Economics of Climate Adaptation

Report 01

APRIL 2020

Inception Report

Ethiopia

Drought Risk

UNITED NATIONS UNIVERSITY

UNU-EHS

A project implemented on behalf of InsuResilience Solutions Fund

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In cooperation ETH zürich

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List of Acronyms

BoPAD	Bureau of Pastoral and Agriculture Development
CCA	Climate Change Adaptation
EbA	Ecosystem-based Adaptation
ECA	Economics of Climate Adaptation
GDP	Gross Domestic Product
GIZ	German Corporation for International Cooperation
ILRI	International Livestock Research Centre
ISF	InsuResilience Solutions Fund
KfW	German Development Bank
MoA	Ministry of Agriculture of the Federal Democratic Republic of Ethiopia
NAP	National Adaptation Plans
NGO	Non-Governmental Organization
NMA	National Meteorological Agency
SCPI	Standardised Crop Production Index
SPI	Standardised Precipitation Index
UNDP	United Nations Development Program
UNU-EHS	United Nations University – Institute for Environment and Human Security

1 Context

The Ethiopian National Adaptation Plan was drafted and published in 2019 by the Government of Ethiopia. It is based on several national strategies such as the Climate Resilient Green Economy (CRGE) strategy and the Growth and Transformation Plans II (GTP II). Already in 2011 the CRGE, as a cornerstone, identified five strategic priorities and eighteen options for adaptation, which cover all industries and the complete cycle of adaptation, from research to implementation, including funding and governance[1]. A common thread between the identified options of adaptation is the need to increase resilience to drought periods.

The United Nations University - Institute for Environment and Human Security (UNU-EHS) in cooperation with and funded by the InsuResilience Solutions Fund (ISF) is implementing the Economics of Climate Adaptation (ECA) methodology in the regions of Afar and Somali in Ethiopia, to identify the most cost-effective measures to address drought hazards in line with the CRGE. The ISF is funded by KfW (German Development Bank) and commissioned by the German Ministry for Economic Cooperation and Development (BMZ). Currently, ECA Studies are implemented in two countries (Honduras and Ethiopia).

The main objectives of the ECA methodology are to support decision-makers in anchoring their adaptation strategy to fact-based research and in developing climate change adaptation (CCA) investment portfolios, including risk transfer. This methodology offers a systematic and transparent approach that fosters trust and initiates in-depth inter-sectoral stakeholder discussions. ECA can be applied flexibly from the national down to the local level to different stakeholder groups and various hazards. It further offers advice on what aspects to focus on during a feasibility study. It provides critical information that can potentially support National Adaptation Plans (NAPs) development.

ECA offers a unique approach towards the flexible identification of cost-effective CCA measures for a variety of projects and sectors. It addresses, in particular, the following questions:

1) What is the potential climate-related damage over the coming decades?

2) How much of that damage can be averted, using what type of CCA measures?

3) What investments will be required to fund those CCA measures - and will the benefits of these investments outweigh their costs?

A plethora of approaches designed to respond to the complexity and the uncertainty of climate change-related projects are already available. Concerning the implementation of climate change adaptation strategies, they range from climate vulnerability assessments, risk assessments, economic and/or

[1] Federal Democratic Republic of Ethiopia. (2011). *Ethiopia's Climate-ResilientGreen Economy - Green economy strategy.* Addis Ababa.

sustainability impact assessments to decision making support tools. Among these, none has integrated the full range of processes from risk assessment to a feasibility study of CCA measures. Integration is the strength of ECA; it is linked to the open-source software CLIMADA. The latter, using available data, computes probabilities of events for various hazards such as droughts, floods, hurricanes, tropical cyclones, storms, as well as earthquakes. CLIMADA calculates present and future expected damages caused by these hazards on selected assets at various geographical scales (city, region or country). Eventually, several adaptation measures are introduced in CLIMADA, which then calculates the benefits/cost ratios, given several climate and socio-economic scenarios.

This report presents the main results of the Economics of Climate Adaptation (ECA) inception workshop organised by UNU-EHS in the City of Addis Ababa in Ethiopia. First, we briefly introduce the Afar and Somali regions, covering location, population, economic activities, and weather conditions. Next, a review of the most significant extreme weather events during the past decades is performed. Last, we present the opportunities the ECA methodology offers to the specific case study and the existing policies and strategies to adapt and address climate change in Ethiopia.

1.1 General Information on Afar and Somali

The regions of Afar and Somali are located on the (south-) eastern side of Ethiopia, on the border with Eritrea, Djibouti, Somalia, and Kenya as presented in Figure 1. Afar has an area of over 72,000 km^2 and Somali 327,000 km^2. Afar is crossed by the River Awash, born in Mount Warqe west of Addis Ababa and disgorging in Lake Abhe on the border with Djibouti. Other essential water bodies include Lake Caddabassa along the River Awash, Lake Afrera in the North of the region and Lake Karum close to the border with Eritrea, although the latter is a salt lake. The three major rivers in Somali are the Shebelle, Genale and Dawa in the South, there are some smaller rivers more to the centre of the region, e.g. the Fafem. The study regions are mostly flat except for the northern part of Somali where some remanence elevation is left from the Afdem Mountain Range.

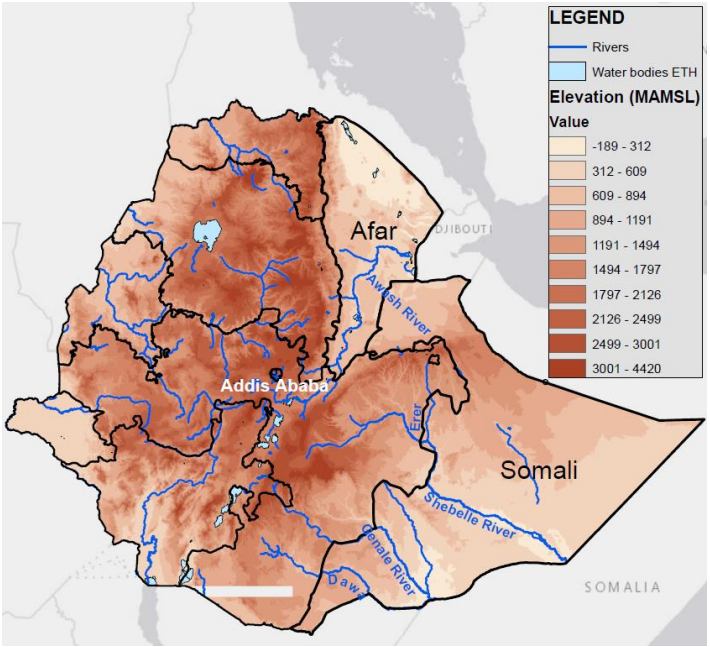

Figure 1 Topography and Hydrology of Ethiopia (after UNISDR (2015))

Ethiopia is one of the fastest-growing countries in the world in terms of population, with a 3% annual growth rate[2]. Over 75% of the population is under 30 years, and 47% of the total number is younger than 15. The fertility rate in the country is around 4.6 births per woman, whereas in Afar it is 5.5 and in Somali it is 7.2[3]. Figure 2 shows the population distribution per *woreda*, third level administrative zones in the country, highlighting Amibara and Afdem as the most populated areas in Afar and Somali, respectively.

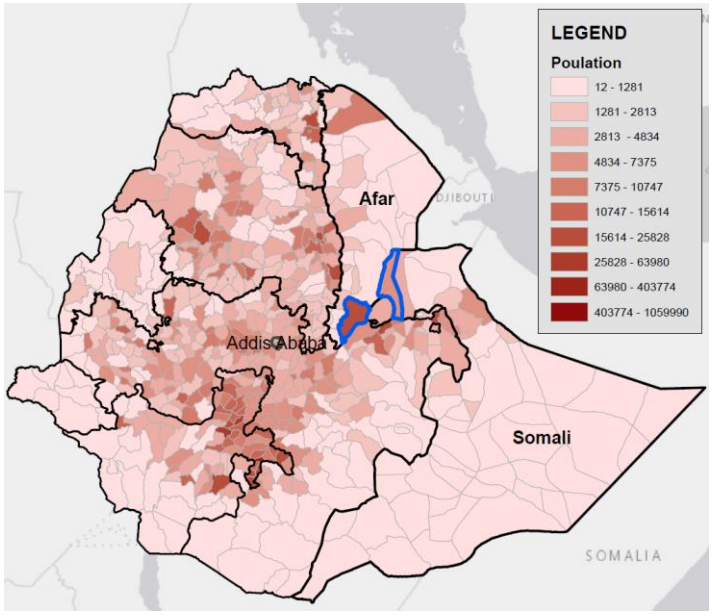

Figure 2 Population distribution per woreda in Ethiopia (after UNISDR (2015))

In Ethiopia over 40% of the GDP is generated in the agricultural sector, including 19% from the livestock sector, and it employs between 80 - 85% of the labour force[4]. The national Human Development Index has been steadily increasing since the year 2000 from 0.284 to 0.470 in 2018. This still places the country in the low human development category— positioning it at 173 out of 189 countries and territories in the 2019 Human Development Index ranking of the United Nations Development Programme[5]. This continuous rise has also been reflected in the two observed regions from 0.227 and 0.215 in 2000 to 0.417 and 0.419 in 2018 in Afar and Somali respectively. Especially from 2005 to 2011 both regions seemed to close the gap to the national average, following 2011 the gap, however, widened again. The underlying income index[6] indicates an increase in financial wealth for the whole country as well as Afar and Somali. It rose from 2000 to 2018 from 0.275, 0.267 and 0.27 to 0.429, 0.436 and 0.412 respectively[7]. The national poverty incidence[8] is estimated for 2015/16 at 0.235, 0.236 for Afar and 0.224 for Somali.

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[2] Hailemariam, A. (2017). Implementation of the Population Policy of Ethiopia: Achievements and Challenges. *Population Horizons*, 19 - 30.

[3] Central Statistical Agency. (2017). *Demographic and Health Survey 2016.* Addis Ababa, Ethiopia: The DHS Program.

[4] Ministry of Agriculture. (2012). *Performance assessment report on the growth and transformation agenda in the spheres of agriculture.* Addis Ababa.

[5] Human Development Report Office (2019). Retrieved from http://hdr.undp.org/en/content/2019-human-development-index-ranking

[6] The income index is the underlying income index of the UNDP's official Human Development Index broken down to subnational level using indicators derived from the Area Database of the Global Data Lab and indicator data obtained from statistical offices. For further information see: https://globaldatalab.org/shdi/about/

[7] Radboud University. (2020). *Global Data Lab, Subnational Human Development Index (4.0)*. Institute for Management Research. Radboud University. Retrieved from https://globaldatalab.org/shdi/

[8] Poverty incidence is defined as the proportion of the population with per capita income less than the per capita poverty threshold.

This shows improvements since 1999/2000 where the incidence was reported as 0.442, 0.560, and 0.379 respectively[9]. The gaps in poverty between rural and urban areas also differ from the national values in the study regions, in Afar and Somali, nearly 100% of the population lives in rural areas[10,11]. To account for the distribution of economic conditions in the regions, Figure 3 presents the capital stock per *woreda* in millions USD again highlighting in blue the same two districts as those with the highest capital stock as estimated by the Global Assessment Report on Disaster Risk Reduction 2015 from the UNISDR. It incorporates the economic value of buildings and a broad estimate of the machinery and structures, scaled-up by 24% to account for the value of urban land where appropriate[12] (UNISDR, 2015).

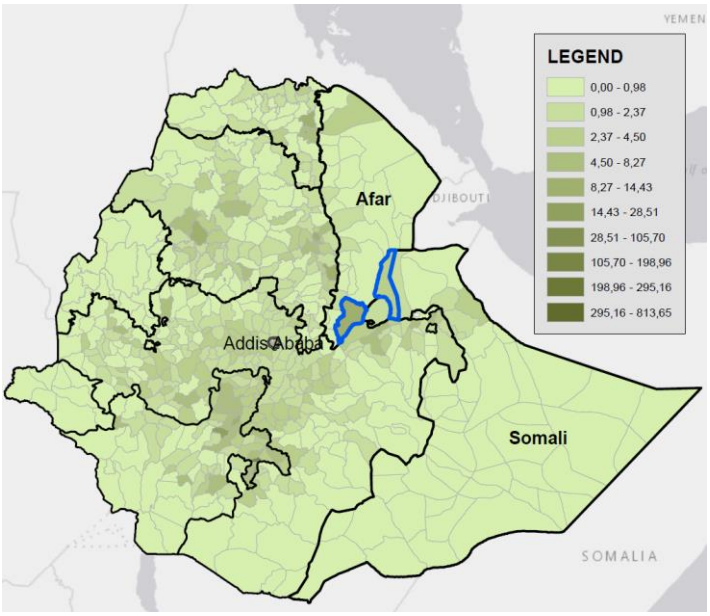


Figure 3 Capital stock per woreda (millions USD) (after UNISDR (2015))[9]

1.2 Environmental hazards in Ethiopia

According to Germanwatch, Ethiopia is the 29th country worldwide with the most fatalities related to climate change in the two decades between 1999 and 2018, and 3rd in Africa for the same period[13] (Germanwatch e.V., 2019). At the same time, Ethiopia's high population growth suggests that future events will affect more people and possibly leave behind a higher number of fatalities.

In the last 58 years, Ethiopia has faced 110 recorded natural disasters[14]. Figure 4 shows the distribution of such events by type of disaster, floods being the most common events with nearly half of the total

[9] National Planning Commission. (2017). *Ethiopia's Progress Towards Eradicating Poverty: An Interim Report on 2015/16 Poverty Analysis Study.* Addis Ababa.

[10] UNDP (2015). *Assessment of Ethiopia's Progress towards the MDGs.* Retrieved from UNDP: https://www.et.undp.org/content/dam/ethiopia/docs/UNDP%20MDG%202014%20Final2Oct.pdf

[11] NDC (2017). *Ethiopia's Progress Towards Eradicating Poverty: An Interim Report on 2015/16 Poverty Analysis Study*. Addis Ababa

[12] UNISDR (2015). *Global Assessment Report on Disaster Risk Reduction - Annex 1.* Retrieved from PreventionWeb: https://www.preventionweb.net/english/hyogo/gar/2015/en/gar-pdf/Annex1-GAR_Global_Risk_Assessment_Data_methodology_and_usage.pdf

[13] Germanwatch (2019). *GLOBAL CLIMATE RISK INDEX 2020.* Bonn: Bread for the World.

[14] EM-DAT (2020). *EM-DAT Data Base*. Retrieved from EM-DAT: https://www.emdat.be/

occurrences, followed by epidemics and droughts. Climate-related disasters are mainly floods and droughts and represent over 60% of the events.

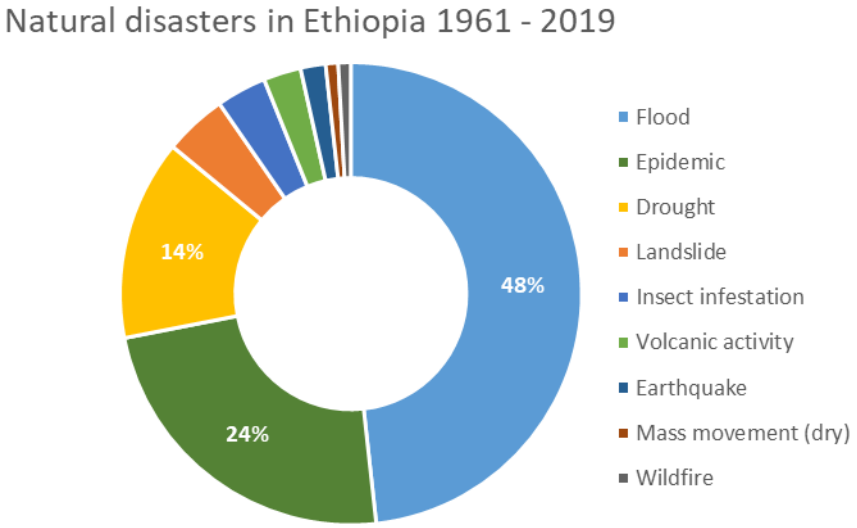
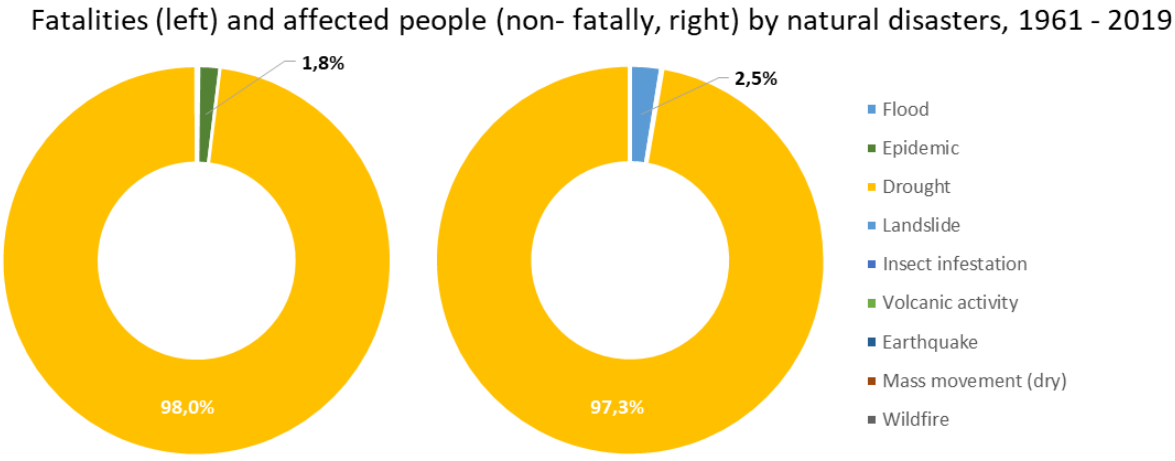


Figure 4 Type of Natural disasters in Ethiopia 1961 – 2019 (Authors' own compilation based on data from EM-DAT (2020))[12]

Figure 5 shows how droughts are overwhelmingly affecting communities, both in fatalities and non-deadly affected population. Figure 6 presents the timeline of drought events in Ethiopia during the last 58 years with the estimated number of affected people according to the EM-DAT data base[15]. The most destructive events took place in 2003 and 2015, the latter taking place during a strong El Niño Southern Oscillation (ENSO) year[16].



[15] EM-DAT. (2020). *EM-DAT Data Base*. Retrieved from EM-DAT: https://www.emdat.be/

[16] Gleixner, S., Keenlyside, N., Viste, E. et al. (2017) The El Nino Effect on Ethiopian Summer Rainfall. Clim Dyn 49: 1865. https://doi.org/10.1007/s00382-016-3421-z

Figure 5 Fatalities and affected people (after EM-DAT (2020))[12]

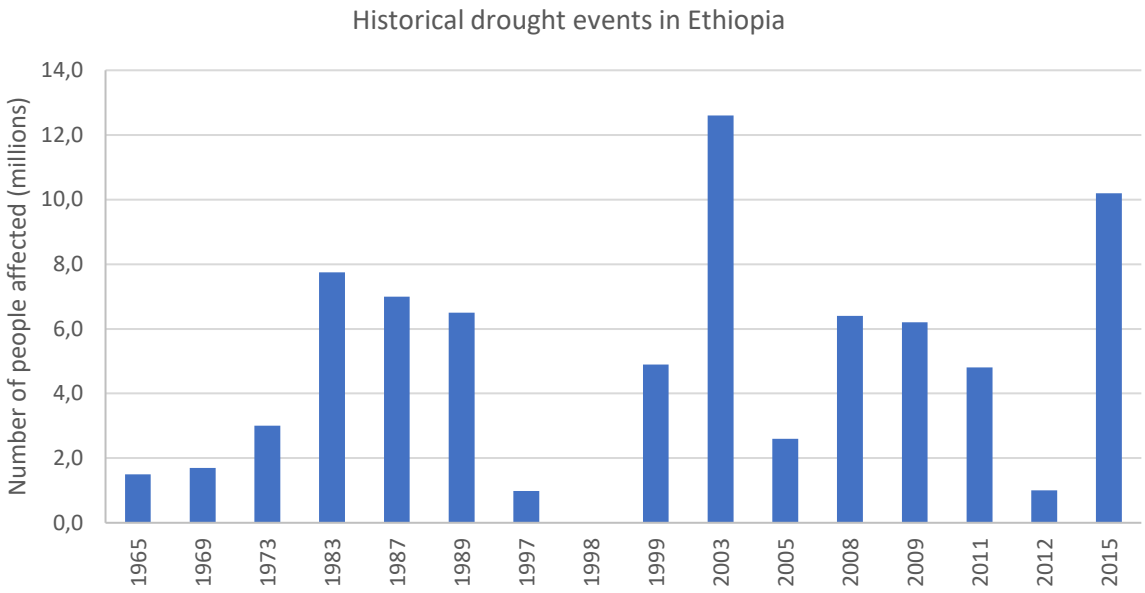


Figure 6 Historical drought events in Ethiopia (after EM-DAT (2020))[12]

According to the Ethiopia UNDP Climate Change Country Profile[17,18] the mean annual temperature in Ethiopia can be expected to increase by 1.1 to 3.1°C, and by 1.5 to 5.1°C by 2060 and 2090 respectively. Projections on precipitation primarily indicate an increase in annual rainfall, mostly during the short rainfall season dominant in southern Ethiopia. However, projections consistently show an increase in rainfall volumes concentrated in fewer and more extreme events. Considering the projected increase in temperature and the shift in precipitation patterns, total rainfall during fewer more intense events combined with increasing heat stress, droughts are expected to remain the most damaging events in Ethiopia and adaptation to them should be prioritized.

1.3 Policies and strategies to address Climate Change in Ethiopia

Ethiopia has a strong history of addressing climate adaptation. In 2007 the National Adaptation Program of Action (NAPA) was first published. It was followed by the Growth and Transformation Plan II (GTP II) in 2011. The latter incorporated the framework of sustainable development within the overall vision of "reaching middle-income status before 2025 and a carbon-neutral economy by 2030"[19]. The strategy set within this document was to follow a green growth path named the Climate Resilient Green Economy

[17] McSweeny, C., New, M., Lizcano, G. (2010). UNDP Climate Change Country Profiles – Ethiopia. UNDP. Available http://country-profiles.geog.ox.ac.uk/

[18] McSweeny, C., New, M., Lizcano, G. (2010). The UNDP Climate Change Country Profiles Improving the Accessibility of Observed and Projected Climate Information for Studies of Climate Change in Developing Countries. Bulletin of the American Meteorological Society, 91, 157-166.

[19] Federal Democratic Republic of Ethiopia. (2011). *Ethiopia's Climate-ResilientGreen Economy - Green economy strategy.* Addis Ababa.

(CRGE). It aimed at boosting the agriculture, industrial and export sector without significantly increasing the GHG emissions level caused by the economy of the time[20].

In terms of agriculture, the Ethiopian Government published in 2015 the Livestock Master Plan 2015 - 2020 as a contribution to the GTP II covering cow dairy, red meat, poultry, livestock feed, health and genetics, and promoting institution and policy environment for implementation[21]. As part of the CRGE, the climate resilience strategy for agriculture and forestry aims at identifying the impact of both current and future climate signal for Ethiopia. Ultimately, it highlights options for building climate resilience and to understand how these options can be delivered by 2025[22].

In 2019, the Climate Resilient Green Economy - National Adaptation Plan published by the Government of Ethiopia and coordinated by Ethiopia's Environment, Forest and Climate Change Commission (EFCCC) followed the previous documents, with a compilation of the goals and strategies and as a guideline on how these and other policies align into one vision. Roles and responsibilities, e.g. regarding the implementation of the individual elements, are defined within the document from the national government down to the woreda level.

Specifically, in relation to droughts, the Productive Safety Net Program (PSNP) is being implemented by the Government of Ethiopia and supported by a range of international development partners. It provides a tool for governmental and non-governmental organizations to expand mitigation actions for drought impacts. Although the PSNP is designed to alleviate food insecurity and not as means for emergency relief, during the drought of 2015 the increased ability of these institutions to react after the first signs of the event, significantly reduced the vulnerability of the communities in need[23].

In this context, the ECA methodology offers benefits for policy- and decision-makers in terms of determining their portfolio of adaptation measures, prioritizing according to cost-effective criteria and from an investment perspective. This ECA study assesses the distribution of damages associated to drought risk in the Afar and Somali regions. It also provides an assessment of different options for adaptation, including infrastructure, ecosystem and community-based measures. Therefore it allows stakeholders to make better-informed decisions on their climate adaptation strategies.

1.4 Selection of projects relevant to the ECA Study

In this section, we list projects that are currently implemented by international development organizations pertinent to the ECA study in terms of regional focus (Afar and Somali regions) and adaptation to climate change, specifically drought risk. This list is not exhaustive and reflects the best of our knowledge.

[20] Federal Democratic Republic of Ethiopia. (2015). *Ethiopia's Climate ResilientGreen Economy - Climate resilience strategy agriculture and forestry.* Addis Ababa.

[21] Shapiro, B., Gebru, G., Desta, S., Negassa, A., Negussie, K., Aboset, G., & Mechal, H. (2015). *Ethiopia livestock master plan - Roadmaps for growth and transformation.* Addis Ababa.

[22] Federal Democratic Republic of Ethiopia. (2019). *Ethiopia's Climate Resilient Green Economy - National Adaptation.* Addis Ababa.

[23] Sohnesen, T. P. (2019). Two Sides to Same Drought: Measurement and Impact of Ethiopia's El Nino Drought. *Poverty, Inequality and their Associations with Disasters and Climate Change.* Venice.

Project name	Donor	Partner	Timeline	Budget	Scope / Objectives
Strengthening the drought resilience of the pastoral and agro-pastoral population in the Afar Region	KfW	MoA		6.0m EUR	Conservation and more productive use of existing soil resources or grazing land to enable the population to sustainably manage their natural resources even under changing climate conditions
Preservation of soil and water resources to improve drought resilience and food security in the arid and semi-arid regions of Eastern Ethiopia	KfW	MoA		10.0m EUR	Promote conservation and more productive use of existing water and soil resources and the development of new ones in order to enable the population to manage their natural resources sustainably even under changing climatic conditions and thus to improve their food situation in the long term
Drought resilience (new)	KfW			15.0m EUR	Strengthening Drought Resilience
IGAD Ethiopia	KfW	MoA		13.0m EUR	Regional Fund to strenghten drought resilience in the Horn of Africa (Ethiopia)
Capacity development for strengthening the drought resilience of the pastoral and agro-pastoral population in the lowlands of Ethiopia	GIZ	MoA	2013 - 2018	na	Pastoralists and agro-pastoralists – nomadic and semi-nomadic groups that live from livestock with some arable farming – have more reliable access to natural resources, including water, land and pastures, and can make more intensive use of them.
Capacity development for strengthening the drought resilience of the pastoral and agro-pastoral population in the lowlands of Ethiopia	GIZ	MoA	2015 - 2018	na	Institutional actors are able to use new and improved management, cooperation and networking instruments to enhance drought resilience in Afar and Somali Regional States.
Capacity development for strengthening the drought resilience of the pastoral and agro-pastoral population in the lowlands of Ethiopia	GIZ	MoA	2019 - 2022	na	State and non-state actors together with pastoral and agro-pastoral communities, have created the conceptual foundations for the rehabilitation and use of dry valleys.
Drought Resilience and Sustainable Livelihood Programme	AfDB			43m USD	na

(DRSLP)				
Pastoralist Areas Resilience Improvement through Market Expansion (PRIME)	USAID	October 2012-September 2017	62m USD	PRIME (Pastoralist Areas Resilience Improvement through Market Expansion) is a five-year project led by Mercy Corps Ethiopia in partnership with international and local organizations. Funded by the United States Agency for International Development (USAID), PRIME focuses on selected districts of Ethiopia's Afar, Oromiya and Somali regions.
Participatory Small-scale Irrigation Development Programme II	IFAD	2016 - 2024	114.5m USD (IFAD) + 18.72m USD (national Government) + 12.07m USD (beneficiaries)	reduce the impact of climate change, enhance economic growth and reduce rural poverty
Lowlands Livelihood Resilience Project	World Bank	05.2019 – 10.2025	451m USD	The development objective of Lowlands Livelihood Resilience Project is to Improve Livelihood Resilience of Pastoral and Agro-Pastoral Communities in Ethiopia. Four components. 1) Integrated Rangeland Development and Management; 2) Livelihood Improvement and Diversification; 3) Improving Basic Services and Capacity Building; 4) Project Management, Monitoring, and Evaluation.
RI-Regional Pastoral Livelihoods Resilience Project	World Bank	03.2014 – 03.2012	122m USD	Enhance livelihood resilience of pastoral and agro-pastoral communities in cross-border drought prone areas of selected countries and improve the capacity of the selected countries' governments to respond promptly and effectively to an eligible crisis or emergency. Five components: 1) natural resource management; 2) market access & trade; 3) livelihood support; 4) pastoral risk management; 5) project management & institutional support

Ethiopia Resilient Landscapes and Livelihoods Project	World Bank		08.2018 – 07.2024	129m USD	To improve climate resilience, land productivity and carbon storage, and increase access to diversified livelihood activities in selected rural watersheds. Four components: (1) Green infrastructure and resilient livelihoods; (2) Investing in institutions and information for resilience; (3) Rural land administration and use; (4) Project management and reporting
The R4 Rural Resilience Initiative	WFP and Oxfam America (+ for Ethiopia: KfW, Swiss Re, Margaret A. Cargill Foundation, Norway)	AIC, DECSI, Ethiopian farmers' cooperative, IRI, ISD, Mekelle University, NMA, Nyala Insurance, ORDA, REST, RIB Union	2009 – na	Overall 2,4m USD	Covering Tigray and Amhara regions in Ethiopia The goal is to enable vulnerable rural households to increase their food and income security in the face of increasing climate risks through improved natural resource management through asset creation or improved agricultural practices (risk reduction), microinsurance(risk transfer),increased investment, livelihoods diversification and microcredit(prudent risk taking) and savings (risk reserves.
Strengthening Drought Resilience in the Somali Region	SDC	Ethiopian Ministry of Water Resources (MoWR), Somali Region Bureau of Water Resources (BoWR), Somali Region Pastoral and Agro-Pastoral Research Institute (SoRPARI).	02.2014 – 03.2020	6m CHF	Target communities and responsible institutions in target districts (woredas) of the Somali Region implement drought resilience measures addressing the concerns of pastoralists and agro-pastoralists.
Strengthening Drought Resilience of the Pastoral and Agro-pastoral Populations in the	SDC	na	05.2022 – 12.2026	7m CHF	na

Lowlands of Ethiopia
(Somali Region)

2 Preparation of the workshop

2.1 Summary of meetings

To ensure cooperative planning and based on the close collaboration with the German Development Bank (KfW), a first scoping discussion was organised between KfW Ethiopia office, KfW, the UNU-EHS team and representatives from the InsuResilience Solutions Fund (ISF) on the 18th of October 2019. A face-to-face meeting with the respective KfW project manager was held on 5th of November 2019. Following the identification of the focal person of the Ministry of Agriculture of the Federal Democratic Republic of Ethiopia (MoA) an introductory call between the MoA, UNU-EHS, and ISF took place on 27th November 2019.

2.2 Defining the key stakeholders

During the preparation phase before the kick-off workshop several stakeholder groups were identified: (1) National Government (mainly MoA), (2) Regional Governments of the Afar and Somali regions, (3) NGOs/CSOs, (4) International Organisations and Consultants, and (5) Academia. To ensure regional representation, a total of five representatives of the two regions were invited and supported with project funds. For the full participants list of the workshop see **ANNEX 1**. The invitation letter was sent by the MoA and signed by the Director for the Natural Resource Management Directorate of the MoA. The invitation is available in **ANNEX 2**.

3 Workshop

3.1 Objectives

The objectives of the inception workshop concept, which was developed by UNU-EHS, are threefold. First, it is crucial to define a common understanding of the ECA study, the method and the expected results between all participants. Second, defining the scope of the study using a participative approach. The scope determines which hazards are selected, which area(s) will be studied, and what categories of assets are relevant. Time horizons and scenarios are discussed as well. Finally, the third objective of the inception workshop is to identify the availability of necessary datasets. Furthermore, BMZ voiced its interest in results of the ECA studies being used to expand and further develop projects of the bilateral portfolio between KfW and its partners. To achieve these objectives, the workshop was divided in **three different sessions**.

The first session contextualised the ECA Study with the work of the two regions, especially about present priorities and expectations. It also highlighted the existing adaptation measures and aims at setting the scene for the scope of the study in the two regions. The ECA methodology was presented in detail, with an example from previous studies. Space for questions was allocated. Eventually, different focus groups were created. Each group was formed according to the participants' particular stakeholder group (national Government, regional representatives, Academia, NGOs and International organization). Each group was tasked with three different questions:

* What are the group's main concerns regarding climate change?

* What is the respective role of the stakeholders?

* What role can the stakeholders play in promoting CCA?

Participants were subsequently invited to report in plenary. The detailed lists of participants per table is listed in **ANNEX 3**

The second session aimed at defining the scope of the study. To achieve this objective, participants were randomly divided in four different groups and and tasked with the following questions:

* Table 1: What are the most severe impacts of drought and who/ what is affected most and in what way?

* Table 2: Which groups and assets require greater protection?

* Table 3: What are the biggest challenges & opportunities in implementing Climate Change Adaptation for drought risk locally (Afar & Somali Region)?

* Table 4: Which is the most appropriate time frame for the ECA study based on existing national and regional strategies/ policies?

Participants were subsequently invited to report in plenary. The detailed lists of participants per table is listed in **ANNEX 4**.

The third session of the workshop was dedicated to explain what data are necessary and to identify which institutions are able to provide them. The method used includes discussion about the data required to conduct the study with the scope agreed upon during sessions one and two and the gaps with the data obtained so far. Subsequently, the so-called Data Gallery was open to participants, who were asked to write institutions and contacts for every type of dataset identified. Pathways were identified to get the missing information.

During a brief plenary session, gaps were filled as much as possible.

3.2 Agenda

The following agenda has been proposed based on the objectives described above. A full agenda is available in **ANNEX 5**.

Time	Activity	Expected outcomes
08:30 - 09:00	Registration	
09:00 - 09:45	Welcome Address Ministry of Agriculture Welcome Address KfW Welcome Address ISF	
Common Understanding		
09:45 - 10:30	Introduction to the ECA methodology and ECA Studies	Understanding of the ECA methodology and its benefits
Coffee Break/Group Picture		
11:00 - 12:15	Session 1 - Focus groups: roles and expectations of the stakeholder groups represented in the room	Role and expectation of various stakeholders are expressed
12:15 - 13:15 **Lunch Break**		
Setting the scope of the study		
13:15 - 14:30	Session 2 - Focus groups: Discussing the priority areas and target group of the study	What are the main impacts of drought in the two project areas? Which are the population and assets at risk?

		What are the most significant challenges/opportunities for implementing CCA in the regions? Time horizon and scenarios definition
14:30 - 14:45	Agreement on the Scope	
Coffee Break		
Data needs of ECA		
15:00 - 15:15	Data Needs and Data Gaps	Provision of focal points
15:15-16:00	Gallery Walk	Data Availability identified
Next Steps		
16:00 - 16:30	Next steps and timeline	Wrap-up and way forward
16:30 -17:00	Closing Remarks	MoA, KfW, ISF, UNU

3.3 Participants

In total, 21 participants (excluding the UNU-EHS & ISF team of four) attended the workshop in Addis Ababa, with representatives from the MoA, including the Director of the Natural Resource Management Directorate, representatives from the regions, representatives from universities, and international organisations. A list of participants is available in **ANNEX 1**. Their active contributions were documented for this report. Despite the satisfying turnout of participants, the intended diversity, particularly concerning gender, in representation was not met, only two women took part in the workshop. Due to the workshop being held in Addis Ababa, only a limited number of representatives of the regional governments and local communities could be invited. However, it is planned to gain more in-depth insight into the local perspective through field research (see Chapter 6 Conclusion and next steps). Before the workshop, a classification of the invitees into stakeholders groups was proposed based on the nature of the institution they worked for and their role in such an institution. According to this classification and the registration list shown in **ANNEX 1**, of the actual attendees, 29% represented the national Government, 24% regional representatives, 24% the academia and 24% International Organisations (including international consultants).

4 Results

4.1 Appropriation by stakeholders

To successfully design and implement any (climate) risk management plan, policymakers must rely heavily on the commitment of the different stakeholders that will be benefiting from it. Projects led by third parties, or building on a purely top-down approach, have high chances of excluding the knowledge and concerns of key groups and of developing biases when designing monitoring systems to measure the effectiveness of the adaptation measures. Keeping this in mind, the first objective of the ECA methodology is to involve stakeholders who can disseminate the results amongst all relevant groups, and empower them with an equal voice when defining the scope of the study and with the possibility to propose contributions to improve the final results of it.

At the inception workshop in Addis Ababa, the Director of the MoA's Natural Resource Management Directorate, Mr. Tefera Tadasse took the role to motivate the participants and highlight the importance of their active participation in order to make both, the workshop as well as the study a success. His opening address emphasised the link between the ECA study's expected outcomes with the MoA's engagement, especially in cooperation with KfW, in the respective regions with regard to drought resilience and adaptation to evolving challenges due to climate change.

4.2 Defining expectations

The first session of the workshop aimed at enabling a transparent conversation on climate risk management amongst participants. The results of each table are presented in the three sections below, with the entries shown in alphabetic order as no prioritization was requested at this point. Go to **ANNEX 6** for the pictures of the boards and notes of the workshop.

4.2.1 What are the group's main concerns regarding climate change?

All four groups identified in their own context the implementing capacity (technical, financial, organisational, informational, as well as adaptive capacity) as a bottleneck in climate change adaptation efforts. As a second key issue water resources and their management was identified, especially by the regional representatives and international organisations. See Table 1 below for a detailed reflection of the participants' responses. As no prioritisation was done the results are presented in alphabetical order with as little editing as possible.

Table 1 Climate-related concerns from participants by stakeholder group

Government	Regional Representatives	Int. Organisations/ NGOs	Academia
CC is a matter of existence	Absence of climate smart technology	Innovation must be adapted the traditional way	Better collaboration with practitioners in the field
Capacities to implement projects/policies	Drought frequency / flood risk	Lack of coordinated river basin management	Exchange of research results
Lack of provision of climate information	Expansion of encroachers	Lack of H2O use and rights	Impacts of invasive species => turn them into valuable resources
Technical and financial constraints [with regard to project implementation capacities]	Livestock disease	Lack of ownership by the government	Integrating information (fragmented)
	Overgrazing	Loss of indigenous adaptation practices	Long-term datasets on: weather, population, land use, settlement
	Rangeland rehabilitation	Low level of capacity at local level	
	Scarcity of water	O&M of infrastructures	
	Soil & Water conservation		

4.2.2 What is the respective role of the stakeholders?

All stakeholder groups identified their role within the policymaking process. While both the national as well as the regional level recognised their role in drafting new and targeted policies, the stakeholders representing the international organisations and academia find their role in supporting these processes through an advisory capacity and assisting in research activities and knowledge sharing. Capacity building in different forms (e.g. awareness creation, knowledge sharing) is named again by multiple stakeholders. The academia group strongly identify their role as enablers through generation of evidence and knowledge and connecting different fields of research while international organisations highlighted their role in financing projects, e.g. to proof applied technologies and provide other technical assistance and through that at least indirectly and in enabling the actual implementation of climate change adaptation measures, although it was not explicitly mentioned. From both the National as well as the Regional Government/ Representatives present little commitment to actual implementation, e.g. based on provided technical assistance, was indicated. See Table 2 with all the input from the participants, again in alphabetical order.

Table 2 Identified current roles in climate change adaptation per stakeholder group

Government	Regional Representatives	Int. Organisations/ NGOs	Academia

MoA is mandated to build resilience and capacities	Awareness creation	Financing of projects	Dryland forest management for CCA
Policy formulation	Developing strategies and policies	More defined policy (from Gov.)	Facilitating knowledge sharing
Provision of climate data	Monitoring & Evaluation and learning	Proof of applied technologies	More research for policy making / evidence
Supervision & Support / Coordination advisory	Promotion of climate smart technologies	Technical assistance e.g. from GIZ	Stakeholder operate in an interdisciplinary manner and optimize resources/knowledge
		Technology transfer	

4.2.3 What role can the stakeholders play in promoting climate change adaptation?

Awareness raising/ advocacy was a widely popular role in which most stakeholders saw themselves to promote climate change adaptation further. Both national and regional government representatives also identified the need for further mainstreaming of CCA planning. The academic representatives again identified their stakeholder group as being responsible for providing necessary analyses and data to unlock knowledge dissemination and provide a solid background for the other stakeholders' activities. Representatives from international organisations, as a third party, highlighted their coordinating role in promoting CCA. See Table 3 for further details.

Table 3 Self-defined potential roles in promoting climate change adaptation per stakeholder group

Government	Regional Representatives	Int. Organisations/ NGOs	Academia
Assisting to mobilize communities for different interventions	Advocacy	Awareness creation	Analysis of drought extent and intensity (spatial & temporal)
Mainstreaming climate action in different programs	Allocation of budget	Coordination	Exchange knowledge
More actors, existing coordination?	Capacities frontline implementation		Identify comparative advantages in Afar/Somali: Natural resources, minerals, salt, forest gums, livestock
Training & awareness creation	Mainstreaming CCA planning		Joint conference to promote CCA
			Knowledge and information repositioning system
			Promoting dryland forestry

4.3 Scope of the study

Flexibility is one of the major advantages of the ECA methodology. While being able to be applied on different scales from very particular locations up to entire regions it can also be employed for a multitude of climate related hazards such as for example droughts, floods, storm surges, or tropical storms. Combined with its flexibility regarding the time horizon of the analysis a large number of combinations is imaginable. However, given time constraints as well as high data requirements it is sensible to focus on one particular set of the different options to improve and target the analysis' results. Hence, a clear scope needs to be defined in a consultative process led by the stakeholders before further steps are taken. The definition of the scope, i.e.

- Observed hazard(s),
- Focus area and time horizon,
- Assets, and
- Local challenges and opportunities for CCA,

strongly shapes the final results.

To define the scope of the study the participants were randomly assigned to four groups in order to have representatives of each stakeholder group voicing their own concerns on all issues. See **ANNEX 4** for the list of participants per group.

During a group work session boards where prepared by each group and subsequently presented to and discussed in plenary to reach a consensus. Table 4 summarises the final results of the group work (for pictures of the boards see **ANNEX 7**). For each element of the scope, according to the list above, the considerations taken by each group when making their decisions and the final decision made by them are shown in Table 4. Decisions were discussed and finalised through consensus in plenary. Due to the close relationship with the KfW sustainable drought resilience project, the study region and the observed hazard were predefined as the Afar and Somali regions and drought respectively.

Table 4 Scope of the study

Group's Focus	Considerations	Decisions and Comments
Hazard (Drought)	Livestock: • Death • Diseases • Feed and water shortage People • Livelihoods demands on natural resources • Food insecurity • Conflicts • Diseases (80% waterborne) • Shortage of water • Social service disruption Ecosystems • Grazing space expanding • Deforestation Crops • Maize & Sorghum • Low yields	All considerations are relevant and should be reflected in the selection of assets as well in the long-list of adaptation measures during more advanced steps of the study.

	• Crops failure • Not suitable for human consumption	
Assets	Potential assets identified by the group in alphabetical order: • Biodiversity • Crops/Farming land • Household assets (physical) • Livestock (with subcategory of lactating animals) • Market disruption • Meat exporters • People (incl. women, children, elderly, disabled) • Rangelands (trees, shrubs, bushes) • Social bonds + capital • Soils • Water resources (hydropower, hygiene (WASH), irrigation,…) • Wildlife	The following six asset groups were identified to be relevant and feasible to be covered: • People • Livestock • Water resources • Rangelands • Crops/Farming land • Household assets The final set of assets reflects very well the characteristics of the local pastoral and agro-pastoral communities.
Time horizon	Needs to be aligned with existing national and regional strategies E.g. the Climate Resilient Green Economy (CRGE) strategy aims for Ethiopia reaching a middle income status by 2025 and a carbon neutral economy by 2030[24]. Based on this a 10 year time frame was discussed.	No definite decision was made A task force was proposed to review existing policy papers in order to define the time horizon The option of two scenarios was left open
- Challenges and Opportunities with regard to potential adaptation measures	**<u>Challenges:</u>** • Institutions (structural challenge) • Conflicts (as a result of pasture) • Destructive floods (boulders, big stones, etc.) • Biophysical challenges (water, soil, topography) • Accessibility (long distances) • Pastoral livelihoods are not fully understood • Harsh environment – settlement of people • Long-term engagement of projects / establish sustainable networks • Establishing relationships with stakeholder groups takes time • Mobility (people) • Skilled people at local level **<u>Opportunities</u>** • Reservoirs, dams, weirs, rehabilitation • Training centres for pastoralists • Higher attention by new prime minister for lowland areas • Institutions for pastoral development	No prioritisation was made It is strongly suggested to conduct a small separate workshop/ study in the regions to get the direct inputs from affected people, especially regarding existing measures and specific needs on the ground

[24]Federal Republic of Ethiopia (2019). Ethiopia's Climate Resilient Green Economy. National Adaptation Plan

- TVETs for skill development
- Different drought resilience projects (finance)
- Prosopis (plant) clearing + use => Reseeding of rangeland => Preservation + management of grasslands
- Savings on bank accounts

4.4 Data needs and sources

The final activity of the workshop is related to data requirements and gathering based on the previously defined scope. In addition to available datasets online and from partner organisations, a discussion between key stakeholders helps in filling data gaps and in improving data quality. In addition, it helps in identifying focal points, who can support in collecting further information. Simultaneously, participants are reminded about the requirements to a successful ECA methodology, while offering an additional opportunity to contribute to the quality of the final result actively.

Some of the fields of data requested include:

- Aerial images/ satellite,
- Cadastre and infrastructure,
- Data on cost of recuperation,
- Governance and institutions,
- Historical data on damages (images),
- Household data,
- Hydrology and precipitation,
- Impacts of catastrophic events,
- Infrastructure (Road infrastructure, drainage, water supply…),
- Meteorological data,
- Regional policies and strategies,
- Recovery of degraded ecosystems,
- Risk management,
- Social infrastructure,
- Social organizations,
- Socio-economic factors,
- Urban patterns.

Pictures of the boards and notes of the workshop are available in **ANNEX 8**. The upcoming data report will provide more detail on the obtained and available data as well as on the identified gaps and the strategy to address those through e.g. proxies.

4.5 Satisfaction from participants and feedback

Given the participatory character of the workshop, the participants' feedback on the relevance of the activities, the clarity of discussed subjects and the use of time and other resources, is critical to refining the implementation of the ECA methodology. At the end of the workshop, the link of an online survey

was circulated. The overall results were positive and yet provide insights on the potential to be considered in future workshops. The survey was answered by 13 participants, roughly 60% of all the attendees (excluding the UNU-EHS and ISF team). The details of the survey are presented in **ANNEX 9**.

5 Other Activities

5.1 Field visit

Based on the close cooperation with the KfW project "Strengthening Drought Resilience in Ethiopia" one UNU-EHS team member was invited to join a field mission planned independently by KfW to the Afar Region for two days during the week before the workshop. During the first day a plant nursery with different grass varieties as animal fodder as well as a savings cooperative with 57 women and 7 men in the Asayita Woreda were visited. In the afternoon a nursing school was visited where young adults are being trained on basic medical, health and dietary measures during a programme of several months after which they return to their communities and act as a person of contact. The second day was used by the KfW team and the contracted consulting team to meet with two deputy heads of the Bureau of Pastoral and Agriculture Development (BoPAD) with different foci. Although the field mission was not tailored for the planned activities of the ECA study but rather for KfW's own purposes it provided some valuable insights into the local context as well as contacts to representatives of the Local Government in the Afar Region. Pictures can be found in **ANNEX 10**.

5.2 Meetings

On the days before and following the workshop several meetings were held in order to get further contacts and engage with potential data sources and organisations that may support the process of the study. During almost all meetings the study and its methodology was welcomed, among others with the argument that such an integrated tool as CLIMADA is missing in the climate risk analysis landscape in Ethiopia. Table 5 below summarises the meetings.

Table 5 Summary of meetings

Date	Attendees	Summary
17.12.19	Tigistu G. Abza (Director, Ministry of Agriculture and Natural Resources, MoA, Rural Land Administration & Use Directorate), Maxime Souvignet, Eike Behre, Florian Waldschmidt (all UNU EHS)	Introduction to ECA Methodology Data on crop as well as livestock in the relevant regions will be shared A regulation document on land valuation practices of the MoA will be shared.
17.12.19	Dr. Berhanu Gebremedhin (International Livestock Research Institute, ILRI), Maxime Souvignet, Eike Behre, Florian Waldschmidt	Introduction to ECA Methodology Data sharing possible, but official request letter needs to be sent to HQ in Nairobi Baseline survey on Regional Livelihoods Resilience Project was shared

		Contacts to Livestock Insurance Programme manager, based in Nairobi, was shared. Knowledge on livestock models and their migration patterns might be available.
18.12.19	Damtew Berhanu (Central Statistical Agency, CSA), Eike Behre, Florian Waldschmidt	Introduction to ECA Methodology Household data are scarce, in Afar only 2 out of 5 zones, in Somali only 4 out of 12 zones; mostly limited to settled (non-nomadic) communities. Agricultural census to be conducted 2020 Cooperation has been offered for further surveys and missions Rural facility survey is currently being updated and can be shared when finished For data sharing an official request letter to the General Director is needed (support in drafting was offered) Reports/ data were shared on: seasonal agriculture data, Area and production of major crops, Farm structure survey, Livestock survey, Integrated Surveys on Agriculture – Ethiopia Socioeconomic Survey Shared contacts of experts from Agriculture, Environment and Natural Resources Directorate: Ahimed Ibrahim (ahmedcsa2006@gmail.com), Ali Abdulhakim (aliatg2000@gmail.com)
18.12.18	Esayas Lemma (MoA, Crop Development Directorate), Eike Behre, Florian Waldschmidt	Introduction to ECA Methodology Gates Foundation has model/ data on livestock movement Soil fertility is high, but stable livestock farming will deplete caring capacity and outpace recovery Integrated approach between institutions on modelling, e.g. climate and agriculture/ livestock, is missing. Existing models are not able to fully inform decision makers. Ministry of Peace might have a long term development strategy, potentially including livestock programme Data was shared on: Production and productivity report for major crop season Crop utilisation: subsistence, fodder, and sale Usage of extension services, fertilizer, irrigation Land utilisation Second season (Production, land use, farm management among others) Crop characterisation, fodder vs. food crops High interest on CLIMADA was expressed, information on CLIMADA and ECA methodology will be shared
18.12.19	Melesse Lemma (National Meteorological Agency, NMA), Eike Behre, Florian Waldschmidt	Introduction to ECA Methodology List and map of all active weather station, incl. data gathering capacities and geolocation, was shared Data (historical drought, primary data of stations) can be bought or shared via an institutional approach if MoA requests on study team's behalf NMA uses the Standardised Crop Production Index (SCPI) for their models.

6 Conclusions and next steps

This report describes the Economics of Climate Adaptation (ECA) inception workshop as organised and implemented by UNU-EHS for Ethiopia in December 2019. This study's results are immediately relevant for the project implementation of the second phase of the MoA-KfW program "Strengthening the drought resilience of the pastoral and agro-pastoral population in the Afar Region" which is expected to be extended in the Afar and Somali region, based on fund availability. The ECA study's main objectives are to support decision-makers in Ethiopia in further developing their adaptation strategy and to develop climate change adaptation (CCA) measures investment portfolios. The results shall help therefore to assess relevance and potential of possible risk transfer solutions and adaptation measures. Such solutions shall be embedded into existing policies and plans of Afar and Somali and contribute to a more informed decision regarding adaptation options to drought. Direct benefits for the communities include, but are not limited to, i) a better risk analysis, ii) a detailed assessment of potential damages on selected assets, iii) a ranking of adaptation measures, including risk transfer, ecosystem-based adaptation, and already planned measures, iv) a detailed and spatial visualisation of benefits (as compared to costs) for the regions of Afar and Somali.

The general results of the inception workshop, based on a participatory approach developed by UNU-EHS, include:

1) a common understanding of the ECA methodology, its added value and potential as well as limitation for the respective regions. This common understanding is documented in the feedback form filled by participants, as well as by a large attendance of the workshop activities.
2) a decision by stakeholders regarding the scope of the study. The ECA study will focus on drought risk, in two different regions, with a highlight on crops and livestock. A time horizon has not been selected yet.
3) datasets availability and location has been identified during the data gallery session. Stakeholders have shown a great commitment to locate and provide all available data necessary to the study. Data collection is on-going.

Specific results of the workshop are detailed below:

Hazard: Drought risk, already discussed before the workshop has been confirmed by participants and specific impacts have been discussed.

Focus Area: Specific areas in the Afar and Somali regions were not selected and the whole regions will be considered. Depending on the asset types, a special focus could be given to arable land for instance.

Time Horizon: No definite decision was made. A task force was proposed to review existing policy papers in order to define the time horizon. The option of two scenarios was left open.

Assets: The following six asset groups where identified to be relevant and feasible to be covered:

- People
- Livestock
- Water resources
- Rangelands
- Crops/Farming land
- Household assets

Adaptation measures: several opportunities and limitations have been identified for adaptation measures, it was emphasised that it was difficult to prioritize. It is strongly suggested to conduct a small separate workshop/ study in the regions to get the direct inputs from affected people, especially regarding existing measures and specific needs on the ground.

In addition, we provide the work plan discussed at the end of the workshop. Figure 7 gives an overview of the main activities, including the main deliverables and milestones. The tentative timeline includes all three phases of the ECA study, covering the inception phase (delivery of the inception report in Feb-March 2020), the vulnerability phase with activities concentrated on modelling hazards, assets and expected damages now and in the future (vulnerability workshop in June 2020) and the final workshop with delivery of a feasibility study for selected measures (August 2020). Dates are indicative and subject to change.

Concrete next steps include:

Recruitment of local consultants: (Feb 2020, UNU) ToR are in review and will be distributed to potential candidates. The local consults will advise on the definition of the time horizon through literature review as well as key expert interviews, data gathering on the local/ regional level (see below), and the identification of relevant policies, strategies, and projects regarding adaptation measures.

Drought modelling (April 2020, UNU) A drought model is in development and is currently tested on the regions of Afar and Somali. Further developments are planned and shall be tested with available data.

Survey and small scale workshop for communities in Afar and Somali region (April 2020) As discussed during the workshop, it seems crucial that the views of the local communities are integrated in the final output of the ECA study. Therefore, a local survey/workshop shall be conducted to collect ideas and raise acceptance and ownership (see “Recruitment of local consultants”).

Data report (March 2020, UNU) A data report is expected to be circulated in April2020. It will include all available data as well as existing data gaps. Solutions and proxies shall be proposed in order to address these data gaps.

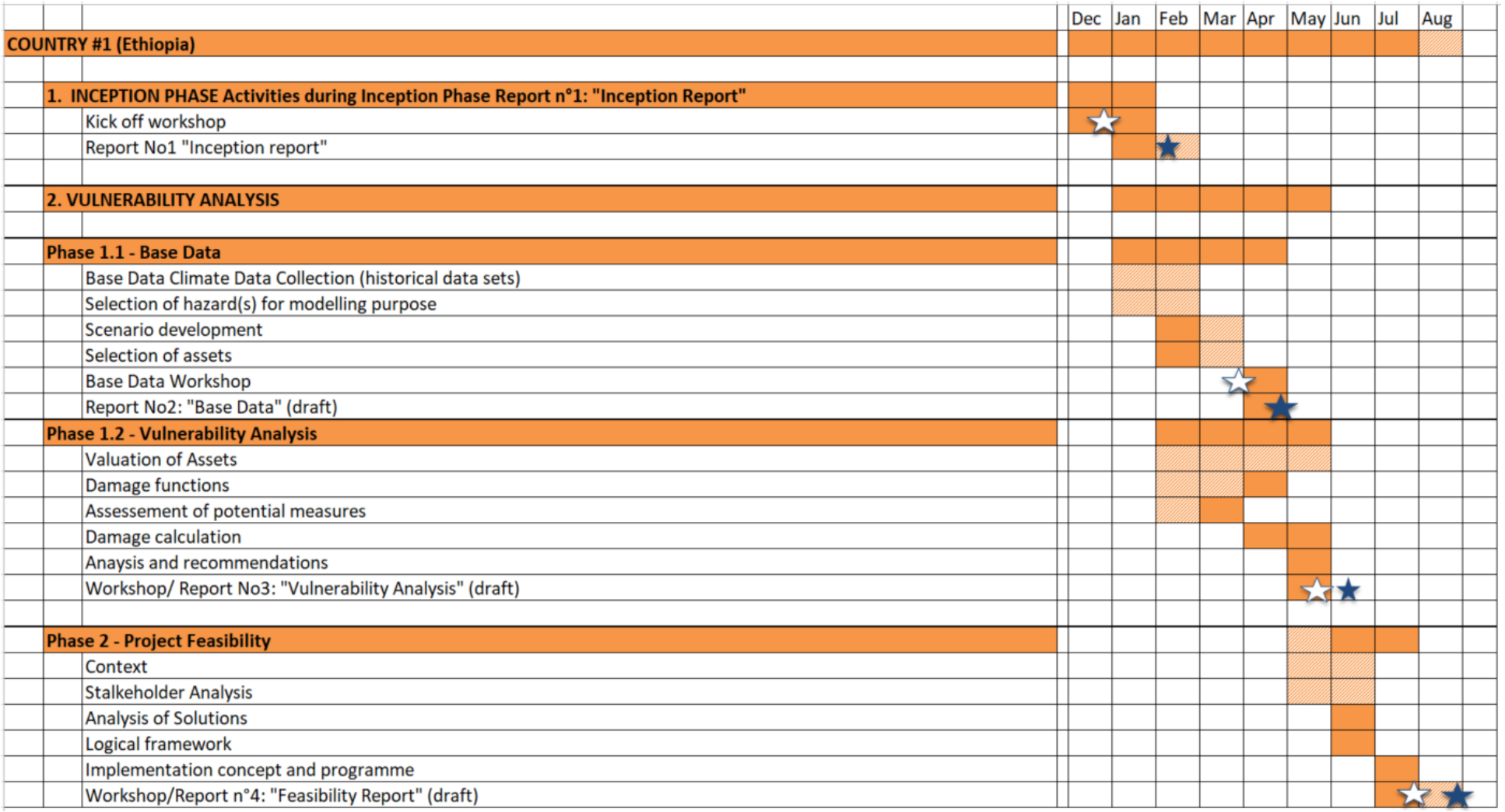


Figure 7 Timeplan of the ECA Study in Ethiopia with main workshops (white stars) and deliverables (dark stars)

Annexes

Economics of Climate Adaptation

ANNEX 1 – Participants list

MoA InsuResilience KFW UNITED NATIONS UNIVERSITY UNU-EHS

kEconomics of Climate Adaptation Inception Workshop
Nexus Hotel Addis Ababa, December 16th 2019
Registration

#	Name	Organisation	Role / Programme	E-Mail	Signature
1	Zerihun Woldu	Addis Ababa University	Forestry, climate nat. res./disaster		
2	Sebsebe Demissew	Addis Ababa University			
3	Brook Lemma	Addis Ababa University	Freshwater Ecology	brook.lemma@aau.edu.et	Brook L.
4	Zewdu Eshetu	Addis Ababa University	climate change	zewdu.eshetu@gmail.com	
5	Mohammed Assan	Addis Ababa University			
6	Adugna Tafesse	Addis Ababa University	Economics	adugnat2012@gmail.com	
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8	Walea Wittica	Afar Bureau of Water and Energy	Dep. Head of WB	wwittica2@gmail.com	

MoA InsuResilience KFW UNITED NATIONS UNIVERSITY UNU-EHS

9	Mohammed Adbulatife	Afra Pastoral and Agriculture Institute	NRM research Director	amame120@yahoo.com abdulatifemohammed@gmail.com	
10		CRGE Unit of Environment, Forest and Climate Change Commission			
11	Dr Zenebe Mekonnen	Environment and Forest Research Institute	Director, climate Scie	zenebemg2014@gmail.com	
12		Ethiopian Agricultural Research Institute			
13 ✓	Girma G. Medhin	Free Lance Consultant	Moderator Agriculture		
14	Ramiz Ciftci	GITEC	Team leader Natal-Time	r.ciftci@yahoo.com	
15	Dorothee Merkl	GIZ			
16	Melat Tiumelsan	GIZ	SDR. GIZ	melat.tiumelsan@giz.de	
17	Elisabeth van den Akker	GIZ			
18	Lena Laux	ISF			

19	Andreas Weitzel	KfW	Project Manager	andreas.weitzel@kfw.de	
20	Tesfaye Chekole	KfW	Program officer - KfW	Tesfaye.chekole	
21	Yirga Weldu	Mekele University	Dean, Dry land Agriculture & Natural resource	yirga.weldu@mu.edu.et	
22	Yosef Assefa	MoA, Natural Resources Management Directorate	National SDR project coordinator - [illegible]	yosef22@gmail.com	
23	Tefera Tadesse	MoA	Director of Natural Resources Management Directorate		
24	Daniel Balcha	MoA	Small Scale Irrigation Development Directorate	[illegible]	
25	Kasahun Abate	MoA	Environment and Climate Change Coordination Directorate	Kassbilen@gmail	
26	Adane Mengesha	MoA	Coordinator of Drought Resilient Sustainable Livelihood Project (DRLSP)	adanemen@gmail.com.	
27		MoA	Rural Land Use and Administration Directorate		

28	Haile Mariam Zara	MoA	Regional Pastoral Livestock Resilience Programme	zarahaile@gmail.com	
29	Dirtsuu Zekele	National Meteorological Agency	Met. Research and Studies	amakke2008@gmail	
30	Abdi Muhumed Abdi	Somali Bureau of Water and Energy	Planning Head	kooshin91@gmail.com africa1116@gmail.com	
31	Badal Kenadid	Somali region bureau of Agriculture	NRM - Director	badal.kenadid@gmail.com	
32	Florian Waldschmidt	UNU-EHS			
33	Eike Behre	UNU-EHS			
34	Maxime Souvignet	UNU-EHS			
35		World Bank			
36	Wendessen Gulelat	GOPA	DTL (Deputy Team Leader)	Wendessengulelat@yahoo.co.uk	
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ANNEX 2 – Invitation letter

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Federal Democratic Republic of Ethiopia
MINISTRY OF AGRICULTURE

ቁጥር No. 13/384/75/2004
ቀን Date 5/12/2019

To: Afar Region Livestock, Agriculture and Natural Resources Bureau

Semera

On behalf of the Ministry of Agriculture and Natural Resources, the KfW Development Bank, the Insuresilience Solutions Fund (ISF), and the United Nations University – Institute for Environment and Human Security (UNU-EHS), we would like to invite you to participate at the inception workshop of the **Economics of Climate Adaptation (ECA) study in the Afar and Somali Regions On December 16th 2019, 8.30 am – 5.00 pm At the Nexus Hotel, Addis Ababa**

The Economics of Climate Adaptation (ECA) methodology represents a unique approach towards the flexible identification of cost-effective climate change adaptation measures for a variety of projects and sectors thus ensuring a fully integrated process from risk assessment to the feasibility of concrete climate change adaptation measures. ECA allows identifying possible risk mitigating adaptation measures and risk transfer solutions as well as the quantification of costs and benefits of the respective measures.

A successful ECA study can be a crucial element to render and support future initiatives and projects based on the outcomes of the study, providing a solid ground for investment decisions. It enables governments, local authorities, communities and businesses through its unique quantitative and integrative approach to identify and consider suitable and cost-efficient climate change adaptation measures in the first stages of their climate change management and climate adaptation planning processes. The methodology can be flexibly applied and replicated from the national down to local level to different sectors and different hazards.

The United Nations University – Institute for Environment and Human Security (UNU-EHS), on behalf of the ISF, aims to coordinate and conduct the ECA study in collaboration with the Ministry of Agriculture of the Federal Democratic Republic of Ethiopia.

The inception workshop will introduce the methodology in greater detail according to the attached tentative agenda. Your participation in the workshop will provide valuable information and insights defining boundaries and foci reflecting needs and opportunities to boost climate resilience in the two regions of the study, Afar and Somali.

In case of any remaining questions, please do not hesitate to contact Ato Yosef Assefa on 0911089362 or E-mail: yosef22@gmail.com.

Best regards,

Tefera Tadesse
Director,
Natural Resources
Management Directorate

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Website www.moa.gov.et
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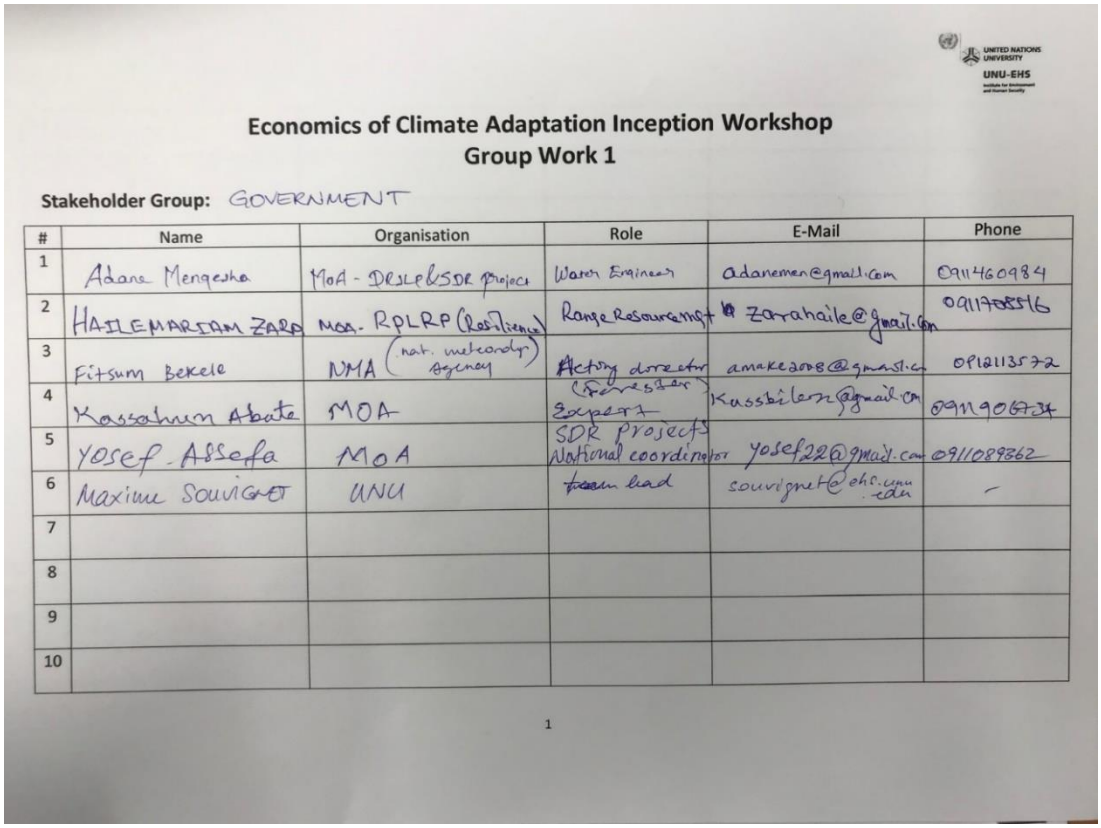
ANNEX 3 – Participants list, Session one



UNITED NATIONS UNIVERSITY
UNU-EHS

Economics of Climate Adaptation Inception Workshop
Group Work 1

Stakeholder Group: GOVERNMENT

#	Name	Organisation	Role	E-Mail	Phone
1	Adane Mengesha	MoA - DRSLP/SDR project	Water Engineer	adanemen@gmail.com	0911460984
2	HAILEMARIAM ZARA	MoA. RPLRP (Resilience)	Range Resource mgt	zarahaile@gmail.com	0911785516
3	Fitsum Bekele	NMA (nat. meteorolg Agency)	Actng director	amake2008@gmail.com	0912113572
4	Kassahun Abate	MOA	Expert (Forester)	kassbiles@gmail.com	0911906734
5	YOSEF ASSEFA	MOA	SDR Project's National coordinator	yosef22@gmail.com	0911089862
6	Maxime Souvignet	UNU	team lead	souvignet@ehs.unu.edu	-
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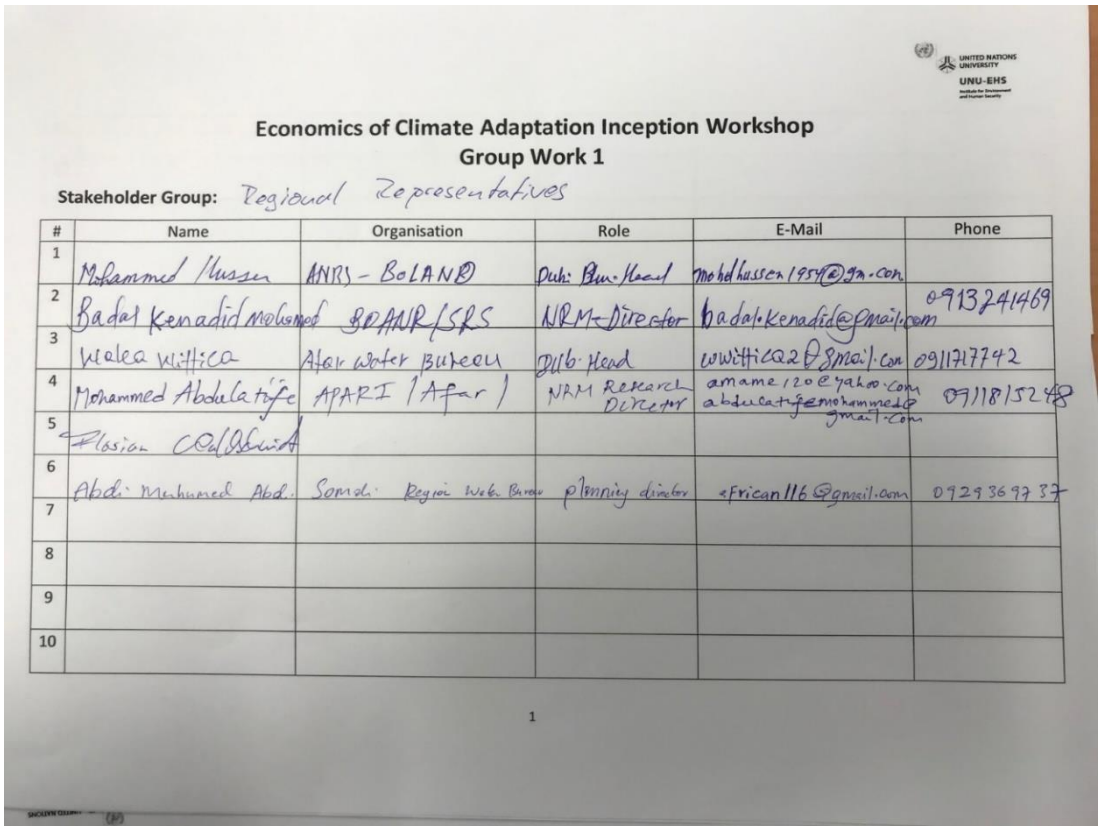

UNITED NATIONS UNIVERSITY
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Economics of Climate Adaptation Inception Workshop
Group Work 1

Stakeholder Group: Regional Representatives

#	Name	Organisation	Role	E-Mail	Phone
1	Mohammed Hussen	ANRS - BoLAND	Dvlt. Bur. Head	mohdhussen1954@gm.com	
2	Badal Kenadid Mohamed	BOANR/SRS	NRM-Director	badal.kenadid@gmail.com	0913241469
3	Wolea Witticа	Afar water Bureau	Dvlp. Head	wwitticа2@gmail.com	0911717742
4	Mohammed Abdulatife	APARI (Afar)	NRM Research Director	amame120@yahoo.com abdulatifemohammed@gmail.com	0911815248
5	Plasian Collbrick				
6	Abdi Mohamed Abd.	Somali Region Web. Bureau	planning director	efrican116@gmail.com	0923697737
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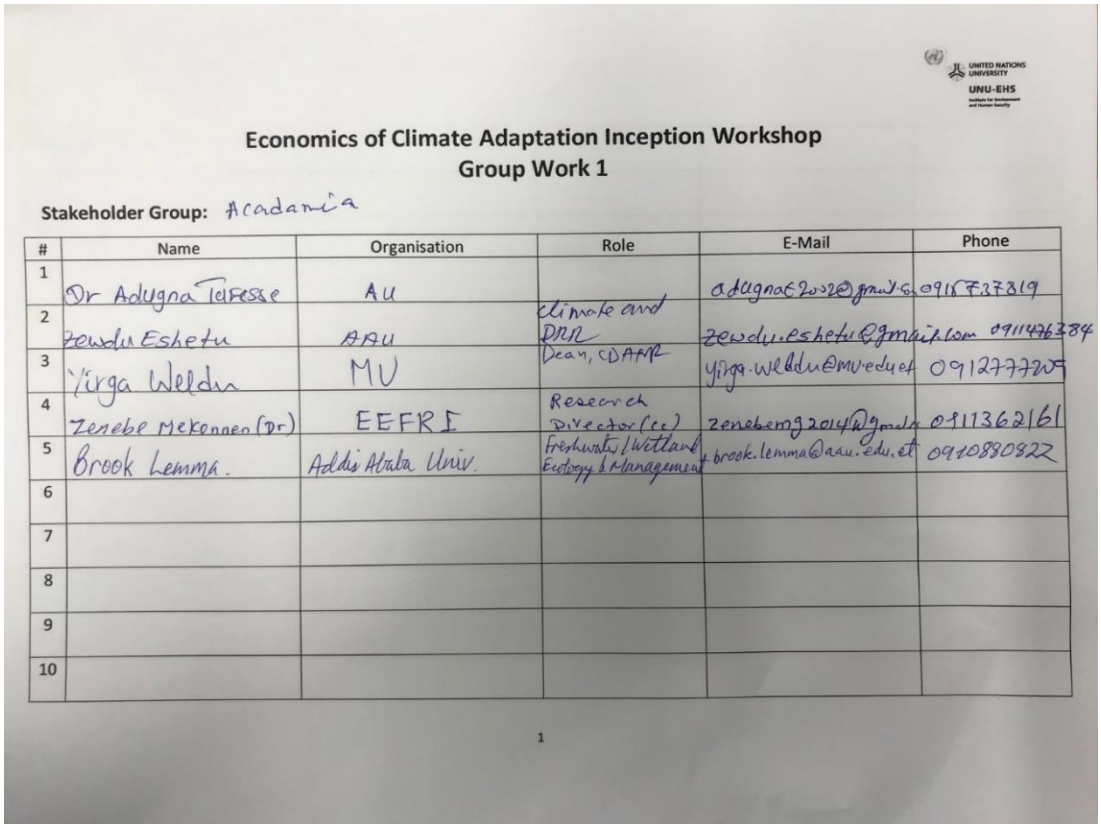

UNITED NATIONS UNIVERSITY
UNU-EHS

Economics of Climate Adaptation Inception Workshop
Group Work 1

Stakeholder Group: Academia

#	Name	Organisation	Role	E-Mail	Phone
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2	Zewdu Eshetu	AAU	Dean, CDAFR	zewdu.eshetu@gmail.com	0911476384
3	Yirga Weldu	MU		yirga.weldu@mu.edu.et	0912777209
4	Zenebe Mekonnen (Dr)	EEFRI	Research Director (ce)	zenebeng2014@gmail.com	0911362161
5	Brook Lemma.	Addis Ababa Univ.	Freshwater / Wetland Ecology & Management	brook.lemma@aau.edu.et	0910880822
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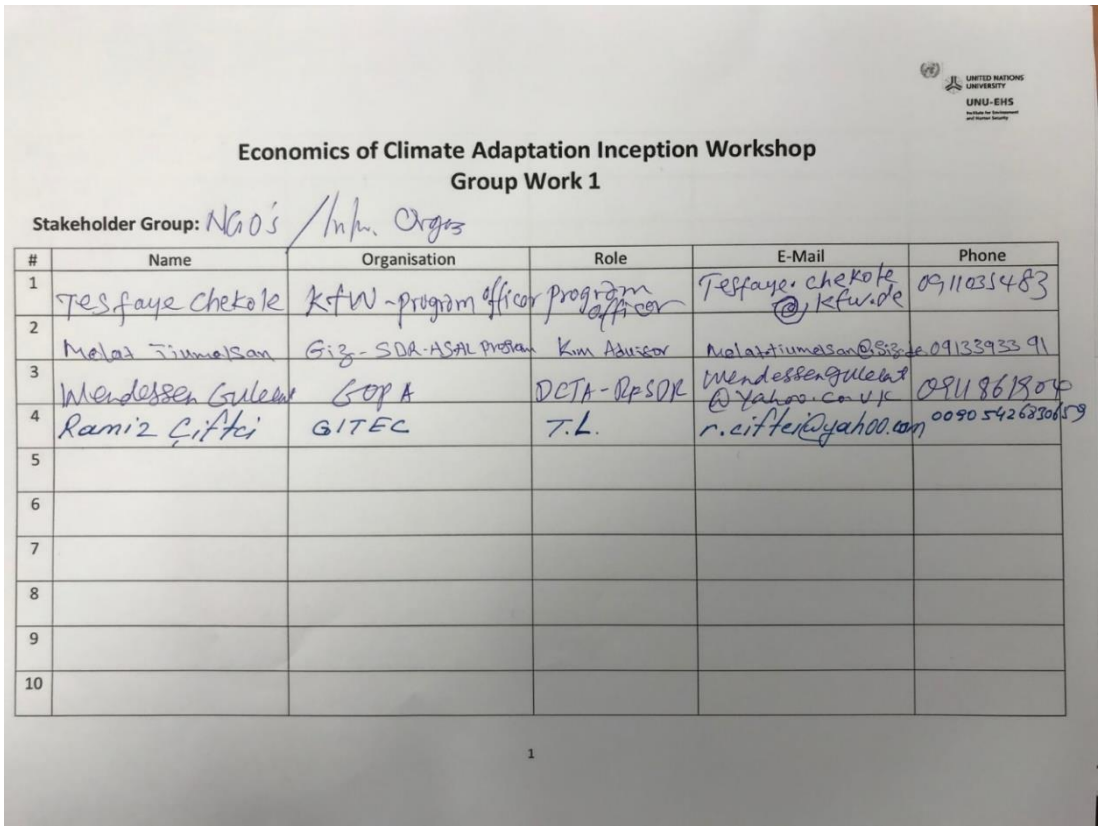

UNITED NATIONS UNIVERSITY
UNU-EHS

Economics of Climate Adaptation Inception Workshop
Group Work 1

Stakeholder Group: NGO's / Intn. Orgs

#	Name	Organisation	Role	E-Mail	Phone
1	Tesfaye Chekole	KfW - program officer	program officer	Tesfaye.chekole@kfw.de	0911035483
2	Melat Jimmalsan	Giz - SDR-ASAL Program	Kim Advisor	Melat.jimmalsan@giz.de	0913393391
3	Mendessen Gulema	GOPA	DCTA - RPSDR	mendessengulema@yahoo.co.uk	0911861804
4	Rami̇z Çi̇fti̇	GITEC	T.L.	r.ciftci@yahoo.com	00905426830659
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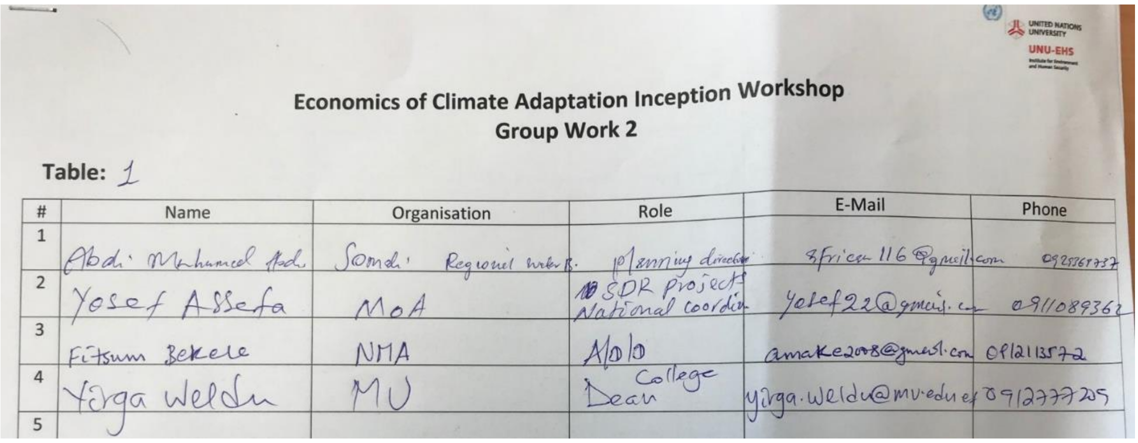
ANNEX 4 – Participants lists, Session 2



Economics of Climate Adaptation Inception Workshop
Group Work 2

Table: 1

#	Name	Organisation	Role	E-Mail	Phone
1	Abdi Mohamed Abdi	Somali Regional Water B.	Planning director	africa116@gmail.com	0925767737
2	Yosef Assefa	MoA	SDR Project National coordin	yosef22@gmail.com	0911089362
3	Fitsum Bekele	NMA	A/D/D	amake2008@gmail.com	0912113572
4	Yirga Weldu	MU	College Dean	yirga.weldu@mu.edu.et	0912777205
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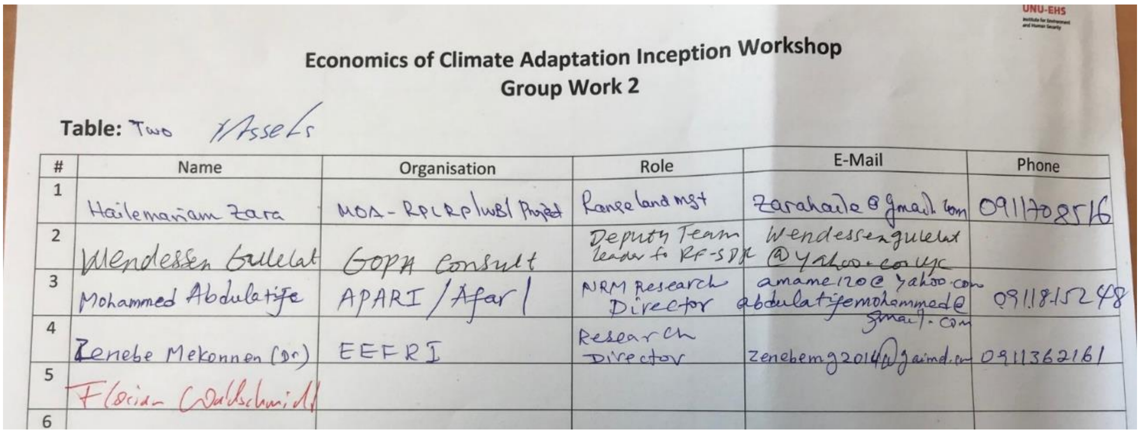

Economics of Climate Adaptation Inception Workshop
Group Work 2

Table: Two Assets

#	Name	Organisation	Role	E-Mail	Phone
1	Hailemariam Zara	MOA - RPLRP/WBl Project	Range land mgt	Zarahaile@gmail.com	0911708516
2	Wendessen Gullelat	GOPA Consult	Deputy Team leader to RF-SDR	wendessengulelat@yahoo.co.uk	
3	Mohammed Abdulatife	APARI / Afar /	NRM Research Director	amame120@yahoo.com abdulatifemohammed@gmail.com	0911815248
4	Zenebe Mekonnen (Dr)	EEFRI	Research Director	zenebemg2014@gmail.com	0911362161
5	Florian Waldschmidt				
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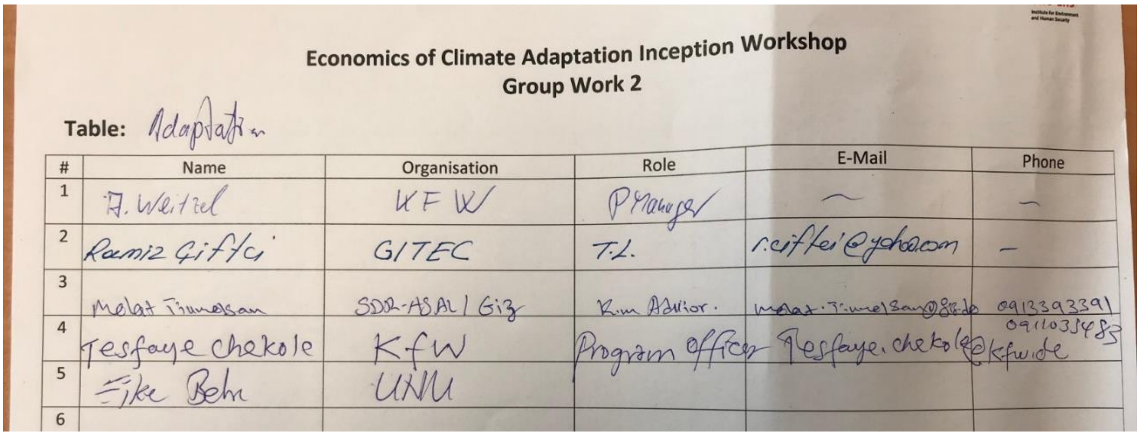
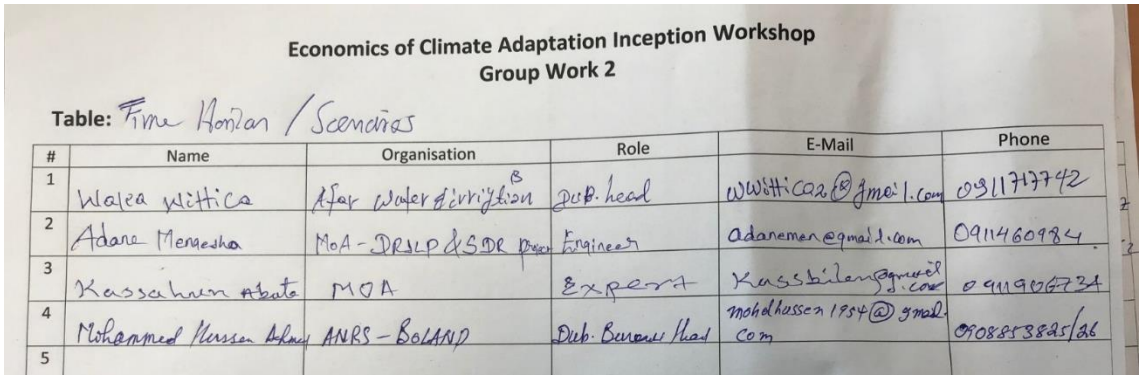


Economics of Climate Adaptation Inception Workshop
Group Work 2

Table: Adaptation

#	Name	Organisation	Role	E-Mail	Phone
1	A. Weitzel	KFW	P Manager	–	–
2	Ramiz Ciftci	GITEC	T.L.	r.ciftci@yahoo.com	–
3	Melat Tsumelsan	SDR-ASAL / Giz	R.m Advisor.	melat.tsumelsan@giz.de	0913393391
4	Tesfaye Chekole	KfW	Program officer	Tesfaye.chekole@kfw.de	0911033483
5	Eike Behre	UNU			
6					



Economics of Climate Adaptation Inception Workshop
Group Work 2

Table: Time Horizon / Scenarios

#	Name	Organisation	Role	E-Mail	Phone
1	Walea Witica	Afar Water & Irrigation B	Dep. head	WWitica2@gmail.com	0911717742
2	Adane Mengesha	MoA - DRLP & SDP	Engineer	adanemen@gmail.com	0911460984
3	Kassahun Abate	MOA	Expert	Kassbilen@gmail.com	0911906734
4	Mohammed Hussen Ahmed	ANRS - BOLAND	Dub. Bureau Head	mohdhussen1854@gmail.com	0908853825/26
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ANNEX 5 – Agenda

MoA

InsuResilience Solutions Fund

KFW

UNITED NATIONS UNIVERSITY
UNU-EHS

Inception Workshop

16th December 2019, Nexus Hotel, Addis Ababa, Ethiopia

"Economics of Climate Adaptation (ECA)"

Application of the ECA methodology to identify and select cost-effective climate change adaptation measures in the Afar and Somali Region in Ethiopia.

Time	Activity	Expected outcomes	Speakers
08:30 - 09:00	Registration	List of attendees	
09:00 - 09:45	Welcome Address	Welcome to the attendees from the Ministry of Agriculture / Brief description of the project and expectations for the day	Ministry of Agriculture
	Welcome Address	Setting the frame: Overview of previous work on Climate Change Adaptation (CCA) Measures in the Afar & Somali Region	KfW
	Welcome Address	Introduction of ISF and expectations for the case study	ISF
		Common Understanding	
09:45 - 10:30	Introduction to the ECA methodology and ECA Studies	What is ECA and how is it different from other approaches?	UNU
		10:30 -11.00 **Coffee Break/Group picture**	
11:00 - 11:45	Round 1 - Focus groups: roles and expectations of the sectors represented in the room	4 different tables: * Which are the main concerns of the sector in regards to CCA? * What is the role of the sector and the attendees in CCA? * Which actions have the sector taken and what is in the pipeline?	Representatives of the different sectors
11:45 - 12:15	Plenary	Presentation and discussions of the outputs of the previous exercise	Representatives of the different sectors
		12:15 - 13:15 **Lunch Break**	
		Setting the scope of the study	
13:15 - 14:00	Round 2 - Focus groups: Discussing the priority areas and target group of the study	* Group 1: What are the main impact of drought in the two project areas? Also compare between the past and now. * Groups 2: Which are the population and assets that require most urgent action? * Group 3: What are the biggest challenges/opportunities for implementing CCA in the region? * Group 4: What is a good time horizon for the study? What scenarios are	Group work on multi-sectoral tables

		expected for the next decades in terms of population and socio-economic development?	
14:00 - 14:30	Plenary	Presentation and discussions of the outputs of the previous exercise	Representatives of each table
14:30 - 14:45	Agreement on the scope	Presentation of the room's agreements on the different elements of the scope of the study	UNU
		14:45 - 15:00 **Coffee Break**	
15:00 - 15:15	Presentation on data needs, data collected to date and data gaps	Provision of focal points and deadlines to complement and complete databases	UNU
15:15- 16:00	Gallery Walk	Finding out where the data might be available. 2 rounds of walk.	UNU
		Data needs of ECA	
16:00 - 16:30	Next steps and timeline	Wrap-up of the day and way forward	UNU
16:30 - 17:00	Closing remarks	MoA, KfW, ISF, UNU	Conveners

ANNEX 6 – Results, Session one

Economics of Climate Adaptation

Table 1: GOVERNMENT

Main concerns?
- Technical & Financial Problem
- CC is a matter of existence
- Capacities to implement projects/policies
- Lack of provision of climate information

Respective roles?
- MoA is mandated to build resilience and capacities
- Supervision & Support / Coordination advisory
- Policy formulation
- Provision of climate data

Role in promoting CCA?
- Training & awareness creation
- Mainstreaming climate action in different programs
- Assisting to mobilize communities for different interventions
- More actors exist. Coordination?

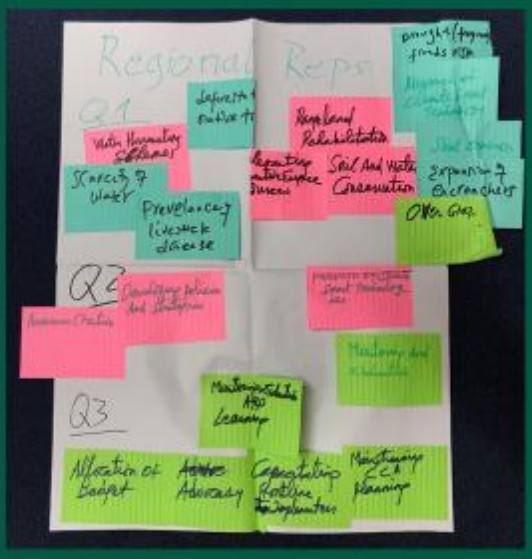
Economics of Climate Adaptation

Table 2: REGIONAL REPRESENTATIVES

Main concerns?
- Scarcity of water
- Livestock disease
- Rangeland rehabilitation
- Soil & Water conservation
- Drought frequency / flood risk
- Absence of climate smart technology
- Soil erosion
- Expansion of encroachers
- overgrazing

Respective roles?
- Awareness creation
- Developing strategies and policies
- Promotion of climate smart technologies
- Monitoring & Evaluation and learning

Role in promoting CCA?
- Allocation of budget
- Advocacy
- Capacities frontline implementation
- Mainstreaming CCA planning



Economics of Climate Adaptation

Table 3: NGOs/INT. ORGANIZATIONS

Main concerns?
- Loss of indigenous adaptation practices
- Lack of ownership by government
- Sustainable investments (O&M)
- O&M of infrastructures
- Population pressure VS. limited livelihoods
- Low level of capacity at local level
- Lack of coordinated river basin management
- Innovation must be adapted the traditional way
- Lack of H2O use and rights

Respective roles?
- Technical assistance form-like GIZ
- More defined policy (from Gov.)
- Proof of applied technologies
- Technology transfer
- Finance from donors
- Knowledge management & Ownership

Role in promoting CCA?
- Awareness creation
- Coordination

Economics of Climate Adaptation

Table 4: ACADEMIA

Main concerns?
- Exchange of research results
- Better collaboration with practitioners in the field
- Integrating information (fragmented)
- Impacts of invasive species => turn them into valuable resources
- Long-term datasets on: weather, population, land use, settlement

Respective roles?
- Stakeholder operate in an interdisciplinary manner and optimize resources/knowledge
- Dryland forest management for CCA
- Facilitating knowledge sharing
- More research for policy making / evidence

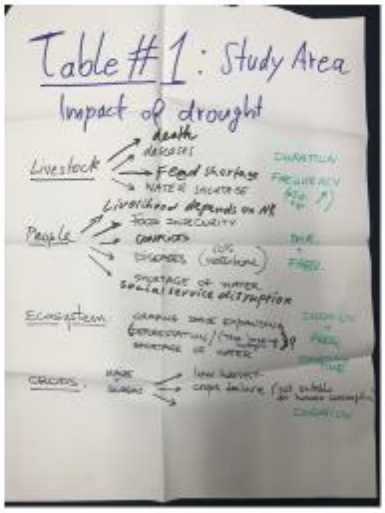
Role in promoting CCA?
- Joint conference to promote CCA
- Exchange knowledge
- Identify comparative advantages in Afar/Somali: Natural resources, minerals, salt, forest gums, livestock
- Analysis of drought extent and intensity (spatial & temporal)
- Knowledge and information repositioning system
- Promotion of dryland forestry

ANNEX 7 – Results. Session two

Economics of Climate Adaptation

Table #1: Study Areas and Impact of Drought

1. Livestock
   - Death
   - Diseases
   - Feed shortage
   - Water shortage
2. People
   - Livelihoods demands on natural resources
   - Food insecurity
   - Conflicts
   - Diseases (80% waterborne)
   - Shortage of water
   - Social service disruption
3. Ecosystems
   - Grazing space expanding
   - Deforestation
4. Crops
   - Maize & Sorghum
   - Low yields
   - Crops failure
   - Not suitable for human consumption



Economics of Climate Adaptation

Table #2: Assets

1. **People** (incl. women, children, elderly, disabled)
2. **Livestock** (lactating)
3. Water resources (hydropower, hygiene (WASH), irrigation,….)
4. **Rangelands** (trees, shrubs, bushes)
5. **Crops**/Farming land
6. Household assets (physical)

Second tier assets:
- Meat exporters
- Biodiversity
- Soils
- Social bonds + capital
- Wildlife
- Market disruption

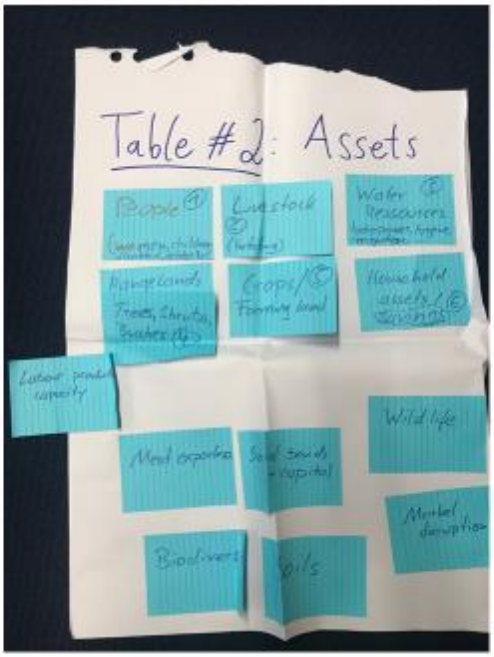


Table #3: Adaptation

Challenges:

- Institutions (structural challenge)
- Conflicts (as a result of pasture)
- Destructive floods (boulders, big stones, etc.)
- Biophysical challenges (water, soil, topography)
- Accessibility (long distances)
- Pastoral livelihoods are not fully understood
- Harsh environment – settlement of people
- Long-term engagement of projects / establish sustainable networks
- Establishing relationships with stakeholder groups takes time
- Mobility (people)
- Skilled people at local level

Opportunities

- Reservoirs, dams, weirs, rehabilitation
- Training centers for pastoralists
- Higher attention by new prime minister for lowland areas
- Institutions for pastoral development
- TVETs for skill development
- Different drought resilience projects (finance)
- *Prosopis* (plant) clearing + use => Reseeding of rangeland => Preservation + management of grasslands
- Savings on bank accounts
- Universities in pastoral areas

Economics of Climate Adaptation

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Table #4: Time Horizon and socio-economic development

Time-horizon

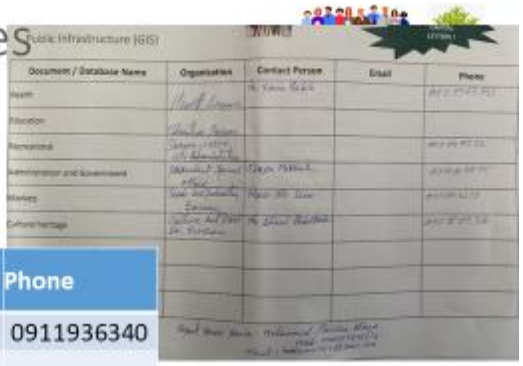
- Still needs to be defined an aligned with existing national strategies (ca. 30 years +)
- Proposal for task force to define time-horizon
- Policy revision needed

Socio-economic scenarios

- Proposal by KfW to conduct survey in the targeted areas to gather more specific socio-economic data on agro-pastoral communities (external/local consultant needed)

ANNEX 8 – Results, Session three

Assets and Communities



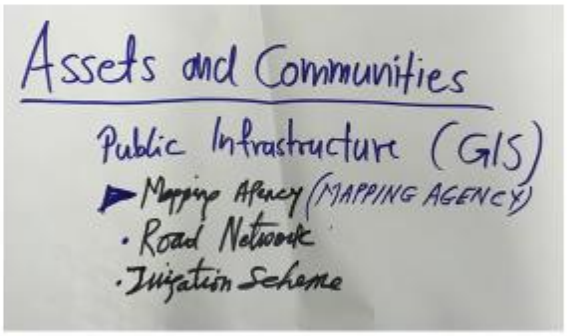
- Public Infrastructure (GIS)

  All only for Afar Region, report by Mohammed Hussen Ahmed, 0908853825/26, mohdhussen1954@gmail.com

Document / Database Name	Organisation	Contact Person	Email	Phone
Health	Health Bureau	Yasim Mabib		0911936340
Education	Education Bureau			
Recreational	Samera- Logia City Administration			0911409332
Administration and Government	President Special Office	Osman Mekbal		0914617995
Markets	Trade and Industry Bureau	Maar Ali Sino		0911897210
Cultural heritage	Culture and Tourism Bureau	Ahmed Abdulle Adu		0911819338

Assets and Communities

- Public Infrastructure (GIS)
  - Mapping Agency
    - Road Network
    - Irrigation Schemes

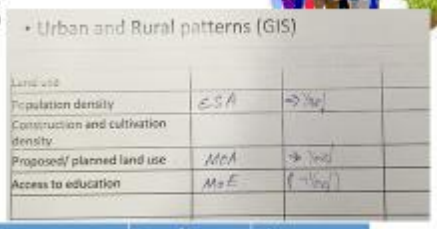


Assets and Communities

- Socio-economic Factors
  - Census: Somali Region, BoFED, Socio-Economic Department (0915059931)

Assets and Communities

- Urban and Rural patterns (GIS)



Document / Database Name	Organisation	Contact Person	Email	Phone
Land use				
Population density	Central Statistical Agency	(follow up with Yosef, MoA)		
Construction and cultivation density				
Proposed/ planned land use	Ministry of Agriculture	(follow up with Yosef)		
Access to education	Ministry of Education	(follow up with Yosef)		

Assets and Communities

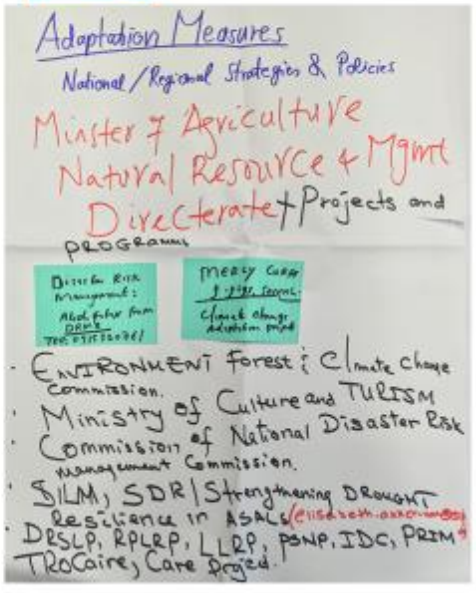

Cadaster and Infrastructure (GIS)

Document / Database Name	Organisation	Contact Person	Email	Phone
Cadaster				
Land values				
Asset values				
Road network				
Drinking water				
Drainage				

- Cadastre and Infrastructure (GIS)
  All only for Afar Region

Document / Database Name	Organisation	Contact Person	Email	Phone
Cadaster	Afar Study and Design Office	Ahmed Hussen		0910105282
Land values	Land Administration and Area [Protection] Bureau	Mohammed Kamil		0911709120
Asset values	Finance and Economic Development Bureau	Mohammed Hassen		0920289401
Road network	Road and Transport Bureau	Mohammed Te[y]ib		0914838328
Drinking water	Water, Irrigation and Energy Bureau	Walea Wittica	wwittica2@gmail.com	0911717742
Drainage	Water, Irrigation and Energy Bureau	Walea Wittica	wwittica2@gmail.com	0911717742

Adaptation Measures

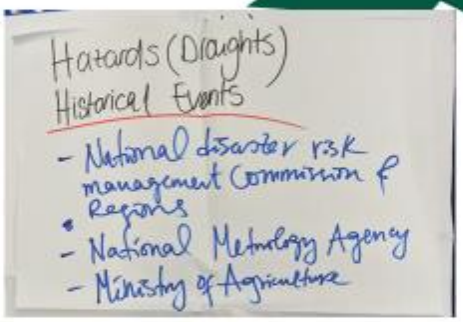


- National/ regional strategies and policies
  - Ministry of Agriculture, Natural Resource and Management Directorate (+ Projects and Programmes)
  - Disaster Risk Management: Abdi Falax from DRMB, 0915320761
  - Mercy Corps, Climate Change Adaptation Project, Jigjiga, Somali
  - Environment Forest and Climate Change Commission
  - Ministry of Culture and Tourism
  - Commission of National Disaster Risk Management
  - SILM, SDR/ Strengthening Drought Resilience in ASALs (Elisabeth.akker-van@giz.de)
  - DRSLP, RPLRP, LLRP, PSNP, IDC, PRIM, TROCaire, Care project

Hazards (Droughts)

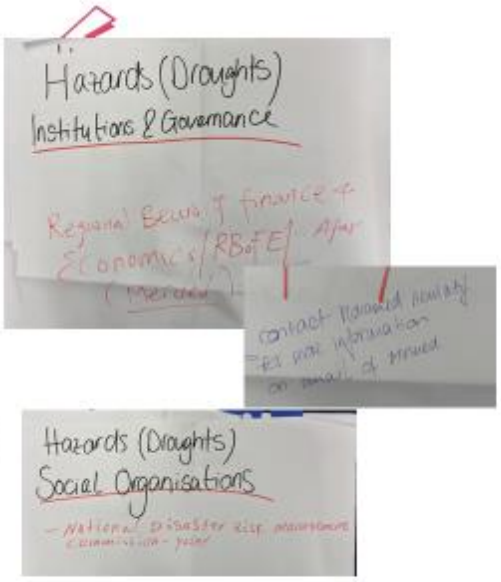
Please use CAPITAL LETTERS !

- Historical Events
  - National disaster risk management commission of regions
  - National Meteorology Agency
  - Ministry of Agriculture



Hazards (Droughts)

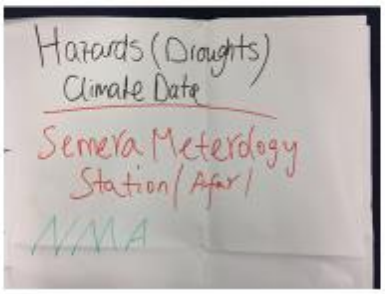
- Institutions and Governance
  - Regional Bureau of Finance and Economics (RBoFE) Afar (Contact Mohamed Abdulatife for more information and email of Mesued)
- Social Organisations
  - National Disaster Risk Management Commission (contact Yosef for details)



Hazards (Droughts)

- Photogrammetry
  - Afar Region Bureau of Finance and Economics (ARBoFE)
  - Ethiopian Mapping Agency

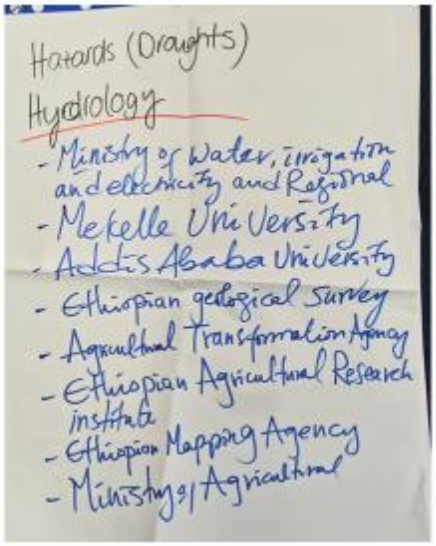
- Climate Data
  - Semera Meteorology Station (Afar)
  - National Meteorological Agency



Economics of Climate Adaptation

Hazards (Droughts)

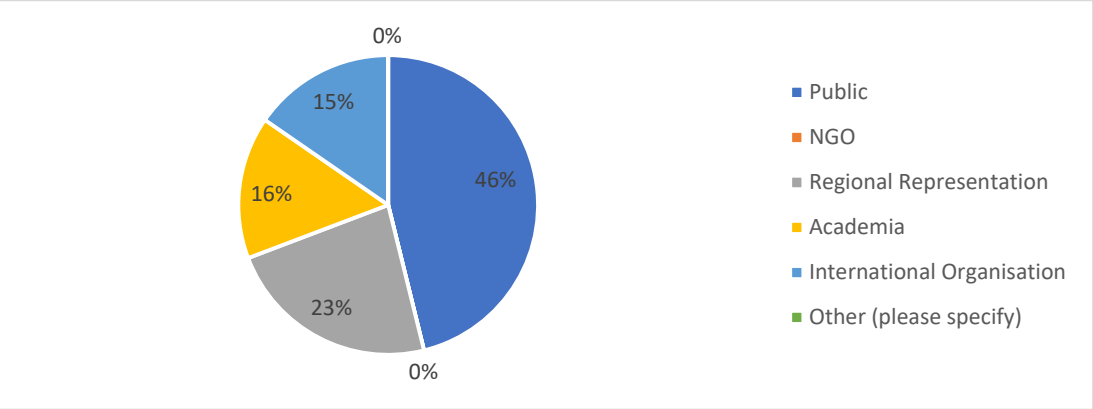
- Hydrology
  - Ministry of Water, Irrigation and Electricity and Regional
  - Mekelle University
  - Addis Ababa University
  - Ethiopian Geological Survey
  - Agricultural Transformation Agency
  - Ethiopian Agricultural Research Institute
  - Ethiopian Mapping Agency
  - Ministry of Agriculture



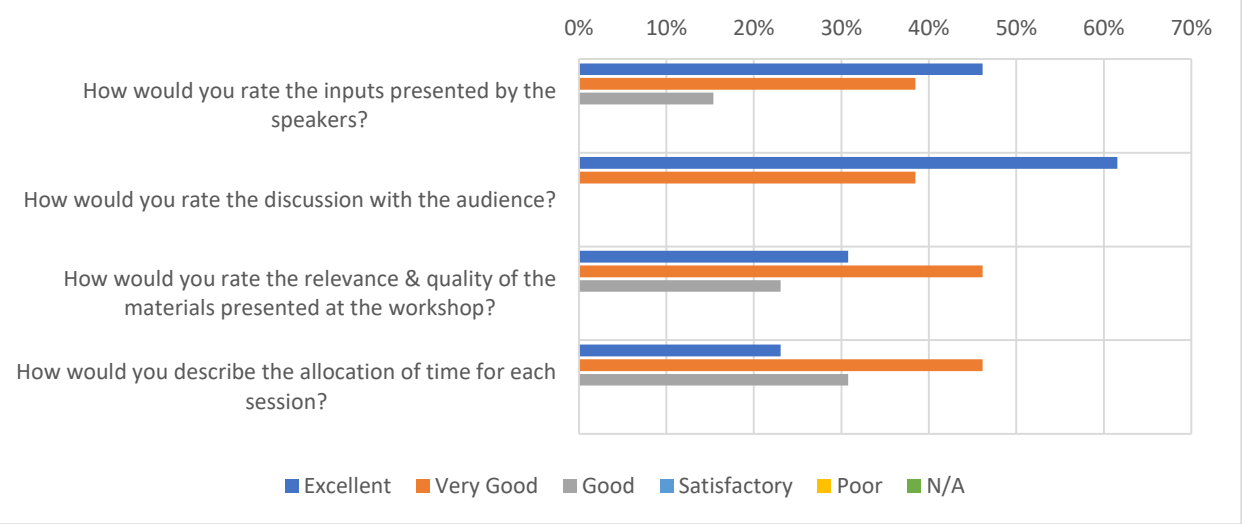
ANNEX 9 – Participant Feedback

In order to continuously refine the applied methodologies during the workshops and the stakeholder engagement process the participants were asked to fill a feedback questionnaire.
The overall positive results provide further insight on potential for improvement. Reassuring the team's impression, especially in comparison with the previous workshop in San Pedro Sula, Honduras, compressing the workshop in only one day does not allow for enough discussion room as can be read from the comments. As a further iteration of the survey an additional question (Question 7) regarding the understanding of the ECA concept was added. The results are presented in graphs A1 – A6 in more detail. All single choice questions were answered by 13 participants reflecting just above 60 per cent of all participants (excluding the UNU-EHS and ISF team of four) while not all of those responded on open questions for additional comments. Selected comments will be highlighted, spelling errors were corrected for better readability, and no other editing was done.

Question 1: Please state your stakeholder group.



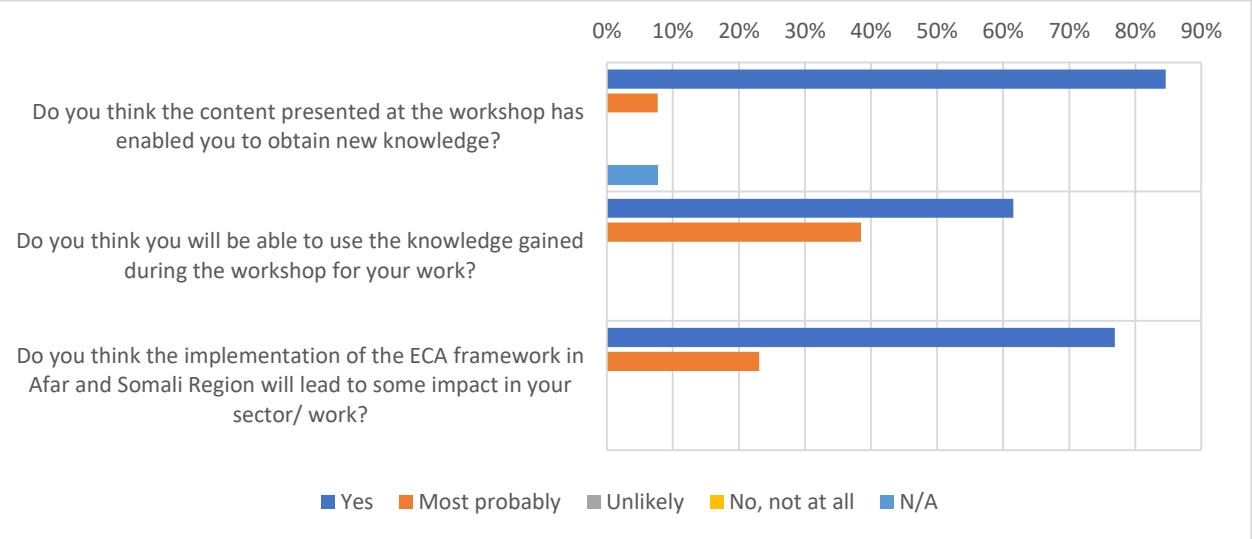
Question 2: Relevance of the content provided at the workshop.



Selected Comments:

The time allocated for this workshop was short.
As the issue under discussion is highly technical, it needs more time for the participants to discuss and understand well. The discussions was more general and what is more important is the specific tools for example how can we quantify and value social cost and benefit, environmental costs and benefits.
The content needs to be comprehensive which includes full experience of others
The content was very nice and relevant the topic under discussion, the time allocation was also very nice for both presenters and Discussion of the audience.
They were excellent.

Question 3: Impact of the workshop.



Selected comments:

Baseline study over the area including the community perception toward the project need to be assessed
Implementation of the ECA framework in Afar and Somali Region will change the livelihoods of the Pastoral and Agro-pastoral communities living in the two Regions. Therefore, I suggest quick implementation of the project.
It will be excellent

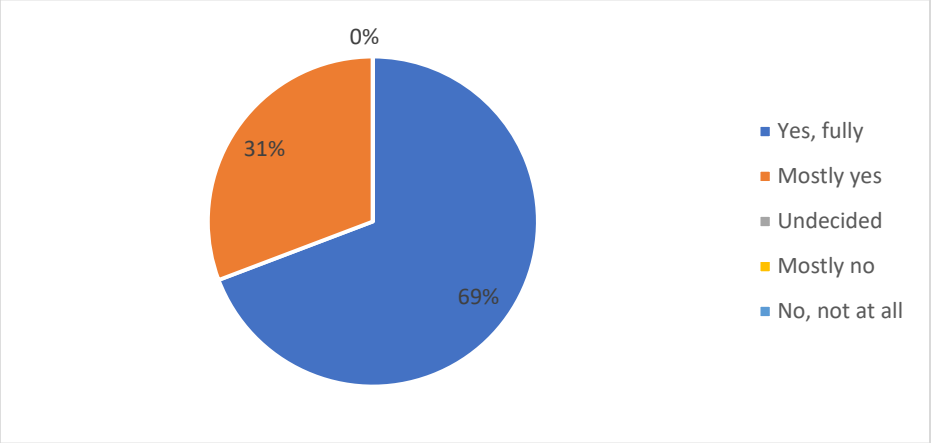
Question 4: Which session should have been more detailed?

This question did not provide predefined options, hence all collected responses are listed here.

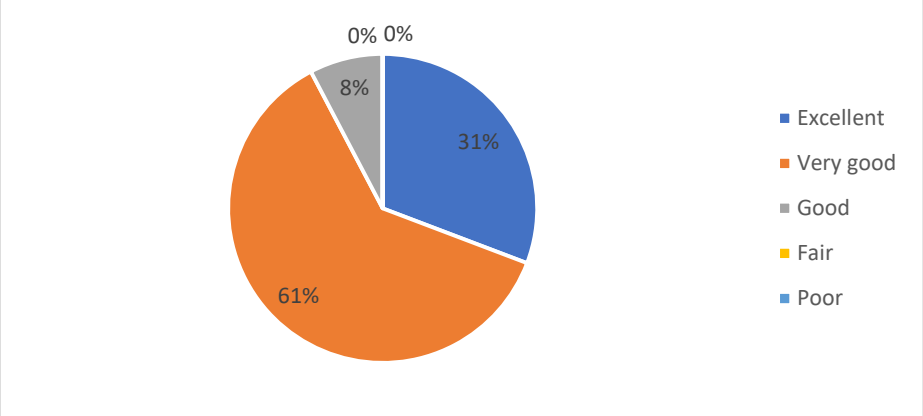
Both the presentation and the discussions of all topics
Session 2 [Scope of the Study] should have been more detailed.
Presentation on ECA

The economics of adaptation
Risk
The first session [Common understanding], because having common understanding about the introduction, methodology and benefits of ECA is the important and basic one of the Project.
Data
The ECA modelling
Risks
ECA Methods

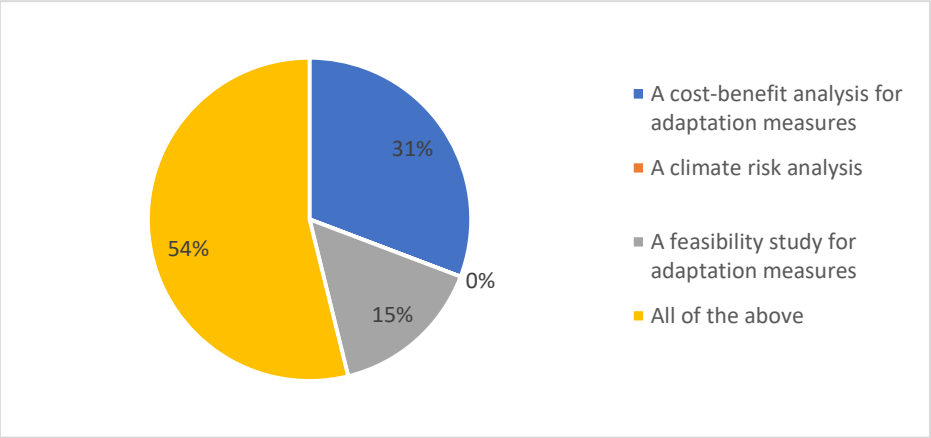
Question 5: After this workshop, do you see the potential and added value of applying the ECA framework?



Question 6: Overall, how would you rate the quality of the workshop?



Question 7: What is the final goal of an ECA study?



Question 8: Do you have any other comments, questions, or concerns you would like to share with us?

This question did not provide predefined options, hence all collected responses are listed here.

The ECA study need to devise and integrate an assessment and analytical methodology for social climate risk analysis.
The diversity of participants should have been somehow greater than this.
none
Different stakeholder group need to be participated when similar workshop is organised
No
My concern is that, when you are starting the study in Somali region in case you need to hire consultants or individuals I would advise to come to Jigjiga and I assure you that you can get qualified locals in Jigjiga in order to make your data more accurate.
Capacity building
It would be great if you collaborate with Universities in Ethiopia specially in the feasibility study
Yes, please try to search the real data from the grass root level. Pre-assessing the area is very important to get real data or the real situation.
My grazing data through email and phone will lead to wrong conclusion. Maximum be attention will be given to get real data from the regional bureaus or offices.
Finally, I would like to appreciate your effort to come together all stakeholders in one place and try to aware the methodology. Have a nice work!

ANNEX 10 – Pictures of the trip to the Afar Region

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Economics of Climate Adaptation