for stakeholders to use disaster early warning information produced and disseminated by SIRA e.g. flood warnings to construct and/or designate flood shelters, and prepare them by stocking them with essential supplies, and inform early evacuation of at-risk communities such as those living near river Shabelle and in low lying areas that are vulnerable to floods.

KEY TARGETS	GUIDELINES FOR SDC
3. Local Adaptive and Organisational Capacity • Support targeted capacity development among government and NGO institutions on technical aspects and good governance to better support communities in CC adaptation and mitigation. • Provide technical and material support towards strengthening institutional structures, systems and operations. • Enhance and support coordination among stakeholder institutions and actors locally, nationally and regionally.	The four domains should design and implement interventions that enhance the capacity of governmental and non-governmental institutions at the local, national and regional levels to strengthen technical capacity on the nexus between climate change and the thematic focus areas of these institutions. The domains should also design and implement interventions that will strengthen the institutions' capacity in adaptive management, and establish and/or strengthen financial and procurement systems among others. This can be done through supporting the participation of key institutional staff in targeted training, secondment of technical staff from SDC's implementing partners to provide ongoing support, and development or revision of financial management and procurement systems among others.
4. Understanding and Addressing the Underlying Causes of Vulnerability • Support the strengthening of good governance at all levels. • Promote and strengthen gender equality and women's empowerment at all levels. • Support and enhance the provision of essential services including healthcare, infrastructure, markets, social protection etc. • Support implementation of interventions that effectively tackle the underlying causes of vulnerability to achieve, effective and sustainable medium to long term results.	SDC should conduct a holistic assessment of underlying causes of vulnerability to drought, floods, unpredictable rainfall seasons and conflicts in the HoA. SDC's domain teams should undertake this assessment in consultation with implementing partners and other key stakeholders including target communities, local government actors, the government security apparatus, local communities' peace and security apparatus among others. Alternatively, SDC should commission studies on the underlying causes of vulnerability to drought, floods, unpredictable rainfall seasons, and conflicts; including gender dimensions of vulnerability. SDC should subsequently use the findings of either the in-house review or commissioned studies to design programmes that will address the underlying causes of vulnerability adequately, alongside ongoing response measures. For example, to address the underlying causes of drought, SDC should capitalise on Switzerland's niche in the adoption of a regional approach to interventions in the HoA. SDC should design and implement programmes that will promote re-greening of rangelands; support effective cross-border policy implementation in HoA Counties/districts and countries e.g. policies that facilitate transboundary movement of livestock and people; strengthen good governance and coordination among stakeholders at local, national and regional levels; and support institutionalisation of good practices e.g. budgeting for climate change adaptation and mitigation in institutions for long term sustainability. SDC should undertake these in addition to ongoing and planned drought mitigation and response strategies.

KEY TARGETS	GUIDELINES FOR SDC
5. Influencing an Enabling Policy Environment • Effectively engage in, and support advocacy and social mobilization. • Support the development and/or strengthening of relevant policies and legislation, and revision of inappropriate/conflicting/weak ones. • Support interventions that contribute towards the effective implementation of good policies. • Support empowerment of communities to engage their local and national governments and demand for their rights.	SDC should capitalise on Switzerland's niche in effective policy engagement. It should also make use of its position in various bilateral and multilateral forums such as its membership in the Refugee Donor Group in Kenya, and the Donor Groups in Somalia to champion for the enhancement of CC adaptation and mitigation in the migration and displacement discourse. SDC should do this by convening multi-stakeholder thematic discussions, and by actively providing inputs in regular meetings of these forums. SDC should continually lobby and advocate for the integration of CC adaptation and mitigation among key members of these and other forums such as forum leads. SDC should also advocate for, and support effective coordination of CC adaptation and mitigation initiatives among stakeholders at local, national and regional levels.
6. Environmental Management and Conservation • Support the implementation of interventions that sustain and/or improve the environment. • Support local natural resource governance and management interventions.	SDC should capitalise on Switzerland's niche in enhancing effective partnerships to promote environmental conservation and management in the HoA. SDC should partner with e.g. the International Livestock Research Institute (ILRI) and the World Agroforestry Centre (ICRAF) and commission capital resource assessments in the HoA. SDC should use the findings to design and build in environmental management interventions into the Food Security, Migration and Protection, Health and Governance domains. SDC should support the implementation of agroforestry, reseeded and/or re-greening rangelands, regenerative agriculture, climate-smart agriculture, soil conservation and enrichment, water conservation and management, bio-intensive vegetation strategies, rotational livestock grazing and appropriate rangeland management in all its current projects as appropriate. SDC should also capitalise on Switzerland's niche in and adoption of a regional approach to strengthen implementation of local, national and regional policies on environment and natural resources management in the HoA counties/districts and countries and strengthen transboundary governance of rangelands and landscape management of water resources (from the watersheds to the lowland basins). SDC should strengthen local natural resource governance systems e.g. the designation of grazing areas for different seasons and effective enforcement of rotational grazing implemented by communities in the Borena zone in HoA. SDC should infuse incentive systems for better environmental management. For example, by applying the Results-Based Financing (RBF) to reward community groups that successfully implement and sustain environmental management interventions with additional financing for scale-out.

KEY TARGETS	GUIDELINES FOR SDC
7. Access and use of Weather Forecast and Climate Information Regularly • Promote awareness creation and sensitisation on climate change, adaptation and mitigation among key actors. • Support regular and timely access and use of seasonal weather forecast information from community and scientific sources to progressively inform and adjust interventions and livelihoods. • Support regular and timely access and use of medium- to long-term climate projections to inform major interventions e.g. infrastructure investments.	All domains should embed access to and use of seasonal weather forecast and climate information from scientific sources such as the respective National Meteorological Services and from community sources e.g. local weather forecasters and community Disaster Management Committees into project design, implementation, monitoring and evaluation. The domains and projects should also access medium to long term climate projections from the Intergovernmental Panel on Climate Change (IPCC), and the IGAD Climate Predictions and Applications Centre (ICPAC) to inform the siting and design of infrastructure investments such as water infrastructure, emergency shelters, irrigation systems, One Health Clinics, and WASH infrastructure among others. This is intending to minimise the negative impacts of floods and strong winds on such investments.
8. Mitigate against the effects of Climate Change • Support and strengthen climate change mitigation interventions that reduce GHG emissions and/or enhance carbon dioxide sequestration by natural and other systems.	SDC should enhance CC mitigation in the HoA by supporting interventions on re-greening of rangelands e.g. through extensive tree-growing and re-seeding of grasses. SDC should partner with the Swedish International Development Agency (SIDA) to scale out SIDA's interventions on the production of biogas using animal dung, and use of biogas energy for cooking and lighting among SDC's target communities in peri-urban and urban areas. SIDA is implementing this intervention under the Integrated Management of Natural Resources for Resilience in Arid and Semi-Arid Counties (IMARA) project. SDC should also support interventions that promote the use of energy-saving cookstoves, affordable metered Liquefied Petroleum Gas (LPG) and solar cookstoves. In addition, SDC should support local commercial production of charcoal briquettes re-using charcoal and firewood residue e.g. through the KKCF. At an institutional level, SDC HoA Programme should endeavour to reduce its carbon footprint by capitalising on virtual modalities of work e.g. using virtual technologies to conduct meetings and workshops.

7. Strengthen inter-domain synergies, information and knowledge sharing on climate change and the transversal themes (SDC. 2021e). *Medium Priority – Medium-term*

The HoA portfolio should also build inter-disciplinary Steering Committees into project design, implementation and evaluation of mandated projects. This would bring in CC, environmental and other critical expertise into all domains, and strengthen their technical components. This would enhance inter-domain exchange and learning on CC and the transversal themes, and strengthen the steering of the projects. It would also enable the HoA portfolio to engage more closely with the projects. It is recommended that the portfolio also explores the feasibility of adopting this approach in multi-lateral and bilateral projects that SDC is engaged in as opportunities arise.

8. The HoA portfolio should design and support more HoA-wide/ transboundary/ ecosystem basin-wide projects on climate change adaptation, mitigation and environmental management. *Medium Priority – Medium-term*

Building on the experience of the IGAD-FAO PP project, SDC should design, support and implement HoA-wide/transboundary/ecosystem basin-wide CC adaptation, mitigation and environmental projects. This is in light of the high mobility of pastoralist communities across district/county and national borders and the experiences with the cross-border transmission of livestock diseases and natural-resource based conflicts. Such projects would harmonise CC adaptation, mitigation and environmental approaches, scale out support, and strengthen the achievement of results across the three countries and their respective regions in the HoA. The portfolio should also apply the SLI approach and engage with other donors and actors to design and implement ecosystem basin-wide CC adaptation and mitigation projects covering two to three adjacent and/or related geographical regions in-country. The portfolio should similarly design and implement transboundary CC adaptation and mitigation programmes covering two to three of the HoA countries in sequenced, layered and integrated ways; and extend programme implementation over durations of a decade and more, for greater, and more sustained impacts. Designing transboundary projects would ensure that the CC adaptation and mitigation efforts and results achieved in a particular country and region are not eroded by communities from the neighbouring districts/ counties and/or countries; especially during shocks and crises such as drought when mobility is usually enhanced. Additionally, transboundary implementation of CC adaptation and mitigation projects would potentially strengthen synergies, leverage cross-border partnerships, and optimise the impacts of SDC's portfolio's work across the region.

9. Tap into SDC's Climate Change and Environment Network, or appoint a Climate Change Coordinator for the HoA portfolio. *High priority – Short-term*

The Coordinator would give more concerted support to the portfolio, and enhance the concrete integration of CC adaptation, mitigation and environment into the domains and projects. As part of their role, the Climate Change Coordinator could:

- i. Develop clear criteria for assessing new and ongoing projects on the integration of CC adaptation, mitigation and the environment (see guidelines in Table 2 above).
- ii. Support the HoA Cooperation Programme, domains and projects to develop Specific, Measurable, Achievable, Relevant and Time-bound (SMART) CC adaptation, mitigation and environmental indicators.

- iii. Support the domain teams and implementing partners to access and interpret seasonal weather forecast and disaster early warning information, and advise them on the requisite adjustments to interventions as applicable.
- iv. Support the domains to develop/harmonise or systematise contingency activation and implementation processes to enhance early action and response, among other relevant functions.
- v. Regularly provide the HoA Cooperation Programme and domains with up to date and experiential knowledge on CC adaptation, mitigation and environment.
- vi. Take successes and lessons on CC adaptation, mitigation and environmental management in the HoA to regional and international forums such as IGAD, AU, EAC, UNFCCC, African Forest Forum (AFF), NAP Global Network, and other relevant bilateral and multilateral forums.
- vii. Participate in SDC's Climate Change and Environment Network, e.g. in the role of a core group member involved in the programmatic steering of the network. The Climate Change Focal Point should obtain first-hand information from the network, and ensure that the needs of the HoA are well reflected in the programming of the network.

SDC should ensure that it establishes a strong and congruous interface in the respective roles and responsibilities of the Climate Change Coordinator and the Programme Officers in the HoA portfolio. This will ensure that all relevant staff constructively engage in CC and environment and that their respective activities are well coordinated within the portfolio.

10. Work more closely with research institutions to address specific CC and environment technical information and knowledge needs in each domain and project. *High priority - Medium-term*

SDC should engage with CGIAR institutions and, local and international universities among others. For example, ILRI can contribute scientific knowledge on optimal carrying capacities of rangelands to inform livestock sector support CC adaptation, mitigation and development interventions in HoA.

This would contribute to strengthening CC adaptation, mitigation and environmental aspects in project design and revision. It would also inform the implementation of specific CC adaptation, mitigation and environmental interventions e.g. ecological/regenerative agriculture based on science. The Food Security domain should consider this to inform the scaling out of interventions such as REVIVE. Other interventions that can be informed by science include CSA, water infrastructure investments (survey potential water quality and quantity), and environmental re-greening.

11. Apply digital monitoring technologies in climate change adaptation, mitigation and environmental interventions to augment current Third Party Monitoring and Evaluation approaches. *Low priority – Long-term*

SDC should consider engaging the private sector to undertake digital monitoring of CC adaptation, mitigation and environmental results as applicable. For example, SDC could employ the use of drones to periodically monitor changes in rangelands, changes in GHG emissions and movements of livestock and people during shocks to inform mapping of appropriate transhumance corridors and better positioning of relief and other critical interventions. This would augment the current Third Party Monitoring undertaken by project implementing partners, and help triangulate results. The results should subsequently inform adjustments to CC adaptation, mitigation and environmental management interventions supported and implemented by SDC and its implementing partners.

12. Mainstreaming CC adaptation, mitigation and environment into the next regional Cooperation Programme Strategy and across the four domains. *High priority – Short-term*
SDC can do this by capitalising on the entry points and undertaking the steps outlined below:

- i. Review Kenya, Ethiopia and Somalia's NDCs, NAPs (see unfccc.int). Also review the countries' NAIPs, CAIPs as applicable. In addition, it will be important for SDC to keep track of Kenya, Ethiopia and Somalia's development and communication of their Mid-century Long-term Low Greenhouse Gas Emission Development Strategies (LTS), to the UNFCCC under the Paris Agreement. The LTS are central to achieving the goal of reaching net-zero global emissions, limiting warming, preventing some of the worst impacts of CC and building climate-resilient economies. When the countries communicate their LTSs in future, SDC should review them and identify CC mitigation priorities and support the implementation of the ones that align with SDC's thematic focus areas.
- ii. Identify key CC mitigation and adaptation priorities in each country (please see a summary of the NDCs and NAPs priorities in Appendix 5). Additionally, identify national priorities that can be addressed in the HoA counties/districts and that align with SDC's thematic focus areas (domains) in HoA. *Medium Priority – Short-term*
- iii. Access and use up to date, credible data, information and knowledge on CC in the HoA. SDC should access and use data and information on current CC impacts and climate projections in the HoA from the IPCC Assessment Reports, SDC's Climate Change Foresight Analysis report, ICPAC data and projections, and climate data from the National Meteorological Services agencies in Ethiopia, Kenya and Somalia. *High Priority – Short-term*
- iv. Use the two sets of information in points (i) and (ii) above, together with realities on the ground to assess potential impacts of CC on each domain's planned results, interventions and operations in future. *High Priority – Short-term*
- v. Draw on current approaches and interventions that contribute to the components of CC adaptation and mitigation highlighted in Section 2.4, and the additional opportunities and entry points identified in Section 3, and make key decisions on the approaches SDC will undertake during the next Cooperation Programme. The approaches may include:
 - Deepening implementation of current approaches and interventions among the same target communities and institutions to strengthen results. For example, the Kenya RAPID can deepen CC adaptation and mitigation of target communities by engaging

private sector actors such as Davis and Shirtliff, the Coca Cola Company, KCB Foundation, IBM, and the Vitol Foundation among others as strategic project partners rather than as clients providing services to the project. This could be done to improve current private sector engagement e.g. in the construction of water storage infrastructure e.g. sand dams, water pans and water tanks; installation of solar water pumps and remote monitoring of water levels in boreholes sand dams, water pans and water tanks in current project sites in Isiolo, Wajir, Marsabit, Garissa and Turkana counties going forward. These water-resources improvement interventions would contribute to enhancing the CC adaptation and mitigation among the target communities. High priority - Short-term

- Scaling out the implementation of current CC adaptation and mitigation approaches and interventions to reach new and additional beneficiaries. For example, the LSS, Kenya RAPID, SomReP, IGAD-FAO PP projects, SDR-SNRS among other projects in the portfolio could implement current project interventions with new communities and in new and/or additional project sites in their respective districts/counties and countries, where they are currently not implementing project interventions. For example, the IGAD-FAO PP project could implement its current CC adaptation and mitigation interventions in new and additional districts and villages in Southern Somalia that border Kenya and Ethiopia. Medium priority - Medium-term; and/or
 - Piloting the implementation of new approaches and interventions. For example, the LSS can implement new CC adaptation and mitigation interventions such as establishing One Health clinics to provide integrated health services among target communities, support businesses that will undertake reseeding and re-greening of rangelands, CSA, regenerative agriculture, and proper garbage management and disposal (including reuse and recycling) among others. These interventions would contribute to enhancing CC adaptation, mitigation and environmental results in the target areas. Medium priority - Medium-term
- vi. Based on the decisions taken in point (v) above, guide the HoA domains to identify, design and implement programmes that capitalise on opportunities for promoting CC adaptation, mitigation and resilience, address key government priorities in the NDCs, NAPS, NAIPs and CSAIPs, and align with SDCs thematic focus areas and priorities in the next Cooperation Programme in the HoA. The programmes and projects should also be designed to address all the components of CC adaptation and mitigation outlined in Section 2.4 above across the four domains in a complementary manner. High priority - Medium-term
 - vii. Screen the proposed programmes and projects using the CEDRIG tool, and refine them to ensure that they concretely incorporate CC adaptation, mitigation and environmental management interventions. High priority - Short-term

The mainstreaming approach elaborated above may be more efficient as it would enable the HoA Cooperation Programme and portfolio to integrate CC faster. It would potentially enable the achievement of desired results earlier, compared to making CC an additional transversal theme in the SDC. This is despite the transversal theme approach potentially ensuring more concrete and sustainable integration of CC adaptation and mitigation in the region.

13. Continue engaging and supporting climate change adaptation and mitigation interventions at the nexus between development, humanitarian and peace in the HoA. *High priority – Short-term*

SDC should support and implement CC adaptation, mitigation and environmental management interventions within the nexus between development, humanitarian support and peace initiatives. This would enable SDC to enhance CC adaptation, mitigation and the environment, as it continues contributing towards effectively addressing pressing development needs. At the same time, SDC will contribute to alleviating suffering and saving lives during climatic and other shocks and crises. The HoA Cooperation Programme should continue adapting its approaches as dynamics and situations change. This means supporting and implementing CC adaptation, mitigation and environmental management, development throughout. Building on the NRM Borena project's concurrent implementation of planned development and drought response interventions, SDC should carry out more development, CC adaptation, mitigation and environmental support during normal times and scale up humanitarian support during shocks and crises.

14. Develop, produce and continuously disseminate audio-visual and print Information Education and Communications (IEC) materials on CC and the environment in the HoA context. *High priority – Short-term*

This would enhance awareness creation, sensitisation and understanding of CC, and the nexus between it and the four domains among the domain teams and key stakeholders. The HoA Cooperation Programme should invest in the production of two sets of IEC materials. One could be targeted at the HoA regional team, SDC's HQ, and external stakeholders such as bilateral and multilateral agencies. Another set of IEC materials could be targeted at implementing partners, target communities, and local and national government and non-governmental partners in the HoA. The materials should contain clear messaging (with examples from the HoA) on the nexus between CC and the domains; implications of CC on the domains and target communities e.g. delays and interruptions in project implementation and increased incidences of food insecurity and conflicts during droughts (see additional ones in Section 2.3). The IEC materials should also showcase ongoing successes and solutions e.g. Kenya RAPID's successes in engaging private sector actors and installing solar-powered water supply systems among others (see additional ones in Section 2.4 above). SDC should also consider strengthening the HoA Cooperation Programme's and implementing partners' capacity in CC by taking relevant e-courses provided by the One UN Climate Change Learning Partnership- UN CC: Learn (visit uncclearn.org).

15. Strengthen engagement with the private sector as strategic partners, and augment existing blended financing for CC and the environment. *Medium priority – Medium-term*

It is recommended that the SDC HQ commissions a study to review its institutional and administrative systems and processes to better prepare it to engage and partner with the private sector in Switzerland on CC and environmental issues. This could include the development of clear criteria for selecting potential private sector partners to ensure that the CC adaptation, mitigation and environmental management goals and objectives of the entities align. It could also include

understanding the contractual requirements of the private sector, revision and/or preparation of appropriate contractual processes, requirements and documents for engaging with private sector entities in CC adaptation, mitigation and environmental management support. In addition, the SDC should carry out in-house capacity development in marketing poverty reduction and the environment to the private sector. Going forward, SDC HQ should strengthen its engagement with individual corporate entities as well as chambers of commerce and business associations on CC adaptation, mitigation and environmental management in developing countries as feasible.

16. The HoA Cooperation Programme should build on current successes and lessons by strengthening and/or expanding its engagement with private sector entities as partners in Social Enterprise (SE) and Corporate Social Responsibility (CSR). *Medium priority – Medium-term*

The HoA portfolio should create avenues for private sector entities to engage in, and support potential entry points for sustainable business solutions in climate change and environment, for full commercial engagement with projects e.g. through partnerships with the KCIC, ECIC, the IFC and others. At the project level, there are opportunities to engage the private sector in roof water catchment for rain harvesting, water treatment, commercial fodder production, alternative livelihoods e.g. cottage industries, livestock products value addition, and innovative digital marketing of products from HoA among others. SDC should incorporate the interventions above in all its projects in the Food Security, Health and Migration and Protection domains. SDC should also support the implementation of these interventions in the Governance domain through support towards the implementation of District Development Plans, as feasible in Somalia. Going forward, the domains and their respective projects should apply a business lens to the design, development, and implementation and monitoring of interventions to identify and capitalise on business opportunities, and enhance scaling out of promising interventions and results.

The HoA Cooperation Programme should also build in-house capacity in marketing poverty reduction, CC solutions and the environment to the private sector. It should create additional avenues for corporate entities in the HoA such as the KCB Foundation, IBM, Coca Cola Company, Vitol Foundation, Safaricom Foundation, the Equity Group Foundation, the Standard Chartered Bank Limited, Total Energies, Vivo Energy in Kenya, and the Dashen Bank in Ethiopia among others, to engage in existing and potential entry points and SMEs and MSMEs in Kenya and Ethiopia to establish and/or expand sustainable business solutions in CC adaptation, mitigation and environmental management the HoA. SDC should also engage with institutions in Somalia to identify corporate entities in the country that SDC can engage with on SE and CSR on CC adaptation, mitigation and environmental management.

17. Review SDCs HoA Cooperation Programme's indicators, and revise some of them to better capture feasible results for CC. *High priority – Short-term*

SDC can incorporate CC measures in its new results framework by ensuring that:

- i. The domain indicators explicitly include CC adaptation and mitigation components.

- ii. The domain indicators explicitly address the monitoring of access to, and use of seasonal weather forecasts and climate information, and the adjustments made by the domains and their projects using this information. These indicators should also track the results of using weather forecasts and climate information on project results.
- iii. The Cooperation programme aggregates indicators from the domains and tracks its performance in enhancing CC adaptation and mitigation interventions, based on the use of weather forecasts and climate information.

4.2. Areas for Further Study

It is recommended that SDC consider conducting further studies on the areas highlighted below, to enhance its knowledge and capacity to support and implement CC adaptation, mitigation and environmental management initiatives in the HoA going forward.

1. To what extent are policies on, and related to CC adaptation, mitigation and environmental management implemented from ward/woreda/village to national level in the HoA countries? What are the implications of this on the achievement of desired CC adaptation, mitigation and environmental results?
2. What are the specific entry points for SDC to contribute to the achievement of the NAPs and NDCs in Kenya, Ethiopia and Somalia?
3. What are the underlying causes of vulnerability to CC in the HoA? What are the appropriate measures for addressing the underlying causes of vulnerability effectively and sustainably?
4. Based on the experience and lessons learnt in the REVIVE project, what is the feasibility, potential cost-effectiveness and sustainability for implementation of regenerative agriculture at scale as a CC adaptation option in the HoA?
5. What would be the implications of intensive livestock production systems in the HoA for the sector's contribution to methane production in the medium to long term? What are the appropriate measures for reducing methane emissions in the sub-sector?
6. What are the specific capacity needs on CC for the SDC HoA Regional Cooperation Programme and portfolio team? Which courses should the team take to address the identified capacity needs?

5.0. CONCLUSION

Based on the foregoing analysis, it is evident that the SDC's HoA Cooperation Programme and portfolio are already supporting CC adaptation quite considerably; and mitigation to a lesser extent. The next Cooperation Programme is encouraged to engage with other donors and agencies to concretely execute several key recommendations. These include the adoption of the SLI and/or joint programme approaches to bring together the key components of CC adaptation, mitigation and the environment in strategy and programming in complementary and mutually supportive ways. The Cooperation Programme and portfolio are encouraged to capitalise on existing entry points and opportunities. These include:

- Undertaking joint programming on green energy and DRR, and strengthen learning on CC resilience in the HoA, through partnering with the EU on the Team Europe Initiative and the Multi-Year Planning Process in the HoA.
- Enhancing learning on effective private sector engagement in providing innovative and sustainable CC and environmental solutions in the developing countries context through partnering with the Netherlands Cooperation Programme.
- Expanding opportunities for private sector engagement in the development and provision of business solutions to enhance CC adaptation, mitigation and environmental management for the SMEs, and MSMEs in the HoA context through partnering with the KCIC, ECIC and the corporate entities identified in this report, among others.
- Strengthening the use of scientific knowledge in the design, implementation and evaluation of interventions, and also foster continuous targeted technical support towards project implementation, through partnering with regional and national research institutions such as ICRAF, ILRI, CCAFS, CIAT and KEFRI among others.
- Strengthen the implementation of CC adaptation and mitigation in transboundary programmes in the HoA building on the experience of the IGAD-FAO PP, among others.
- Promoting the use of biogas energy in peri-urban and urban areas for CC mitigation through a partnership with SIDA.
- Supporting HoA countries to measure and monitor their GHG emissions, thus contribute to reporting on NDCs to the UNFCCC.

The HoA Cooperation Programme and portfolio should concretely integrate all the core components of CC adaptation, mitigation and the environment into programme design, implementation and monitoring. At the same time, they are encouraged to strengthen areas, such as addressing the underlying causes of vulnerability, and measurement of CC adaptation, mitigation and environmental results in ongoing and new interventions as recommended in Sections 3 and 4 above. SDC is encouraged to enhance awareness creation and sensitisation on CC, and develop capacity both in-house and among key partners at various levels, using existing learning resources for greater impacts.

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7.0. APPENDICES

Appendix 1: Prioritisation Summary of Key Recommendations for Integration of Climate Change Adaptation, Mitigation and Environmental Management in the HoA Regional Cooperation Programme

The prioritisation of the key recommendations below is based on the following criteria:

- Recommendations that SDC is already supporting and implementing, and should build on to realise early results in the next Cooperation Programme are ranked as *High priority*.
- Recommendations on interventions that will fill major gaps in CC adaptation, mitigation and environmental management in the HoA are ranked *High priority*.
- Recommendations on interventions that may require a bit more time to design and commence are ranked *Medium priority*.
- Where SDC may need to undertake further internal review to inform its decisions, the recommendations are ranked as *Low priority*.

Please note the following:

- *Short-term* applies to recommendations to be implemented starting 2021/22 onwards.
- *Medium-term* applies to recommendations to be implemented starting 2022/23 onwards.
- *Long-term* applies to recommendations to be implemented starting 2024/25 onwards.

NO	RECOMMENDATIONS	PRIORITISATION
1	To effectively implement CC adaption, mitigation and environmental management, the HoA portfolio should aim to incorporate all the core elements of CC adaptation and mitigation	High priority - Short-term
2	Build on current successes and existing entry points including allocation and activation of contingency funds, implementation of flexibility mechanisms in the development, humanitarian and peace nexus, and ongoing projects' climate change adaptation, mitigation and environmental benefits. New entry points including:	High priority - Short-term
	i) EU's Team Europe Initiative and the ongoing Multi-Year Planning Process in the HoA on DRR, renewable energy, learning & joint programming	High priority - Short-term
	ii) Engage with additional regional & national research organisations e.g. ILRI, ICRAF, CIAT, CCAFS, AGRA, KEFRI etc. to access relevant CC scientific and technical knowledge	High priority - Medium-term
	iii) Engage with other countries Cooperation Programmes and agencies on shared learning, and development of and/or support for complementary programmes	High priority - Medium-term.
	iv) Engage with additional interlocutors to foster SDC's linkages to key institutions	Medium priority - Medium-term

	v) Inventorying and measuring GHG emissions in HoA	Low priority - Long term
3	Allocate dedicated funds towards CC and environment, and strengthen the capacity of domains and projects to access and use the Small Actions Grants	High priority - Short-term
4	Refine and apply guidelines for assessing ongoing and new projects on integration of CC and the environment	High priority - Short-term
5	Require all new phases of ongoing projects and new ones to explicitly integrate climate change adaptation, mitigation and environment into the design, implementation, and monitoring and evaluation	High priority - Short-term
6	Support and implement interventions e.g. alternative livelihoods in climate-smart ways	High priority - Short-term
7	Strengthen inter-domain synergies , information and knowledge sharing on climate change and the transversal themes	Medium priority - Medium-term
8	Design and support more HoA-wide/ transboundary/ ecosystem basin-wide projects on climate change adaptation, mitigation and environmental management.	Medium priority - Medium-term
9	Tap into SDC's Climate Change and Environment Network , or appoint a Climate Change Coordinator for the HoA portfolio	High priority - Short-term
10	Work more closely with research institutions to address specific CC and environment technical information and knowledge needs in each domain and project	High priority - Medium-term
11	Apply digital monitoring technologies in climate change adaptation, mitigation and environmental interventions	Low priority - Long term
12	Mainstream CC adaptation, mitigation and environment into the next regional Cooperation Programme Strategy and across the four domains by:	High priority - Short-term
	a) Reviewing Kenya, Ethiopia and Somalia's NDCs, NAPs, NAIPs, CSAIPs & Identify key CC mitigation and adaptation priorities in each country	High priority - Short-term
	b) Accessing and use up to date, credible data, information and knowledge on CC in the HoA.	High priority - Short-term
	c) Assessing potential impacts of CC on each domain's planned results, interventions and operations in future.	High priority - Short-term

	d) Deepening implementation of current approaches and interventions among the same target communities and institutions to strengthen results.	High priority - Short-term
	e) Scaling out the implementation of current CC adaptation and mitigation approaches and interventions to reach new and additional beneficiaries.	Medium priority - Medium-term
	f) Piloting the implementation of new approaches and interventions.	Medium priority - Medium-term
	g) Designing programmes to address all the core components of CC adaptation, mitigation and environmental management	Medium priority - Medium-term
	h) Screening the proposed programmes and projects using the CEDRIG tool, and refine them accordingly.	High priority - Short-term
13	Continue engaging and supporting climate change adaptation and mitigation interventions at the nexus between development, humanitarian and peace in the HoA.	High priority - Short-term
14	Develop, produce and continuously disseminate audio-visual and print Information Education and Communications (IEC) materials on CC and the environment in the HoA context	High priority - Short-term
15	Strengthen engagement with the private sector as strategic partners, and augment existing blended financing for CC	Medium priority - Medium-term
16	HoA Cooperation Programme should build on current successes and lessons by strengthening and/or expanding its engagement with private sector entities as partners in Social Enterprise (SE) and Corporate Social Responsibility (CSR) .	Medium priority - Medium-term
17	Review the HoA domains indicators , and revise relevant ones to better capture results for CC Adaptation, mitigation and the environment	High priority - Short-term

Appendix 2: List of Potential Financial Partners on Climate Change

A list of funds and institutions that SDC could potentially access funds for implementation of CC adaptation, mitigation and environmental management interventions in the HoA is presented below.

NO	FUND	FOCAL AREAS	REGION/COUNTRY	WEBSITE
1	The Nordic Horn of Africa Opportunities Fund (Norfund)	Investment in risky environments, transitioning and developing countries and mobilising private investments.	Somalia SMEs	Norfund
2	Africa Climate Change Fund	Gender and resilience to climate change	Africa	ACCF
3	Auto Desk Foundation	Social and Environmental Impact challenges	Global	AUTODESK
3	Agri-insurance (Jubilee, KCB, Equity, ABSA bank)	Livestock and Crops insurance	Country based	-
4	Green Climate Fund	Adaptation and Mitigation activities	Global	GCF
5	Diaspora Investments in Agriculture (DIA)	Various focal areas, including Agriculture	Based on Country active in Somali, Kenya and Ethiopia. Formalised in Kenya.	DIA
6	Kenya Commercial Bank Fund	Green financing	East Africa	KCB Fund
7	IKEA Foundation	CSA/Green Innovations	Global	Ikea
8	Land Degradation Neutrality (LDN) Fund.	innovative impact investment fund for sustainable land use	Global	LND Fund
9	Conservation International (CI)	Natural Climate solutions	Global	CI

Appendix 3: List Of GCF-Accredited Organisations Working in or with Interest in The HoA

A list of organisations that SDC could potentially partner with for implementation of CC adaptation, mitigation and environmental management interventions in the HoA to attract climate financing is presented below.

NO	ORGANISATION
1	Africa Finance Corporation (AFC)
2	African Development Bank (AfDB)
3	Conservation International Foundation (CI)
4	Consortium of International Agricultural Research Centres (CGIAR)
5	European Bank for Reconstruction and Development (EBRD)
6	European Investment Bank (EIB)
7	Food and Agriculture Organization (FAO)
8	International Fund for Agricultural Development (IFAD)
9	International Union for Conservation of Nature (IUCN)
10	Japan International Cooperation Agency (JICA)
11	KCB Bank Kenya Limited
12	Minister of Finance of the Federal Democratic Republic of Ethiopia
13	National Environment Management Authority of Kenya (NEMA)
14	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V. (FMO)
15	Save the Children
16	United Nations Development Programme (UNDP)
17	United Nations Environment Programme (UNEP)
18	United Nations World Food Programme (WFP)

Appendix 4: Proposed Revisions on the HoA Portfolio Results Frameworks Incorporating Climate Change and Environment

(Please double click on the icons to view the respective appendices)

Appendix 4-I: Food Security Domain Results Framework- Proposed Revisions



Food Security + CC
Revisions

Appendix 4-II: Migration and Protection Domain Results Framework- Proposed Revisions



Migration &
Protection + CC Rev

Appendix 4-III: Health Domain Results Framework- Proposed Revisions



Health + CC
Revisions

Appendix 4-IV: Governance Domain Results Framework- Proposed Revisions



Governance + CC
Revisions

Appendix 5. Summary of Climate Change Adaptation and Mitigation Priorities in the National Adaptation Plans and Nationally Determined Contributions

SDC should engage with relevant national government ministries, County/district governments, research institutions and academia, civil society and private sector in the priority actions below.

Appendix 5-I. National Climate Change Adaptation Priorities- Kenya

NO	SECTOR	PRIORITY ADAPTATION ACTIONS
1	Disaster Risk Reduction	1. Drought Risk Management including drought early warning, preparedness, and response for enhanced drought resilience
		2. Flood risk management incorporating Nature-based solutions
2	Agriculture (crops, Livestock & Fisheries)	3. Mainstream Climate-Smart Agriculture (CSA) towards increased productivity through the value chain approach to support the transformation of agriculture (crops, livestock and fisheries) into an innovative, commercially oriented, competitive and modern sector
		4. Build resilience of agriculture (crops, livestock and fisheries) systems through sustainable management of land, soil, water and other natural resources as well as insurance and other safety nets
		5. Strengthen communication systems on CSA extension and agro-weather issues
3	Environment	6. Rehabilitation and conservation of degraded forests
		7. Establish at least 2,000 hectares to promote nature-based (non-wood forest products) enterprises across the country
		8. Establish 150,000 hectares of commercial private forests plantations
		9. Plant 350,000 agroforestry trees in farmlands
		10. Greening of 14,000 hectares of infrastructure (roads, railway lines, dams)
		11. Enhance/strengthen governance of community structures in participatory resource management
		12. Strengthen early warning and tailor-made climate information services through the institutional strengthening of the Kenya Meteorological Department (KMD) and other information user institutions
		13. Roll out Early Action Protocols for forecast-based financing
4	Infrastructure (energy)	14. Develop and adopt guidelines on how to climate-proof energy infrastructure using vulnerability risk assessments
		15. Enhance climate-proofing of energy infrastructure along the renewable energy supply chain
		16. Increase the number of companies participating in energy-efficient water use initiatives by 40% from the baseline

NO	SECTOR	PRIORITY ADAPTATION ACTIONS
5	Infrastructure (roads)	17. Upscale the construction of roads to systematically harvest water and reduce flooding
		18. Enhance institutional capacities in climate-proofing vulnerable road infrastructure through vulnerability assessments
		19. Promote the appropriate design and use of building materials to enhance the resilience of at least 4,500 Km of roads to climate risks.
6	Water and Sanitation	20. Conduct and implement recommendations on climate and risk assessments on water, sanitation and irrigation infrastructure
		21. Build resilience infrastructure for the protection of dams, dykes and river lines
		22. Promote water harvesting and storage at county and household levels
		23. Mainstream climate change into water catchment management plans
7	Health	24. Conduct a vulnerability and risk assessment of different climate risks on human health
		25. Develop a public awareness and social mobilisation strategy on climate change and health impacts.
		26. Develop health programmes, protocols and guidance to manage climate-change-related diseases and risks
		27. Reduce the incidence of malaria, other vector-borne diseases and other health conditions
8	Population, Urbanisation and Housing	28. Introduce nature-based solutions in flood-control, especially around informal settlements, and selected urban areas
		29. Strengthen the enforcement of green building codes by national and county governments
		30. Conduct climate risk and vulnerability assessment of building/housing infrastructure especially to flooding
9	Gender, Youth and other Vulnerable Groups	31. Develop social safety net structures for women, youth, and other vulnerable groups within the County Climate Change Funds
		32. Strengthen access of women, youth and other vulnerable groups to enterprise funds, climate finance, and credit lines
		33. Promote gender-responsive technologies and innovations in the private sector, through financing, capacity building and start-up services
		34. Consolidate successful technologies and develop a transfer strategy to women, youth and other vulnerable populations.

10	Private Sector	35. Mobilise financial resources from capital markets and other financial instruments for green investments and implementation of the Green Business Agenda
		36. Eco-label industrial products to promote green procurement, especially by public procurement agencies
		37. Climate-proof waste management infrastructure for waste management facilities
		38. Increase the number of companies participating in efficient water-use initiatives
11	Devolution	39. Develop and adopt county adaptation guidelines for integration of climate change into County Integrated Development Plans (CIDPs)
		40. Build the capacity of County Coordination Units on climate change adaptation
		41. Conduct climate vulnerability and risk assessments in counties
		42. Develop County Climate Change Adaptation Plans, and resource them with County Climate Change Funds
12	Adaptation M & E	43. Refine and operationalise the adaptation M & E system at national and county levels

Appendix 5-II. National Climate Change Mitigation Priorities- Kenya

NO	PRIORITY MITIGATION ACTIONS
1	Increase renewables in the electricity generation mix of the national grid
2	Enhance energy and resource efficiency across the different sectors
3	Make progress toward achieving tree cover of at least 10% of the land area of Kenya
4	Make efforts towards achieving land degradation neutrality
5	Scale-up Nature-based Solutions for mitigation
6	Enhance Reducing Emissions from Deforestation and Degradation Plus (REDD +) activities
7	Promote clean, efficient and sustainable energy technologies to reduce over-reliance on fossil and non-sustainable biomass fuels
8	Promote low carbon and efficient transportation systems
9	Enhance Climate-Smart Agriculture in line with the Kenya CSA Strategy, with emphasis on efficient livestock management systems
10	Increase sustainable water management systems
11	Harness mitigation benefits of the sustainable blue economy, including carbon payment for ecosystem services

Appendix 5-III. National Climate Change Adaptation and Mitigation Priorities- Ethiopia

NO	SECTOR	PRIORITY ADAPTATION ACTIONS
1	Disaster Risk Reduction	1. Enhance the production and dissemination of climate and disaster early warning data and information
		2. Increase the number of modern weather monitoring stations
		3. Enhance the reliability of climate data and information services
2	Agriculture (Crops, Livestock & Fisheries)	4. Increase share of agricultural land under sustainable management practices
		5. Reduce post-harvest losses and land converted for agricultural infrastructure
		6. Improve rangeland and pastureland management and increase carbon sequestration
		7. Expand the use of climate-resilient crop varieties
		8. Strengthen crop disease and pest monitoring systems in vulnerable areas
		9. Strengthen drought and crop insurance mechanisms for climate risk management
		10. Implement the Lowlands Livelihoods Resilience project
		11. Enhance efficiency and productivity in livestock sub-sectors
		12. Enhance agricultural mechanisation for farmers and smallholders
		13. Diversify livestock and animal mix, including promotion of poultry, small ruminants and drought-tolerant animal breeds
		14. Improve livestock feeding
		15. Enhance food security by improving agricultural productivity in a climate-smart manner
		16. Enhance climate resilience in livestock, through expansion of animal health services
		17. Prevent and control the spread of climate-driven vector-borne diseases
		18. Expand the construction of medium and large scale irrigation systems

3	Environment	19. Reforest 3 million hectares of land by 2030
		20. Restore 5 million hectares of land through tree planting by 2030
		21. Enhance sustainable forest management
		22. Improve sustainable utilisation of forest resources
		23. Reduce emissions from reducing waste generation rate per capita
		24. Undertake waste separation and composting
		25. Enhance sustainable natural resources development, management and watershed protection
4	Energy	26. Shift from unsustainable biomass energy demand to electric stoves, renewable biofuels (e.g. residues)
		27. Enhance biomass efficiency by increasing the use of improved cookstoves
		28. Increase the number of households using renewable off-grid energy sources for lighting
5	Infrastructure (roads)	29. Build climate-resilient and sustainable transport systems
6	Water and Sanitation	30. Carryout integrated watershed development
		31. Improve access to potable water to strengthen community resilience to climate change
		32. Expand the coverage of surface and groundwater assessments
		33. Enhance the coverage of water quality monitoring
		34. Establish Eco-Hydrology demonstration sites in all basins
		35. Increase the proportion of households with a safe water supply
7	Health	36. Reduce the incidences of malaria
		37. Reduce the incidences of cholera
		38. Increase the proportion of households with improved toilets
		39. Increase the proportion of health care facilities and equip them with safe energy sources eg. electricity, solar etc.

Appendix 5-IV. National Climate Change Adaptation and Mitigation Priorities- Somalia

NO	SECTOR	PRIORITY ADAPTATION ACTIONS
1	Disaster Preparedness and Management	1. Establish effective early warning systems and disaster risk management policies to improve resilience to extreme weather events
		2. Establish the meteorological networks to enhance early warning systems
		3. Increase the resilience of communities, infrastructure and ecosystems to droughts and floods
		4. Enhance coordination and information sharing among relevant ministries and stakeholders
		5. Establish disaster response for the country, including facilities and settlements for IDPs
		6. Strengthen the adaptive capacity of the most vulnerable groups, including women, children, elderly persons, IDPs, through social safety nets
		7. Provide livelihood support for vulnerable groups
2	Agriculture (crops, Livestock & Fisheries)	8. Implement agroforestry practices
		4. Implement rangeland restoration and rehabilitation
		5. Implement sustainable land management, including Climate Smart Agriculture practices
		6. Establish agricultural institutions to research drought-tolerant varieties
		7. Provide drought-tolerant seeds and seedlings to the farming community
		8. Develop irrigation systems including dams, channels and water reticulation systems
		9. Improve and establish marketing systems and infrastructure including cooperatives and cooling systems for perishable goods
		10. Build marketing facilities for crops and livestock in urban areas
		11. Support Small and Medium Enterprises to promote value addition of crop and livestock products
		12. Promote weather-based insurance schemes for farmers and pastoralists
		13. Invest in veterinary services to address climate-related livestock diseases
		14. Establish disease-free zones to enhance livestock product quality for export
		15. Build capacity in climate-resilient agronomic practices for smallholder farmers

		16. Promote climate-resilient traditional and modern knowledge of sustainable pasture and rangeland management systems
		17. Improve animal productivity and animal breeds to increase resilience to climate change
		18. Sustainably manage grazing areas and rangelands, and enhance the development of livestock infrastructure and services including feed storage
		19. Improve access to agro-weather information services
		20. Improve the capacity of fisherfolk by providing equipment, nets, boats etc.
		21. Support investments in value addition of fisheries products
		22. Strengthen key fisheries management services for enhanced resilience in the sub-sector
3	Environment	23. Increase land area under forest cover through afforestation, reforestation and agroforestry
		24. Promote programmes aimed at Reducing Emissions from Deforestation and forest Degradation, including through REDD+ readiness activities, and implementing The Charcoal Policy
		25. Develop 2 sanitary landfills
		26. Enhance the participation of women and youth in activities related to climate change adaptation and environmental conservation to empower them and enhance their adaptive capacity
		27. Enhance communication and education on climate change and environmental management and raise public awareness.
4	Energy	28. Develop renewable energy electricity (solar and wind), including people-centred decentralised solutions
		29. Promote clean and energy-efficient cooking
		30. Enhance energy investments to adopt diversified, adaptive energy technologies
		31. Develop the national energy grid systems and increase the generation capacity to address energy poverty
		32. Increase the production of non-forest biomass fuel briquettes e.g. from agricultural waste, sawdust, human waste, with emphasis on women and the youth
		33. Integrate climate change adaptation in energy investments and infrastructure
		34. Develop and adopt policy and legislative frameworks to promote clean energy solutions
		35. Promote the distribution of renewable energy lamps
		36. Promote the use of energy-efficient light bulbs
		37. Promote energy efficiency in electricity transmission

5	Infrastructure (roads)	38. Improve road conditions through investments in road infrastructure, and upgrade roads and other infrastructure with appropriate drainage systems to mitigate flooding
		39. Climate-proof infrastructure developments
		40. Strengthen climate-robustness of public and commercial sector buildings
6	Water and Public Health	41. Assess the water system
		42. Enhance institutional arrangements for water conservation and management
		43. Establish and maintain strategic water reserves; mega-dams, shallow wells to capture run-offs
		44. Develop solar-powered boreholes
		45. Invest in basic potable water supply for households
		46. Construct and operationalise water pans
		47. Promote rainwater harvesting and conservation of water, including improved water use efficiency
		48. Develop drainage and stormwater systems in urban areas
		49. Implement the Integrated Water Resources Management Strategy
		50. Conduct public awareness campaigns on climate change effects and public health-related issues, targeting rural areas
		51. Establish and operationalise public health facilities in rural areas
8	Human Settlements	52. Promote a green and climate-resilient building industry
		53. Enhance awareness of the impacts of climate change in the context of human settlements, sustainable land management and development of climate-sensitive human settlements
		54. Facilitate the provision of, and access to adequate, affordable, and climate-sensitive shelter to vulnerable groups including IDPs

Appendix 6: List of Key Informant Interviewees

NO	NAMES	CATEGORY	ORGANISATION
1	i) Abdi Kunow ii) Aden Abdikarim Daud iii) Ertiro Berhanu Tadesse	Regional Programme Staff- Horn of Africa Food Security Domain	SDC
2	i) Hussein Ibrahim Kasso ii) Karanja Rufus Kinywa iii) Kilwake Lilian	Regional Programme Staff- Horn of Africa Migration & Protection Domain	SDC
3	i) Murithi Wangechi Catherine ii) Lensee Bonga Gobu	Regional Programme Staff- Horn of Africa Health Domain	SDC
4	i) Jirdeh Nimo Mohamoud ii) Wetugi Lydia Nginya	Regional Programme Staff- Horn of Africa	SDC
5	i) Meier Larissa ii) Oertle Thomas	Regional Cooperation Programme- Horn of Africa Management	SDC
6	Lötscher Dorothee	Swiss Federal Ministry	SDC
7	Sieber Patrick	Swiss Federal Ministry	SDC
8	Daniel Maselli	Swiss Federal Ministry	SDC
9	Roy Okello	Implementing Partner- Isiolo	Kenya RAPID Isiolo
10	Lawrence Mwongela	Implementing Partner- Isiolo	FCDC- Isiolo
11	Abass Abdiraham	Implementing Partner- Nairobi	FCDC- Nairobi
12	Caroline Kirungu	Implementing Partner- Nairobi	IGAD
13	i) Paul Opio ii) Paul Mutungi	Implementing Partner- Nairobi	FAO Regional Resilience FAO
14	Khalif Ibrahim	Implementing Partner- Mandera	IGAD-FAO PP
15	Abass Mohamed	Implementing Partner- Mandera	COCOP Mandera
16	Hussein Alio	Implementing Partner- Mandera	National Drought Management Authority, Mandera CEC
17	Jan Vloet	Implementing Partner- NRM Borena	Helvetas
18	Ribka Teklu	Implementing Partner- Helvetas Ethiopia Resilience Programme	Helvetas
19	Ben Mbaura	Implementing Partner- Durable Solutions	IOM Durable Solutions Programme

20	Lana Goral	Specialised Agency Technical Advisor	IOM, Regional Climate Change focal point
22	Daniel Molla	Specialised Agency Technical Advisor	Food Security and Nutrition Analysis Unit (FSNAU) for Somalia
23	Ugo Leonard	Specialised Agency Technical Advisor	SWALIM Technical Adviser FAO Somalia
24	i) Laura Simpson ii) Symon Thuo iii) Mohamoud Ibrahim	Specialised Agency Technical Advisor	ACTED REVIVE
25	Zachary Atheru	Specialised Agency Technical Advisor	ICPAC
26	Abdeta Debella	Specialised Agency Technical Advisor	Ethiopian Environment, Forestry and Climate Change Commission
27	Christophe Hodder	Specialised Agency Technical Advisor	UN Environment Advisor to Somalia
28	Elizabeth Carabine	Donor Agency - The Netherlands Cooperation Programme	Climate Change Specialist
29	I) Jennifer Maurer ii) Chihenyo Kangara	Donor Agency- USAID	USAID East Africa Resilience Office
30	David Monticelli	Donor Agency- EU	EU Climate Change Advisor/Focal Point for Somalia
31	Aden	Community Beneficiaries-FCDC	Adonei Women's Group- Isiolo
32	Focus Group Discussion Courage Group	Community Beneficiaries- Kenya RAPID Isiolo	Courage Group- Isiolo
33	Focus Group Discussion Aktir Group	Community Beneficiaries- Kenya RAPID Isiolo	Aktir Group- Isiolo
34	Stanley Karimi	Project of Interest- Kenya Climate Smart Agriculture Project	KCSAP- Isiolo