Appendix 2. Community Stakeholder Consultation Documents

Galmudug State

Local authorities

Section 1: Information about Institutions and Respondents

Name of Institution: Local Municipality of Hobyo District	Level: District	
Type of Institution: District Administration	a) National	
	b) Regional State	Local District in Galmudug State
Office headquarter City: Hobyo		
Respondent Name:		
Respondent's Position	Deputy Commissioner	
Respondent's contact:	Email:	
Date:	27/02/2024	

1. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Despite a strong commitment to prioritize climate issues, Hobyo District Administration faces capacity and financial constraints that limit its ability to fully address climate resilience in agriculture, livestock, and adaptation. The administration has established a dedicated climate change department to spearhead efforts within these limitations

2. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

Lack of Resilient Infrastructure like roads and bridges, Poverty, luck of other sources of income than cutting trees, Limited Knowledge on the climate issues, these barriers and others are often intersected and reinforce each other

3. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

Misuse of the Land, Rapid urbanization and environmental deforestation exacerbating the impacts of the Climate change.

4. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

IRC made an awareness campaign on the climate issues, and the Local administration of Hobyo planted trees in Hobyo town to prevent the sand dunes affecting the city which needs huge support from doners.

5. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

Luck of coordination between the local authorities and the Ministries of Environment both State and federal levels, resource scarcity, risk perception, week legislation and most important thing limited funds

6. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production.

- Capacity building to the farmers and the community of Hobyo at large
- Introducing technology in the agriculture
- Address the shortage of water in the district

7. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be incorporated this project.

The current administration is not aware of any existed initiatives implemented in Hobyo district that address Climate issues

8. What are capacity limitations that target community face (list them) in order to address resource-based conflict and implement land use plans?

Insufficient funding for community mobilization, conflict resolution processes, implementation of land use plans, and monitoring activities and the difficulty identifying underlying causes of resource-based conflicts and the relationships between different stakeholders.

9. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

Hobyo District faces a critical water shortage, currently receiving only 20% of its water needs. The district has limited water infrastructure, with only three functional reservoirs (hafir-dams) and a scarcity of wells. Notably, Hobyo city itself relies on a well located 20 kilometers away, highlighting the severity of the water shortage.

10. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

Most farmers in the area cultivate watermelons and kidney beans, primarily using seeds provided by NGOs. However, there is a lack of awareness among farmers regarding the specific resilience characteristics of these seeds.

11. Do target farmers get trainings on farming techniques? If yes, list them.

Limited and periodic trainings to the farmers by IRC & CPD

12. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

Farmers in Xero-dhagaxley, Sanku yaal, Laam xarar, Gawaan, Qararow, Waable, Qoryaale, Dhex-xiran, Gabdhaale, Saqiiro, and Xin-barwaaqo all practice mixed farming, relying on both crops and livestock. This diversified approach is essential due to their dependence on rain-fed agriculture, as livestock provides an alternative source of income and sustenance during periods of low crop yields

13. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	yes	
Unit		
Focal person		

14. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

a) Yes
b) No

If No, please explain why?

No

15. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

No locally developed laws on climate changes, just periodic awareness campaigns

16. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

As stated above no locally developed laws on climate changes

17. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

While the district has a dedicated climate change department, a lack of financial resources was always an issue, with appropriate support, we possess the capacity and skills necessary to address climate challenges effectively.

18. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

Currently, there are no active organizations or institutions working on the climate change in Hobyo district

19. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

a. Yes
b. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

No

20. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?
    a. Yes
    b. No, If No, please explain why?

There are no coordination mechanisms between stakeholders in the climate change issues, except periodic visits from officials from the state & federal Ministries of Environment.

21. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

To get the presence of the State Ministry by nominating a focal person to the district, and enhance the capability and the skills of the District officials

22. . Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

Yes, 100% the district officials are eager to actively participate in climate coordination platform on a regular basis.

23. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

Enhancing the skills expertise of the Department of the climate change would greatly help the local administration to adopt and perform well in planning and implementation of any project related to this sector.

Focus Group discussions – Hobyo Community

Part1. Identification data

1. District name	Hobyo
2. Village/location name	Hobyo
3. Focus group participants (names)	7 participants

Key Findings:

Livelihoods: Livestock production is the primary source of income for the community, followed by small businesses, remittances, and limited crop cultivation.

Food Security: Food security has improved in recent years due to interventions and national trends.

Livestock: The number of livestock, primarily sheep and goats, has increased in the past decade. However, challenges include animal diseases, limited access to water and fodder, and low market prices.

Rangelands: Land degradation and changing weather patterns have negatively impacted rangelands, leading to decreased grazing areas and altered grazing routes.

Land Use: Land ownership is informal, and land use practices lack clear guidelines.

Natural Resources: The community lacks formal initiatives for natural resource conservation.

Water: Deep wells are the primary source of drinking water, although accessibility remains a concern.

Conflicts: Land and livestock-related conflicts persist, but traditional conflict resolution mechanisms help mitigate their impact.

Recommendations:

Implement land use planning and resource management strategies.

Enhance veterinary services and promote fodder production to support livestock health and productivity.
Develop awareness and capacity-building programs on climate-smart agriculture practices.

Explore options for sustainable fuel sources and efficient cookstoves to reduce reliance on charcoal.

Photos:

Jubaland

Government partners/Local authorities

Section 1: Information about Institutions and Respondents

Name of Institution: **Ministry of Agriculture and Irrigation**	Level: MoAI-JL Advisor	
Type of Institution: **State ministry – MoAI-JL**	a) National	
	b) Regional State	State.
Office headquarter City:	Kismayo city, Jubaland state	
Respondent Name:		
Respondent's Position	Advisor to the ministry of agriculture	
Respondent's contact:		
Date:	12.03.2024	

1. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

In Ministry of agriculture and irrigation all projects have Climate component. The coordinators of the projects are responsible to make sure that climate change is incorporated into the project implementation process. If for instance it is capacity building the climate SMART should be included into the training sessions. In the ministry of agriculture and irrigation have climate change & adaptation component in both CADRI and CLIMB projects recently inaugurated.

2. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

The main barrier is that Somali people the concept of climate change; climate SMART is new to them. However, the process of educating the community of these concepts have started and it is likely to gain momentum in the near future. Projects have been included climate change/smart component.

3. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability[1]

1.2.1 Climate and non-climate drivers of change

Non climate drivers that may influence in my country include urbanization and pollution have influence of climate change that has been happening in Somalia, non-climate drivers include socioeconomic process like land use change for instance areas covered by forest in Somalia changes into urban areas. People therefore cleared the land and made it houses in urban areas.

4. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

In Somalia climate change has been happening in fast speed after the collapse of Somali government. There was no central government to take care issues of climate change. Resources allocated to combat against were limited in general. That is why Somalia way behind compared neighboring countries who received enough resources and adequate policies to partially alleviate the problem of climate change. Therefore, Somalia the programs/projects

dealing with climate have just started in the last few years. It will take long time and efforts for Somalia to reach the neighboring countries levels. The good news the process has started and hopefully will catch up with neighboring countries.

5. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

Jubaland state regions are not fully in the hands of Jubaland state of Somalia. The resources available to the state are so limited that cannot cover the security apparatus of the state. Therefore, all factors highlighted here are very limited and therefore the state does not have enough resource to address the ever increasing challenge of climate. The natural calamities such as floods and drought are cyclical. It is difficult the state to deal with it. The state requires external to deal with the challenge of climate change.

6. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production.

To train farmers the best way to handle farm activities including no till farming approaches. Protect. Growing crops that are more resistant to temperature and precipitation extremes. MOAI need to know the temperature regime (historical recorded temperatures and the long term amount of precipitation in your region can help you determine which crops thrive there.

7. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be incorporated this project.

There are implemented interventions implemented in Jubaland state. The coordination of the projects might have been in the past patchy and some might overlapped one another. However, the current projects of same nature are coordinated to avoid overlap. The coordination needs to be sustained to avoid overlap that often happens.

8. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

The main limitation is that farmer support to help produce reliable crop that help farmers good quality varieties of various crops is missing. In addition, due to climate change crop production become increasing difficult for traditional farmers to benefit due to successive droughts and flood seasons. There is need to introduce appropriate technology for sustainable production for farmers.

9. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

Water infrastructure is in bad condition in Jubaland region. There was few main irrigation channel constructed by FAO in collaboration with Ministry of Agriculture and irrigation. However, overall water situation both in agro pastoral and riverine livelihoods has to be supported for the Ministry of agriculture and irrigation to deliver agriculture production sector of Jubaland.ve

10. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

The whole of Jubaland the seeds used are unreliable and uncertified seeds. However, efforts are underway to establish seed production and certification agency. This has not started yet. Once this started there is hope that will be quality seeds in regions of Jubaland.

11. Do target farmers get trainings on farming techniques? If yes, list them.

Plans are underway in Jubaland to train farmers. However, the training of the farmers needs to be frequent and continue for longer period of time. Therefore, this needs to be sustained. This training should be included climate change component.

12. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

The livelihoods with both crop farming and livestock raring is common in Somalia both north and south Somalia. However, due to limited rainfall in the country agro pastoral livelihoods are most vulnerable livelihoods in the country. They usually limited livestock and marginal crop producing land.

The challenge is do not receive enough support. Crop supports usually are provided more to riverine area while the support to agro pastoral farmers is very rare.

Challenge is limited rainfall, limited tools for crop production, limited good seeds for production and also good agriculture extension services.

13. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	Yes	
Unit	Yes	
Focal persons	Yes	

14. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

a) Yes
b) No

If No, please explain why?

No. Jubaland state of Somalia has no enough resource as the state struggling to deal with much larger challenges such as fighting insurgency, unemployment and inadequate public service delivery to the communities in Jubaland. Therefore, the state does not have enough financial, enough skills and enough technical expertise to fight negative impacts of climate change.

15. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

Jubaland state has started some of policies to deal with climate change. Some of climate change policies have been drafted. However, it is long way to come up with fully fledged policies and programs to deal with climate changes that have affected negatively the population of Jubaland. .

16. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

Policies developed by ministry of agriculture at federal level should be accepted and implemented across states of Somalia. Policies developed by ministry of agriculture and irrigation Jubaland are implemented throughout the regions and districts across Jubaland State.

17. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

Most programs/projects of the ministry of agriculture have climate change component. The last projects approved and implemented with the FAO (CADRI and CLIMB) have strong climate change component. These projects will be implemented with incorporation of disaster risk reduction component.

18. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

There is climate National Adaptation Plan of which ministry of agriculture and irrigation is a member. The meetings of NAP committees has started and expected to continue. Two members from Ministry of Agriculture and Irrigation are part of that organ.

19. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

a. Yes
b. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

There is already climate coordination in Jubaland state of Somalia. There is climate change component in most Jubaland state ministries. There is forum that brings together the ministries where they exchange information and ideas. However, this is in the starting point and needs to be strengthened with knowledge and resources.

20. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?
    a. Yes
    b. No, If No, please explain why?

There is improving national and sub-national mechanism levels. However, this is the begging process and needs to be supported. It will take few more years to implement full adaptive climate smart production. This ultimately needs to be sustainable.

21. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

The Federal Ministry of Agriculture and Irrigation should liaise with FAO and other institutions and put emphasise on improving the production in line with protecting the climate in all potential crop and livestock producing areas of the country. The Ministry of Agriculture and Ministry of livestock require harmonizing their efforts to increase crop and livestock production with SMART climate and sustainable development of crop and livestock sectors. The efforts have started but it is far from reaching that goal. The two ministries should join forces and establish strong collaboration with environmental institution led by ministry of environment and climate change at both Jubaland and federal levels.

That efforts have started and it is an initial phases.

22. . Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

Climate coordination platform does exist and it is led by the ministry of environment and climate Jubaland State of Somalia. However, within the ministry of agriculture and irrigation we have not reached a level all technical staff can include the production with smart climate production technique. Therefore, there is requirement of imparting

staff more climate SMART production within the ministry and how this can be translated into production while at the same preventing further deterioration of climate.

23. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

Ministry of Agriculture and Irrigation of Jubaland has quite a pool of expertise from crop production, crop protection, irrigation technology, weather, crop cultural practices and integrated pest management. However, the ministry and key staff have not received any major climate change capacity building and how to reduce effect of climate change onto the agriculture production. The staff require to learn how to produce crop with climate smart agriculture technologies Therefore, it is necessary that MOAI key staff to have capacity to implement climate SMART agriculture that is sustainable while protects climate.

Section 1: Information about Institutions and Respondents

Name of Institution: **Ministry of Environment and climate change.**	Level	
Type of Institution: **State Ministry – MoECC-JL**	c) National	
	d) Regional State	State.
Office headquarter City:	Kismayo, Jubbaland state.	
Respondent Name:		
Respondent's Position –	Director General – MoECC	
Respondent's contact:	Email:	
Date:	12.03.2024	

24. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

The Ministry has a clear mandate in the areas of climate resilience in agriculture and climate change adaptation. The mandate includes several key objectives and strategies to address these issues effectively. Specifically, the Ministry aims to enhance the resilience of agricultural systems to climate change impacts, promote sustainable agricultural practices, and support the adoption of climate-smart technologies.

Additionally, the Ministry is committed to developing and implementing policies and programs that promote climate change adaptation across various sectors. This involves conducting research, generating climate data and information, and providing technical assistance to stakeholders. The Ministry also collaborates with other government agencies, international organizations, and local communities to strengthen resilience and adaptive capacity in the face of climate change challenges.

Overall, the Ministry's mandate encompasses a comprehensive approach to climate resilience in agriculture and climate change adaptation, focusing on policy development, capacity building, and fostering partnerships to achieve sustainable and resilient agricultural systems.

25. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

The main barriers preventing the population/community from effectively addressing the impact of climate change are diverse and can vary based on specific contexts. However, here are some common barriers that are often encountered:

1. Lack of Awareness and Understanding: Many individuals may not have a comprehensive understanding of climate change and its potential consequences. This lack of awareness can hinder efforts to address its impact, as people may not recognize the urgency or the need for action.

2. Limited Access to Information: Communities may face challenges in accessing reliable information on climate change, including its causes, impacts, and potential mitigation and adaptation strategies. This limited access to information can impede informed decision-making and hinder the implementation of necessary measures.

3. Financial Constraints: Implementing climate change mitigation and adaptation measures often requires financial resources. Limited financial capacity at the individual, community, or institutional level can hinder the adoption of sustainable practices, the deployment of climate-resilient infrastructure, and the implementation of community-based initiatives.

4. Institutional and Policy Barriers: Inadequate policies, regulations, and institutional frameworks can pose significant barriers to addressing climate change. This could include a lack of supportive policies, insufficient enforcement mechanisms, or conflicting priorities among different government agencies or stakeholders.

5. Social and Cultural Factors: Social norms, cultural practices, and behavioral patterns can sometimes pose challenges to climate change action. Resistance to change, lack of social cohesion, or inadequate community engagement can hinder collective efforts to address climate change impacts effectively.

6. Limited Technological Capacity: Communities may face limitations in terms of technological capacity to implement climate change solutions. This could include inadequate access to clean energy technologies, limited technological infrastructure for data collection and analysis, or insufficient technical expertise..

It is important to note that these barriers are interconnected and multidimensional. Overcoming them requires a comprehensive approach that involves raising awareness, improving access to information and resources, developing supportive policies, fostering collaboration, and promoting sustainable practices at individual, community, and institutional levels.

26. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

In the context of Jubbaland State, there are several non-climate drivers of change that can exacerbate the potential impacts of climate change. These drivers can contribute to increased vulnerability and challenges for communities in the region. While the specific situation may evolve over time, here are some key non-climate drivers that can interact with climate change impacts in Somalia:

1. Conflict and Insecurity: Somalia has faced prolonged periods of conflict and insecurity, which have had significant social, economic, and environmental consequences. The presence of armed groups, political instability, and weak governance can hinder effective climate change adaptation and mitigation efforts, as well as exacerbate the vulnerabilities of communities in the face of climate-related events.

2. Limited Infrastructure and Basic Services: Infrastructure deficits, including inadequate transportation networks, limited access to clean water and sanitation, and insufficient healthcare facilities, can amplify the impacts of climate change. Inadequate infrastructure can impede disaster response and recovery efforts, making communities more susceptible to the effects of climate-related hazards.

3. Poverty and Food Insecurity: Widespread poverty and food insecurity in Somalia can exacerbate the impacts of climate change, particularly in rural areas. Limited access to resources, including land, water, and inputs for agriculture, can hinder adaptive capacity and resilience. Climate change can further strain agricultural production, exacerbating food insecurity and vulnerability.

4. Displacement and Migration: Somalia has experienced significant internal displacement and migration due to conflict, drought, and other factors. Displaced populations often face heightened vulnerabilities, including inadequate access to basic services, limited livelihood opportunities, and increased exposure to climate-related

risks. Displacement and migration patterns can exacerbate the pressures on host communities and strain resources and infrastructure.

5. Limited Institutional Capacity: Weak institutional capacity, including limited technical expertise, inadequate resources, and governance challenges, can impede effective climate change responses. This can hinder the development and implementation of climate policies, coordination among government agencies, and the enforcement of regulations related to climate change adaptation and mitigation.

Addressing these non-climate drivers of change in Jubbaland State of Somalia requires integrated approaches that focus on conflict resolution, peacebuilding, and sustainable development. Efforts to strengthen governance, improve infrastructure, enhance access to basic services, alleviate poverty, and promote inclusive and equitable development pathways can help build resilience and support effective climate change adaptation and mitigation measures in the region.

27. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

In response to the climate change challenges in Somalia, including Jubbaland State, both government and donor initiatives have been implemented to address the impacts and build resilience. Here is a brief overview of some of these initiatives:

Government Initiatives:

1. National and State Climate Change Policy: The Jubbaland Government has developed a State Climate Change Policy that aims to guide climate change adaptation and mitigation efforts across the country. The policy focuses on key sectors such as agriculture, water resources, energy, and infrastructure, and emphasizes the need for sustainable development, capacity building, and institutional strengthening.

2. Climate Change Adaptation and Disaster Risk Reduction: The government has been working on integrating climate change adaptation and disaster risk reduction into national development plans. Efforts have been made to enhance early warning systems, improve disaster response and preparedness, and promote community-based adaptation measures.

3. Natural Resource Management: The government has implemented initiatives to improve natural resource management, including measures to combat deforestation, promote sustainable land-use practices, and enhance biodiversity conservation. These efforts aim to mitigate climate change impacts and preserve ecosystems that provide vital services to communities.

Donor Initiatives:

1. Humanitarian Assistance and Resilience-Building: Donor organizations, such as the United Nations agencies, international NGOs, and multilateral institutions, have been providing humanitarian assistance and support to vulnerable communities in Somalia. These initiatives include food security programs, access to clean water and sanitation, livelihood support, and capacity-building activities to enhance resilience to climate change impacts.

2. Climate Finance and Adaptation Projects: Donors have also contributed to climate finance mechanisms and funded adaptation projects in Somalia. These initiatives aim to support climate-resilient agriculture, water resource management, renewable energy development, and sustainable livelihoods. They focus on building local capacity, strengthening institutions, and promoting community-based adaptation approaches.

3. Research and Data Collection: Donors have supported research initiatives and data collection efforts to improve understanding of climate change impacts in Somalia. These projects generate climate data, assess vulnerability and risk, and inform evidence-based decision-making for climate change adaptation and mitigation strategies.

Collaboration between the government, donors, and other stakeholders is crucial for effective responses to climate change challenges in Jubbaland State , ensuring coordination, resource mobilization, and sustainable development outcomes.

28. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

In addressing the climate change challenges in Somalia, including Jubbaland State, there are several pending barriers and gaps that hinder an effective response. These barriers and gaps can be categorized into fiscal, regulatory, technological, financial, ecological, and institutional factors. Here is a brief description of some of these barriers and gaps:

1. Fiscal Barriers: Limited fiscal resources and budgetary constraints pose challenges to implementing climate change adaptation and mitigation measures. Insufficient funding allocations for climate-related initiatives, including research, infrastructure development, and capacity-building efforts, can impede progress in addressing climate change challenges.

2. Regulatory Barriers: Weak regulatory frameworks and inadequate enforcement mechanisms can hinder the implementation of climate change policies and actions. Lack of clear guidelines, standards, and legal frameworks related to climate change adaptation and mitigation can create uncertainties and limit the effectiveness of response measures.

3. Technological Barriers: Limited access to appropriate and affordable technologies for climate change adaptation and mitigation is a significant barrier. Constraints in accessing clean energy technologies, agricultural innovation, and climate-resilient infrastructure can impede progress in addressing climate change challenges.

4. Financial Barriers: The lack of access to climate finance and investment opportunities is a critical barrier. Limited financial resources and difficulties in attracting private sector investment for climate-related projects can hinder the implementation of effective climate change responses.

5. Ecological Barriers: Fragile ecosystems and environmental degradation exacerbate the impacts of climate change in Somalia. Deforestation, soil erosion, loss of biodiversity, and degradation of coastal ecosystems reduce the resilience of natural systems and increase vulnerability to climate-related hazards.

6. Institutional Barriers: Weak institutional capacity, including limited technical expertise, inadequate coordination mechanisms, and governance challenges, can hinder an effective response to climate change. Insufficient coordination among government agencies, limited stakeholder engagement, and inadequate capacity for planning and implementation can pose significant barriers.

Addressing these barriers and gaps requires concerted efforts and collaboration among various stakeholders. Strengthening institutional capacity, improving regulatory frameworks, mobilizing climate finance, promoting technology transfer, and enhancing ecosystem resilience are essential for overcoming these barriers and effectively responding to climate change challenges in Somalia.

29. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production.

In the context of climate change-related challenges facing agriculture production, there are several adaptation measures that could be considered.

1. Diversification of Crops and Livestock: Promote the diversification of agricultural production systems by introducing and promoting resilient crop varieties and livestock breeds that are better adapted to changing climatic conditions. This can help reduce the risk of crop failure and livestock losses due to climate-related stresses, such as droughts, floods, and pests.

2. Water Management and Irrigation: Improve water management practices and promote efficient irrigation techniques to optimize water use in agriculture. This may include the adoption of water-saving irrigation technologies, such as drip irrigation or precision irrigation systems, and the development of water storage and harvesting infrastructure to enhance resilience to water scarcity and variability.

3. Soil Conservation and Sustainable Land Management: Implement soil conservation practices, such as terracing, contour plowing, and agroforestry, to prevent soil erosion and maintain soil fertility. Promote sustainable land management techniques, including crop rotation, cover cropping, and conservation agriculture, to enhance soil health, water retention, and overall resilience of agricultural systems.

4. Agro-ecological Approaches: Encourage the adoption of agro-ecological approaches that focus on enhancing biodiversity, promoting natural pest control, and improving soil health. This can involve integrating crop and livestock systems, promoting integrated pest management, and fostering ecological balance to reduce reliance on chemical inputs and enhance ecosystem resilience.

5. **Climate Information and Early Warning Systems:** Strengthen climate information systems and early warning systems to provide farmers with timely and accurate weather forecasts, climate risk assessments, and advisory services. This can help farmers make informed decisions about planting, irrigation, and other agricultural practices, considering the anticipated climate conditions.

6. Capacity Building and Farmer Empowerment: Provide training and capacity-building programs to farmers, extension workers, and other stakeholders to enhance their understanding of climate change impacts and

adaptation strategies. Empower farmers with knowledge and skills to implement climate-smart practices, use climate-resilient technologies, and access relevant support services.

7. Access to Finance and Insurance: Facilitate access to climate finance mechanisms and insurance schemes for farmers, particularly smallholders, to help them invest in climate-resilient agricultural practices, technologies, and infrastructure. This can enable farmers to cope with climate-related risks and recover from climate-related losses.

8. Market Access and Value Chain Development: Support the development of market linkages and value chains for climate-resilient agricultural products. Facilitate access to markets, promote value addition, and strengthen farmer cooperatives and associations to improve income opportunities and enhance the overall resilience of agricultural livelihoods.

By addressing these adaptation measures, the project can contribute to building the resilience of agriculture production systems, improving food security, and mitigating the impacts of climate change on farmers and rural communities.

30. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

In previous interventions, several challenges and issues were encountered that affected the effectiveness and outcomes of the projects. These challenges can provide valuable lessons for the current project. Here are additional points to consider:

1. Conflict between Line Ministries: A common issue in previous interventions was the lack of clear coordination and conflicts between different line ministries responsible for leading the project. This can lead to delays, inefficiencies, and confusion in decision-making and implementation. To address this, it is crucial to establish clear roles, responsibilities, and communication channels among the relevant ministries from the outset of the project. Encouraging collaboration, fostering inter-ministerial dialogue, and promoting a shared vision can help overcome conflicts and ensure effective project leadership.

2. Logistical Challenges: Logistical issues, such as inefficient transportation, inadequate storage facilities, and delays in procurement processes, can consume a significant portion of project resources and hinder effective implementation. It is essential to conduct a thorough logistical assessment and develop strategies to address these challenges. This may involve establishing efficient supply chains, improving transportation infrastructure, streamlining procurement procedures, and ensuring timely delivery of project inputs and equipment.

3. Limited Reach to the Target Population: Another challenge observed in previous interventions was the limited reach of project activities to the intended beneficiaries or the neediest people. This could be due to inadequate targeting mechanisms, lack of awareness among the target population, or insufficient efforts to engage marginalized or remote communities. To improve reach and impact, it is important to conduct comprehensive needs assessments, identify priority areas and vulnerable groups, and develop inclusive and targeted strategies for engagement and outreach. This may involve working closely with local community leaders, involving community-based organizations, and conducting awareness campaigns to ensure that the project reaches those who need it the most.

4. Adaptive Management and Learning: It is crucial to embrace an adaptive management approach that allows for flexibility and learning throughout the project implementation. Previous interventions may have faced challenges in adapting to changing circumstances, incorporating feedback from stakeholders, and adjusting strategies accordingly. By establishing regular monitoring and evaluation mechanisms, promoting learning

platforms, and fostering a culture of continuous improvement, the project can enhance its ability to respond to emerging challenges and make informed decisions based on evidence and feedback from stakeholders.

Here are the best practices that can be incorporated into this project based on successful interventions in similar contexts. These practices have been found effective in promoting sustainable development and resilience in agriculture:

1. Participatory Approach: Engage local communities, farmers, and relevant stakeholders in the design, planning, and implementation of the project. Adopt a participatory approach that involves their active participation, incorporates local knowledge and perspectives, and ensures ownership and sustainability of the interventions.

2. Context-specific Solutions: Tailor interventions to the specific needs, challenges, and opportunities of the target areas. Conduct context-specific assessments and engage with local communities to understand their priorities, existing practices, and constraints. Design interventions that are appropriate to the local agro-ecological conditions, socio-cultural contexts, and available resources.

3. Knowledge and Skills Transfer: Provide training and capacity-building programs to farmers, extension workers, and other stakeholders. Focus on knowledge transfer, skills development, and promoting innovative practices that enhance climate resilience and improve agricultural productivity. Incorporate farmer-to-farmer learning approaches, demonstrations, and field trials to foster knowledge sharing and adoption of best practices.

4. Multi-sectoral Collaboration: Foster collaboration and coordination among different sectors and stakeholders involved in agriculture and climate change. Facilitate partnerships between government agencies, research institutions, NGOs, private sector actors, and local communities to leverage collective expertise, resources, and networks. Promote integrated approaches that address not only agricultural aspects but also intersecting sectors like water management, energy, and infrastructure.

5. Climate Information Services: Strengthen climate information services and early warning systems to provide timely and accurate climate data, forecasts, and advisories to farmers. Establish effective communication channels to disseminate climate information and ensure its accessibility to farmers. Use simple and user-friendly formats, such as mobile applications or SMS platforms, to reach a wider audience.

6. Monitoring, Evaluation, and Learning: Incorporate robust monitoring, evaluation, and learning mechanisms into the project. Establish clear indicators and data collection systems to track progress, measure the impact of interventions, and identify areas for improvement. Regularly review and analyze project outcomes, lessons learned, and best practices to inform adaptive management and future decision-making.

7. Gender and Social Inclusion: Ensure that interventions are gender-responsive and socially inclusive, considering the different needs, roles, and constraints faced by women, men, and marginalized groups. Promote women's empowerment, access to resources, and decision-making in agriculture. Address social inequalities and promote inclusive approaches that benefit all members of the community.

Conducting thorough assessments and evaluations specific to the target areas will help identify the most appropriate and effective best practices to incorporate into this project.

31. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

When considering resource-based conflicts and the implementation of land use plans, target communities may face several capacity limitations. These limitations can affect their ability to effectively address conflicts and implement sustainable land use practices. Here are some capacity limitations that target communities may face:

1. Knowledge and Awareness: Lack of knowledge and awareness about land use planning processes, sustainable resource management practices, and conflict resolution mechanisms can hinder community members' ability to actively participate in decision-making and contribute to conflict resolution efforts.

2. Technical Expertise: Limited technical expertise and skills related to land use planning, natural resource management, and conflict resolution can impede the effective implementation of land use plans. Communities may lack trained professionals or have limited access to technical support and guidance.

3. Institutional Capacity: Weak community institutions and governance structures can pose challenges in coordinating and implementing land use plans. Insufficient capacity to manage conflicts, engage stakeholders, and enforce regulations can hinder the successful implementation of sustainable land use practices.

4. Financial Resources: Limited financial resources and access to funding can restrict the implementation of land use plans and conflict resolution initiatives. Lack of financial capacity may prevent communities from investing in necessary infrastructure, training programs, or conflict resolution mechanisms.

5. Communication and Stakeholder Engagement: Inadequate communication channels and limited stakeholder engagement can hinder effective collaboration and conflict resolution. Difficulties in reaching consensus among diverse stakeholders and ensuring their meaningful participation can pose challenges to addressing resource-based conflicts and implementing land use plans.

6. Access to Data and Information: Limited access to reliable data and information about land resources, ecosystem services, and conflicts can hinder evidence-based decision-making. Inadequate data collection, monitoring, and information sharing mechanisms can impede the identification and resolution of conflicts effectively.

7. Social and Cultural Factors: Socio-cultural barriers, such as power dynamics, unequal gender representation, and traditional norms and practices, can pose challenges to addressing resource-based conflicts and implementing land use plans. These factors may influence community dynamics, decision-making processes, and the equitable distribution of resources.

Addressing these capacity limitations requires targeted interventions and support. Capacity-building programs, technical assistance, training workshops, and awareness campaigns can help strengthen the knowledge, skills, and institutional capacity of target communities. Facilitating access to financial resources, promoting transparent communication channels, and fostering inclusive participation can also contribute to overcoming these limitations and promoting sustainable land use practices and conflict resolution.

32. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

In Lower Jubba, Somalia, the existing water infrastructure primarily consists of small-scale irrigation systems from Jubba River , shallow wells, and traditional water storage structures such as berked and hafir. These systems are typically used for agricultural irrigation and domestic water supply.

The effectiveness of water infrastructure in Lower Jubba can vary based on several factors:

1. Condition and Maintenance: The functionality of water infrastructure depends on its condition and regular maintenance. In some cases, the infrastructure may be in good working condition and adequately maintained, leading to reliable water supply and irrigation for communities. However, in other instances, lack of maintenance can result in infrastructure deterioration, reducing its effectiveness.

2. Capacity and Design: The capacity and design of the water infrastructure can impact its effectiveness. Well-designed and properly sized infrastructure can efficiently capture and distribute water, meeting the needs of the community. However, if the infrastructure is insufficiently designed or unable to handle the water demand, it may lead to water shortages, inefficient water distribution, or system failures.

3. Access and Equity: The accessibility and equitable distribution of water infrastructure are crucial factors. If the infrastructure is strategically located and easily accessible to communities, it can ensure widespread access to water resources. However, if certain communities or groups face barriers in accessing the infrastructure, it can result in unequal access to water resources and potential conflicts.

4. Climate Resilience: The resilience of water infrastructure to climate-related challenges, such as droughts or floods, is essential in a region like Lower Jubba, which experiences variable rainfall patterns. Robust design features, such as appropriate drainage systems, flood protection measures, and water storage capacity, can enhance the resilience of the infrastructure and its ability to withstand extreme weather events.

5. Community Engagement and Ownership: The involvement and ownership of local communities in the design, implementation, and management of water infrastructure can significantly impact its effectiveness. When communities have a sense of ownership and are actively engaged in decision-making and maintenance, it can enhance the sustainability and long-term success of the infrastructure.

Addressing these challenges requires comprehensive assessments, capacity-building initiatives, and investments in infrastructure development and maintenance to improve water availability and resilience in the region.

33. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

Indeed, the lack of knowledge and awareness about identifying climate-resilient seed varieties can be a significant reason why farmers in the target area do not use them. Farmers may not have the necessary information or expertise to differentiate between different seed varieties and determine which ones are specifically bred or selected for climate resilience.

Identifying climate-resilient seed varieties requires an understanding of their specific characteristics, such as drought tolerance, disease resistance, or heat adaptability. Farmers need access to reliable information, technical guidance, and training to build their capacity in recognizing and selecting climate-resilient seed varieties.

34. Do target farmers get trainings on farming techniques? If yes, list them.

Jubbaland Farmers do not receive specific training on farming techniques, it indicates a gap in agricultural extension services and capacity-building programs in the area. Lack of access to training on farming techniques can hinder farmers' ability to adopt improved practices and enhance their agricultural productivity.

However, it is important to note that the absence of training does not necessarily mean that farmers in the area are not employing any farming techniques. Farmers often rely on traditional knowledge and practices passed down through generations, which may include techniques suitable for their local agro-climatic conditions.

To address the lack of training on farming techniques, it is crucial to establish agricultural extension services and capacity-building programs that specifically target farmers in the region. These programs can cover a range of relevant farming techniques, such as:

1. Improved Crop Management: Training on techniques related to crop selection, planting methods, spacing, and intercropping can help farmers optimize their crop yields and manage pests and diseases effectively.

2. Soil Fertility Management: Training on soil fertility enhancement techniques, including proper use of organic matter, composting, and balanced nutrient application, can help farmers maintain soil health and improve crop productivity.

3. Water Management: Training on efficient irrigation techniques, water conservation practices, and proper water scheduling can assist farmers in optimizing water use and coping with water scarcity.

4. Integrated Pest Management (IPM): Training on IPM practices, including biological control, cultural practices, and judicious use of pesticides, can enable farmers to manage pests and diseases in a sustainable and environmentally friendly manner.

5. Post-Harvest Handling and Storage: Training on proper post-harvest handling, storage techniques, and value addition can help farmers reduce post-harvest losses and improve the quality and market value of their produce.

6. Climate-Smart Agriculture: Training on climate-smart agricultural practices, such as agroforestry, conservation agriculture, and climate-resilient crop varieties, can equip farmers with strategies to adapt to climate change and mitigate its impacts.

Implementing such training programs requires collaboration among government agencies, non-governmental organizations, agricultural research institutions, and local community leaders. These stakeholders can collectively design and implement capacity-building initiatives to provide farmers with the knowledge and skills needed to adopt improved farming techniques and enhance their agricultural practices.

35. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

This question relevant to Agriculture Ministry

36. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	Climate Change	4
Unit		
Focal person	Abdi Ahmed Hukun	Director of Climate Change

37. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

c) Yes
d) No

If No, please explain why?

Jubbaland State of Somalia does not have adequate financial resources for effective implementation of climate change adaptation measures, it can pose significant challenges to their efforts. Limited financial resources can hinder the ministry's ability to undertake comprehensive adaptation projects, invest in necessary infrastructure, or implement capacity-building programs.

Limited Government Budget: Insufficient allocation of funds in the government's overall budget may result in limited resources for climate change adaptation. Other competing priorities or fiscal constraints can divert funds away from climate-related initiatives.

38. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

Currently MOECC Jubbland has developed the Climate Change Policy and Environmental Protection Act, along with other climate-related initiatives. These are significant steps towards addressing climate change and promoting environmental protection.

We are anticipating the upcoming project on climate resilience in agriculture, it is essential to align it with the goals and objectives outlined in our Climate Change Policy and Environmental Protection Act. This alignment will ensure that the project is in harmony with the broader policy framework and contributes to its implementation.

Here are some potential strategies and actions that the upcoming project on climate resilience in agriculture can focus on, considering the context of your Climate Change Policy and Environmental Protection Act:

1. Climate-Resilient Crop Selection: Conduct research and identify crop varieties that are resilient to the local climate conditions, such as drought-tolerant or heat-resistant crops. Promote the adoption of these resilient crop varieties among farmers through awareness campaigns, training programs, and seed distribution initiatives.

2. Sustainable Farming Practices: Promote sustainable and climate-smart farming practices that enhance resilience and reduce environmental impacts. This can include techniques like agroforestry, conservation

agriculture, water-efficient irrigation methods, and organic farming practices. Provide training and extension services to farmers to facilitate the adoption of these practices.

3. Water Management: Enhance water management practices in agriculture to cope with changing climate patterns. This can involve promoting efficient irrigation systems, rainwater harvesting, and water conservation techniques. Develop guidelines and provide training to farmers on improved water management strategies.

4. Soil Health and Conservation: Implement measures to improve soil health and conservation. Encourage farmers to adopt practices such as soil erosion control, organic matter management, and appropriate nutrient management. Provide training and support to farmers on sustainable soil management techniques.

5. Climate Information and Early Warning Systems: Strengthen climate information systems and early warning mechanisms for agriculture. Disseminate timely and localized climate information to farmers, enabling them to make informed decisions on planting, irrigation, and pest management. Develop user-friendly platforms and tools for accessing and utilizing climate information. SWALIM is communicating with donors only not Somalia Citizen

6. Access to Finance and Resources: Facilitate access to financial resources and support mechanisms for climate-resilient agriculture. This can include exploring funding opportunities, establishing agricultural credit schemes, and promoting partnerships with financial institutions to support farmers in adopting climate-resilient practices.

7. Monitoring and Evaluation: Establish a robust monitoring and evaluation framework to track the progress and impact of the climate resilience project. Regularly assess the effectiveness of interventions, gather feedback from farmers, and make necessary adjustments to ensure continuous improvement.

It is important to engage with relevant stakeholders, including farmers, local communities, agricultural extension services, research institutions, and non-governmental organizations, to build partnerships and enhance collaboration. By leveraging their expertise and involvement, the project can benefit from shared knowledge, resources, and local insights.

Remember to constantly refer to the Climate Change Policy and Environmental Protection Act as a guiding document to ensure that the project aligns with its objectives and contributes to the broader climate change adaptation and environmental protection goals of your institution.

39. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

Yes, for laws and policies developed by MOECC JUbbaland institution has implemented and accepted and applied by other relevant institutions at the national, regional, and local levels.

40. Can you tell us about your institution’s current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

Yes we have full capacity however we need upgrade in areas Policies and Technical Support

41. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

I don't known national or regional climate change coordination body in Somalia. However, , the Ministry of Environment, Energy, and Climate Change (MOECC) in Jubbaland State, is intending to form a climate Change cluster at the Jubbaland level.

Forming a climate cluster at the Jubbaland level is a commendable initiative that can help enhance coordination and collaboration on climate change-related activities within the region. By establishing a dedicated platform, stakeholders from various sectors can come together to address climate change challenges, share knowledge and resources, and promote climate resilience in Jubbaland State.

42. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

c. Yes
d. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

NO

43. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?
    c. Yes
    d. No, If No, please explain why?

NON EXIST

44. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

To strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level, several actions can be considered:

1. Establish a National and State Climate Change Adaptation Body -PIU: Create a dedicated national/state institution or body responsible for coordinating adaptation planning and implementation efforts across various sectors and ministries. This body can serve as a central point of coordination, providing guidance, and facilitating collaboration among relevant stakeholders.

2. **Develop National Adaptation Strategy and Action Plans:** Formulate a comprehensive national adaptation strategy and corresponding action plans that outline priority areas, goals, and specific actions to be taken. These plans should be developed through a participatory process involving relevant government agencies, civil society organizations, and other stakeholders.

3. **Strengthen Legal and Policy Frameworks**: Review and update existing legislation and policies to integrate climate change adaptation considerations. Develop new laws or regulations where necessary to support adaptation planning and implementation. Ensure coordination between climate change-related policies and other relevant sectors, such as agriculture, water resources, and urban planning.

4. Enhance Institutional Capacity and Expertise: Invest in building the capacity of relevant institutions by providing training and resources on climate change adaptation. This can include technical expertise on climate science, vulnerability assessments, risk management, and project implementation. Foster partnerships with academic institutions, research organizations, and international agencies to access additional expertise.

5. Improve Data Collection and Management: Enhance data collection and management systems to support evidence-based decision-making for adaptation planning. This includes gathering climate data, conducting vulnerability assessments, and monitoring adaptation progress. Develop mechanisms for data sharing and establish platforms for collaboration between relevant institutions.

6. Strengthen Stakeholder Engagement: Promote multi-stakeholder engagement and participation in adaptation planning and implementation processes. Establish mechanisms for regular consultation and dialogue with civil society organizations, private sector entities, local communities, and vulnerable groups. This inclusive approach ensures that diverse perspectives and local knowledge are considered in decision-making.

7. Secure Adequate Financial Resources: Allocate sufficient financial resources for adaptation planning and implementation at the federal level. Explore domestic and international funding sources, including climate finance mechanisms, to support adaptation initiatives. Develop mechanisms for transparent and accountable financial management.

Institutional coordination and capacity for adaptation planning and implementation at the federal level and State level can be significantly strengthened, leading to more effective and coordinated efforts to address climate change impacts.

45. . Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes

No

If No, please elaborate further?

(MOECC) in Jubbaland is willing to actively participate in a climate coordination platform to share information on climate change. Active participation in such a platform can bring numerous benefits, including knowledge-sharing, collaboration, and the opportunity to contribute to collective efforts in climate change adaptation.

By joining a climate coordination platform, MOECC Jubbaland can engage with other stakeholders, exchange experiences and best practices, and stay updated on the latest developments in climate change research, policies, and funding opportunities. This can help strengthen the institution's capacity and enhance its efforts in addressing climate change impacts in Jubbaland State.

46. Could you please discuss on how your institution’s technical and managerial capacity for adaptation planning at the state level can be enhanced?

1. Training and Capacity Building: Invest in training programs and capacity-building initiatives to enhance the technical and managerial skills of staff involved in adaptation planning. This can include training on climate science, risk assessments, vulnerability assessments, data analysis, project management, and decision-making processes related to adaptation.
2. Knowledge Sharing and Collaboration: Foster collaboration and knowledge-sharing networks with other institutions, both within the state and beyond. Participate in workshops, conferences, and learning exchanges to share experiences, best practices, and lessons learned in adaptation planning. Collaborate with academic institutions and research organizations to access the latest scientific knowledge and expertise.
3. Access to Data and Information: Strengthen the availability and accessibility of climate data, information, and tools necessary for adaptation planning. Develop partnerships with relevant agencies, research institutions, and meteorological services to access climate data, models, and projections. Build internal databases and information management systems to facilitate data sharing and analysis.
4. Institutional Arrangements: Review and enhance institutional arrangements to support adaptation planning. Clarify roles, responsibilities, and coordination mechanisms among different departments and agencies involved in climate change and adaptation. Establish cross-sectoral working groups or committees to promote interdepartmental collaboration.
5. Strategic Planning and Policy Integration: Integrate adaptation planning into broader state-level strategic plans and policies. Ensure that adaptation goals and actions are aligned with national and international frameworks, as well as sector-specific plans. Mainstream adaptation considerations into relevant policies, such as those related to land use, water management, agriculture, and infrastructure development.
6. Stakeholder Engagement: Engage a wide range of stakeholders, including government agencies, civil society organizations, private sector entities, local communities, and vulnerable groups. Involve them in the adaptation planning process to ensure diverse perspectives and local knowledge are considered. Foster partnerships and collaborations to leverage resources and expertise.
7. Monitoring and Evaluation: Develop robust monitoring and evaluation frameworks to track the implementation and effectiveness of adaptation measures. Establish indicators and targets to assess progress, identify gaps, and make necessary adjustments. Regularly evaluate the impact and outcomes of adaptation interventions to inform future planning and decision-making.
8. Financial Resource Mobilization: Explore various funding sources to support adaptation planning and implementation. Seek domestic and international funding opportunities, including climate finance mechanisms and grants. Develop project proposals and engage in partnerships to secure the necessary financial resources.
9.

By implementing these measures, an institution's technical and managerial capacity for adaptation planning at the state level can be enhanced, leading to more effective and coordinated efforts to address climate change impacts and build resilience**.**

Section 1: Information about Institutions and Respondents

Name of Institution: **Ministry of Livestock Forestry and rang**e	Level	
Type of Institution: **State ministry - MoLFR**	e) National **f) Regional State**	 State.
Office headquarter City:	Kismayo	
Respondent Name:		
Respondent's Position	Departmental Director	
Respondent's contact:	Email:	
Date:		

47. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, as the Ministry of Livestock, forestry and Range has a clear mandate as its responsible improving livestock sector and the climate change its overwhelmingly convincing that its negative on the, matters of livestock sector whether its feed and also health issues,

- The indirect impact of climate change on the livestock sector are: rising demand for food (including livestock) and products, can lead conflict over scarce resources, losing livestock assets could trigger a collapse into chronic poverty and have a lasting effect on livelihoods.
- The direct effects of climate change will include,
    1. **Livestock health matters** for example, higher temperatures and changing rainfall patterns, which could lead increased spread of existing vector-borne diseases and microparasites, accompanied by the emergence and circulation of new diseases.
       the expansion of vector populations into cooler areas, malaria and livestock tick-borne diseases which could also lead to expanding vector populations and large-scale outbreaks of disease.
    2. **Livestock Feed**: feed and grazing land are crucial for sustaining livestock production drought may worsen land production Land systems that could modify animal diets and compromise the ability of smallholders to manage feed deficits.

48. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

the main barriers that are preventing addressing the impact of climate change are:

- **Lack of livestock facilities and infrastructure for climate change adaptation** such Geographical information system centers, storage facilities, fodder banks,
- **Capacity gaps:** duo to limited financial, technical and human resources scarce to plan for a complex and contested issue such as adapting to climate change, shortage of production techniques capacity.

- **Limited local information**: Dou to lack of lack empiratical information about climate impacts on technical expertise to interpret climate change projection for the local area to support planning and minimization approaches.

- **Limited financial resources:** no contingency plan for financial allocation on matters climate resilience to prioritize for immediate issue

49. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

The climate drivers are:

- Land degradation.
- Urbanization.
- Pollution and wasting environment, throwing of plastic bags, drug residue, are the most thinks leads for environmental degradation.

50. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

The climate shock is sudden impact

51. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

The pending barriers inhibiting the gaps of the effective response of the identified challenges are:

- Security, economic decline and financial instability, poor commination, conflict and migration are also threatening provision of proper response.

52. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production.

Regarding to the climate change related challenges I would like this project to address overcoming of the mentioned challenges on the livestock production related matters through:

- improving fodder production facilities and establishment of stakeholders' linkage on maters of fodder market accesses.
- enhance the capacity of the public and private sector to enable climate smart adaptation by delivering and improvising their technical capacity on production scales, this matter is one of the missing packages on previous project (RAAISE, and RECOVERY) as its delivered inputs, established some facilities, but the practical capacity of the public and private parties is poor.
- As the climate change effects the health of livestock and alter the level of production, this project is also needed to come up with vector and disease control measures for livestock disease control (lab center, clinical center and tick trypanosome control) .

53. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

There are a lot of projects some are finished and some continuous including RAAISE, RECOVERY, JRP, SCRP.

- The right angles that the previous projects have are that its targeted vulnerable communities in the rural area who relay on livestock and agricultural products through economic empowerments, encourage investment power on agricultural productivity.
- What is wrong is mostly its incomplete package for the components.

54. What are capacity limitations that target community face (list them) in order to address resource-based conflict and implement land use plans

- Lack of financial resource
- Political instability
- Lack of infrastructure
- Lack of technical consultancy or expertise

55. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

The livestock water infrastructure existed in Jubaland area are different, mainly are: wells, water catchments, dams, Bohol, some of it working well and it can be extended to improve its facilities,

Some places have no water infrastructure facilities and need establishment of water facilities,

56. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

Yes, during RAAISE and Recovery projects groups and Cooperatives were established and some inputs were also distributed like, seed, tractors and accessory machines, seeds delivered

1. Breheria Mullato2.
2. Panicum
3. Naipiar grass
4. Sudan Grass.
5. And alfa-alfa.

57. Do target farmers get trainings on farming techniques? If yes, list them.

Yes, capacity building training about fodder production, storage and processing, market accessibility, linkage stakeholders and also business concept were offered during those two projects, but the Missing part is practical for production techniques and how to use machines.

58. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

Yes, many farmers practice mixed farming where they grow variety of crops such as tomatoes, maize bean, onion as well as nutrient fodder on above mention seed.

The intended goals to achieve are extension service and research in order to improve their farms.

Challenges

- Disease management
- Skill requirement
- Climate variability
- Technology and good infrastructure on roads

Solution

- Climate smart practices
- Investment in infrastructure and technology

- Biosecurity measures
- Training and education

59. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No	
Department	Yes, department of forest and range		
Unit	Departmental officers		
Focal person	Project focal persons		

60. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

e) Yes
f) No, they don't have that capacity

If No, please explain why?

- Duo to limited of government resource there is no fund allocated for the sector.
- The necessary skills for public staff and technical capacity are still poor, because the quality of education centers is still poor and it has no capacity on the practical activity.
-

61. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

No climate laws, policy and regulations developed dou to financial limitation and poor technical capacity.

62. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

Not developed and appalied.

63. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

There is a willingness and initiative for developing policy, regulations and also strategies on the sector, the challenge is lack of resource.

64. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

Coordination and collaboration of national and regional level on the matters of climate change are not yet establishment.

65. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

e. Yes
f. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

No forums established, I believe that the establishment of forums are crucial to address and provide earlier warning and earlier action system.

66. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

e. Yes
f. No, If No, please explain why?

The kind of coordination currently excited in the different level is not adequate for climate change issue.

67. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

My view is to establish coordination of different level (technical and high level) is significant in the matters of addressing climate change.

68. . Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

The willingness to participate climate coordination is high, the challenge is understanding of climate change, enhance the recognition the concept of climate.

69. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

As the wiliness is high its only need creation of strong coordination, active participation of tripartite, regional, national and also different level of the private organizations.

Focus group discussions (FGDs)

Part1. Identification data

4. District name	Kismayo-Lower Juba
5. Village/location name	Jeerinley
6. Focus group participants (names)	10 participants

1. How many households are in this village?

   Around **800HH** official figures should be confirmed from the Authorities.

2. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….

3. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
1. Livestock		✓				
2. Crops	✓					
3. Small business						
4. Remittance from relatives						
5. Other (Cash+ from Aid Agencies)						

4. During the last 10 years, food security in this village has (circle your choice)
    1. Increased
    2. Decreased
    3. No change

    Decreased due to climatic effects such as recurrent droughts

5. During the last 10 years, the number of livestock in this village has (circle your choice)
    1. Increased
    2. Decreased
    3. No change

Decreased due to diseases and drought effects.

6. What kind of livestock production do we have in this village?
    Shoats, camels, cattle, poultry and donkeys

7. During the last 10 years milk production or other livestock production in this area has increased?
    1. Increased
    2. Decreased
    3. No change

Decreased due to lack pasture – only hand-fed most of the time.

8. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
1. Scarcity of fodder and pasture		✓				
2. Animal diseases			✓			
3. Scarcity of water	✓					
4. Scarcity of labor					✓	
5. Low market prices				✓		
6. Other (specify)						
7.						

9. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?
    Yes, it has decreased. Grazing routes have changed. Due to numerous settlements, deforestation and charcoal burning.

10. During the last 10 years milk production per lactating animal has (circle your choice)
    1. increased
    2. decreased
    3. no change

    Decreased
11. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

    No change experienced
12. Are crops cultivated in this village or area?

    Yes
13. If yes, what kinds of crops are grown? Is there any irrigated crop?

    maize, cowpeas, sesame, watermelon, and groundnuts.
14. What is the average yield of main crop per hectare?

    Maize-9bags each 50kg, cowpeas 6bags of 50kg each
15. Have crop yields declined or increased during the last 10 years?

    Declined
16. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

    No, but farm by-products such maize stover, legumes stalks and maize husks are used as fodder
17. What percentage of households own land in this area or village? What are the main constraints when it comes to land ownership?

    95% own land in this village as its rainfed farming land. Challenges is only topography for one get a suitable farming/settlement land. However, this situation is different from riverine areas where land is scarce.
18. During the last 10 years land degradation in this area has:
    1. Increased
    2. Decreased
    3. No change

Increased

19. What are the major causes of land degradation in this area?

- ***Recurrent droughts and floods***
- ***Ploughing***
- ***Overgrazing***
- ***Settlement***
- ***Deforestation***
- ***Increased sunshine (Global warming)***

20. Are there farms with soil conservation structures in this area? If yes, how many?

    No soil conservation structures.

21. Are there soil conservation structures in the rangelands in his area? If yes, how many?

    No
22. What are the land use practices in this area?

    Settlement

    Cemetery

Institutions (schools, mosques, hospitals etc)
Grazing
Farming

23. Do you have community initiatives for conserving your natural resources (rangelands, and water)?
    1. Yes
    2. **No**
24. If yes, please explain: Is there a community organization managing water, access to grazing areas?
    n/a
25. What community committees exist in this village?
    Community Leadership Committee, traditional elders and religious leaders
26. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc…)
    No distinct structured in gender wise
27. Is there Prosopis in this village?
    1. Yes
    2. **No**

28. How long has Prosopis been in this village? ***N/A***

29. What are the main sources of your drinking water (circle all that apply)
    1. Berked------Number:
    2. Shallow well-----Number:
    3. Dam----------Number:
    4. Deep well----------Number
    5. Streams----------Number

Deep well sourced from distance of 4-5KM

30. What are the main water sources for irrigation?
    N/A
31. Indicate below the challenges in crop production.

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	✓					
Frequent floods		✓				
Outbreak of pests and diseases			✓			
New weeds				✓		
Scarcity of labor						✓
Soil erosion		✓				
Lack of improved seed		✓				
Low market prices			✓			

32. In your opinion, during the last 15 years have droughts become (circle your choice)
    1. More frequent
    2. Less frequent
    3. No change

    More frequent
33. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

    Causes poor pasture/vegetation production
    Leads to livestock poor body condition thus lost of quality
    Poor yield.
    Anticipation include traditional seasonal situational analysis such as wind direction changes, environmental temperature changes, traditional astrology, broadcasting from radio stations

    Coping mechanism include migration to areas with relatively better pastures, change to drought resistant livestock e.g camel rearing, water trucking – delivering water to areas with better pasture but distant from regular water sources

34. In your opinion, during the last 15 years have floods become (circle your choice)
    1. More frequent
    2. Less frequent
    3. No change

    More frequent
35. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

    Devastation/destruction of crops but if not too much it has positive impact on livestock as it regenerates vegetation and pastures.
    It can be anticipated with the frequency and intensity of the rain.
    Moving the livestock to higher groups.

36. During the last 15 years, rainfall (circle your choice)
    1. increased
    2. decreased
    3. no change

    Decreased

37. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

    Changing rainfall pattern can lead to poor crop growth, poor crop yield and It can also cause poor pasture. Yes there crop got changed and livestock was invested less due to the changing rainfall patterns.

38. During the last 10 years, soil and land degradation in this village has (circle your choice)

1. increased
2. decreased
3. no change

Increased

39. During the last 10 years, Gu rains have been coming (circle your choice)
    1. Early
    2. Normal time
    3. Late

    Late

40. Have water resources become
    1. More available and accessible
    2. Less available and less accessible
    3. No change

    Yes, water resources become less available and less accessible.

41. What type of trees have declined in this area during the last 15 years?
    Marer (cordia ovalis), Kobosh and Labi (Delonix elata)

42. During the last 10 years, have conflicts in this area
    1. Increased
    2. Decreased
    3. No change

    No change

43. What are the causes of conflicts?
    N/A

44. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

Yes, Droughts and floods and change in rainfall pattern are affecting us more than conflicts.

45. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.
    No.
46. How do you address conflicts?
    Minor conflicts are addressed/solved through traditional elders system.
47. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?
    Seek government assistance particularly water tracking and make prayers.

48. What are your suggestions for conserving the natural resources in your area?
    a) **Establish permanent water source such deep well/bore hole.**
    b) **Establish tree nursery for reforestation.**

49. What are the major sources of fuel for cooking in this village?
    Fire woods (Dry wood)

50. What type of stoves are used in this village?
    Traditional 3-stones stoving system

51. Is there any community range or forest near your village?
    1. Yes
    2. No

    Yes, There is a degraded range and forest near the village.

52. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?
    1. Slight degradation
    2. Moderate degradation
    3. High degradation
    4. None

    Moderate degradation

53. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

Early warning system connected/accessible to communities timely.

54. What activities do you suggest attaining the resource improvement?

1. Effective protection
2. Management including community participation
3. Reseeding
4. Reforestation
5. Other (specify)

All the above four.

55. What benefits do you get from the rangelands and forests?
    Grazing, Fire-woods, Construction, Wind protection and Shade.

56. What is the most important tree species you utilize to satisfy your household needs?

1. For fuel - **Charcoal from trees like Dhabay, Xarar (Terminalia spincota) and Cadad (Assacia Senegal) within reach.**
2. For construction – **Mir-dhis trees (Anisotes inuolucratus)**
3. For fodder – **Qurac (Accacia tortiles), Tugeer (Accacia Nilotica), Qalanqal (Boscia coriacea)**
4. For food – **Marer (cordia ovalis) and Kobosh**

EFA data collection form

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	Lower Juba **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.**

Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agropastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agropastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.			
General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	6 members			The average Somali family consists of six members
Average land holding per individual agropastoral household (in ha)	Rainfed = 10-12ha Riverine = 5-6ha			Rainfed – Large land spaces are available in the dryland fields. Riverine – land topography sloppiness/ water resources distance and weeds dominancy are factors affecting land spaces.
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)		Rainfed= Normally no rent Riverine = 5-6ha USD 300 per year		
Average wage rate per day per agricultural employee (pure monetary wage)		USD 6		Based on local measurement (Darab/Ul and Boosto/Tacab) for example sawing/weeding/transplanting activities
Are there any taxes or fees that agropastoral folks pay? E.g., land tax?		Product tax		

VAT, water tax? etc. If yes, please list them in detail.				
SOS to USD exchange rate-current		USD 1=SOS 27,000		
Average interest rate on a loan for agropastoral farmer (loan can be from middlemen, micro-lending institution, or bank, please specify)		12%-20%		The local MFI/Banks use Murabaha loans modalities which is based on selling of in-kind commodities to borrowers. Depending on the loan repayment period, the profit (extra amounts charged) range from 12% for one year to 20% for two years.
Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agropastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.	Sesame - 1ha Maize 1ha Sorghum 1ha	480-500 1200-1260 1000-1200	KG KG KG	Sesame is produced through monocropping during deyr season for cash generation. Majorly it is rainfed. Maize is majorly produced during Gu' season both riverine and rainfed. Sorghum is majorly produced during both Gu' and Deyr seasons.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.	Good year Bad year	10% 40%		In a good year there is 10% post-harvest loss In a bad year there is 40% post harvest loss
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	2-3years			Major climatic shocks including Elnino are experience in 2 decades. Regular shocks like droughts and flash floods are experienced in 2-3years.
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?	Sesame	90% sold, 10%		

	Maize Sorghum	consumption. 20% Sold, 80% Consumption 20% Sold, 80% Consumption		
List types and volumes of commodity byproducts. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agropastoral farm.	90% of the above-mentioned commodities' byproducts are used for animal feeding			These byproducts are used for animal feeding specially during dry seasons.
List volumes of all inputs necessary for farmers to plant and manage selected sample crops: **seeds (volume per ha)-note I need yields from improved versus regular seeds**, fertilizers (volume per ha), bags for collecting, etc.	Maize seeds/1ha Sesame seeds/1ha Sorghum seeds /1ha	6-6.5KG 4.5-5KG 4.5-5KG		
List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)- **note I need prices of improved versus regular seeds**, fertilizers (price per kg), bags for collecting, etc.	Sesame=1 Kg Maize =1Kg Sorghum = 1Kg	SOS 35,000 SOS 11,500 SOS 11,500		
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.	Labour	USD 6		This is the average wage based on local measurement (Darab/Ul and Boosto/Tacab) for example sawing/weeding/transplanting, harvesting, land clearance on a full day activity.

Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agropastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agropastoral farm and prices of such tools.				
Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agropastoral farm				
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agropastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agropastoral household (please list # of goats' vs cows, vs camels, etc.	Goats Cows Sheep Camel	35-40 15-20 40-45 3-5	herds	
Average annual mortality of animals (if drought happens)-can be in % loss per animal type. Please list details.	Sheep and goat Cows Camel	60% 70% 3%		
What is the % of animal sales per year when good versus bad year? Please state it per animal type.	Good year Bad year	5% 10-20%		Agropastoralists sell animals during crop failure due to crop affecting diseases outbreak, floods, droughts for meeting their household needs.
Do farmers sell animals live? If not, describe how they do it.	Yes			
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agropastoral household from such activities? If they consume that milk, please provide volume of consumption (average per HHs)	Yes, milk, ghee Consumed volumes are not normally measured.	USD 800-1100		The income generated from these products are used for meeting human/animal health services, farm inputs, wedding and asset creation such building houses, construction of water bans and communal contributions e.g clan contributions

List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type	Goats Sheep Cows camel poultry(chicken)	SOS 1,600,000 1,080,00 6,300,00 13,500,00 94,500		These are average prices based on varieties of animals with different body conditions.
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon	1.5liter	SOS 54,000		Common milk sold in the markets are camel and cows milk. Goat and sheep milk are use for household consumption specially for children and the elderly as they have high proteins values.
Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.	New Borehole	50,000 (service for the drilling rig) $3000-water bump $8000 engine	Dollar	Borehole to be constructed for Jeerinley village community as they source water from about 4.5 km away.
	Water tank (50m3)	20, 000 (water tank construction	Meter cubic	

	Digging trench for lying pipes	2$/meter		
	Pipes (4500 meters)	31/pipe	Pipe	
	Beneficiary 800HH		HH	
For new constructions: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)	New irrigation canals: 3 km canal:	60$/meter (wall size 40cm, 40cm under ground, above ground 50cm (all costs, labour, materials inclusive)		Riverine communities need to have their irrigation system improved (both new and rehabilitation of damaged ones) The cost of rehabilitation depends on the magnitude of damage, but 60$/m (indicated for the new infrastructure above) could be taken as reference for the cost of rehabilitation.
For new constructions: Please state potential benefits associated with its construction-quantify all that you can. E.g., number of beneficiary agro-pastoral HHs that could benefit		Farmers situated near rivers rely on individual water pumping systems and small separate farm canal for irrigation, eliminating the need for primary water canals to share with other farmers. Each separate canal built would benefit 8 to 15 sharecroppers (HH) who work in the farm as sharecroppers, and later at the harvest divide the produce with farm owner. Earlier support to farmers along the Juba River by development organisations has not been successful for two reasons: 1) most farmers have direct access to river bank and do prefer to be independent; 2) there is no management capacity and legal referral for potential disputes arising from water sharing. This autonomy allows them to make informed decisions about crop cultivation and irrigation practices, leading to increased agricultural yields and economic stability for the community In terms of rehabilitation of canals (in this case farmer based canals) the cost would be calculated based on the cost given above for new canals. For exact bill of quantities of building canals, water pans, water pumps and other accessories, one can refer to FAO engineers who can give an ample information. ..		
For water infrastructure rehabilitation activities: State what would be needed in terms of improving this water infrastructure (labour requirement/costs plus material, tools, etc.). Pleas eina s much detail as possible.				
For rehabilitation of existing water infrastructure: Please state potential benefits associated with its rehabilitation-quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				

EFA data collection Form

Somaliland

Full Proposal

Climate Resilience Agriculture in Somalia (GCF Project)

Annex 1: Government partners/Local authorities

Annex 1

QUESTIONNAIRE

09-12 March 2024

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Prepared By
Jimale Said
Field Based Agriculture Associate

Reviewed By
BenZid, Rym
Senior Environment Advisor

MARCH 2024

Section One
Information about Institutions and Respondents

Name of Institution: Ministry of Agriculture Development	Level: Regional level	
Type of Institution: Government	g) National	
	h) Regional State	✓
Office headquarter City: Odweyne District		
Respondent Name:		
Respondent's Position: Regional representative/coordinator		
Respondent's contact: Email: Tell:		
Date: 10/03/2024		

1. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

The MoAD representatives informed us that Somalia and Somaliland are currently dealing with major climate-related emergencies such as drought, water scarcity, severe heat, and so on. This has a significant impact on vulnerable people, particularly the agropastoral community, which highly depends on climate-sensitive sectors such as livestock and agriculture. However, they stated that their office periodically raises awareness and mobilizes the rural community concerning the sustainable use of common natural resources such as water, forests, livestock, and rangelands to achieve longer-term higher productivity, climate change adaptation, and farm incomes under climate change. On the other side, they always provide close support to UN agencies and climate change-related initiatives in the Odweyne district.

2. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- ✓ Lack of knowledge and skills
- ✓ Insufficient infrastructure
- ✓ Natural resource constraints
- ✓ Improper mitigation programs
- ✓ Economic barriers,
- ✓ Limited financial and inadequate funding and,
- ✓ Limited local information.

Are the main barriers that preventing our population/community from addressing the impact of climate change.

3. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

Cutting down trees, charcoal production, land degradation, land use change, invasive plant species, and prolonged droughts.

4. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

Since, they are responding to the climate change challenges, both government and donor initiatives require collaborative support in order to prepare the agropastoral community for natural disasters, resilience, mitigation, adaptation, monitoring, and so on. Furthermore, it is recommended to address issues associated with climate change such as drought and water scarcity by harvesting rainwater, conserving soil and water, and cultivating drought-tolerant and rainfed crops like maize, sorghum, and sesame.

5. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological, and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

Gaps include inadequate institutional coordination, a lack of technical, and managerial skills for establishing and carrying out adaptations to climate change, a lack of funding for climate change actions, and a lack of capacity for adaptation planning. Furthermore, the main obstacles to an effective response to climate change are the lack of understanding about climate change, instability in politics, and the effects of climate change all occurring at simultaneously.

6. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

Ministry officials advised planting drought-tolerant crops, planting crops earlier, improving agronomic practices, proper rainwater harvesting, developing meteorological forecasting capability, farmer training on good agricultural practices and climate-smart agriculture, knowledge transfer at the regional level, replanting forests, and restoring damaged rangelands are the adaptation measures that they would like this project to address.

7. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

Agropastoral communities benefited from previous interventions implemented in their villages, because they received agriculture opportunities resulting in increased income, quality, and diversified seeds (vegetables and cereals), inputs such as tools, tractor/tillage hours, and equipment, including sesame processing machines, and assets in general (processing). In addition, the community received training on beekeeping and apiary management, land preparation, fodder production, and processing techniques; runoff water was decreased due to the implementation of soil bunds; and they received energy-saving stoves, as well as fodder and Prosopis machines and basic farm tools. As vulnerable farmers require tillage hours, maintaining periodic tillage for farmers is recommended. On the other side, management of pests, insects, and diseases affected crop and beekeeping production is advisable.

8. What are capacity limitations that target community face (list them) in order to address resource-based conflict and implement land use plans?

There is no resource-based conflict among the communities living in the target villages.

9. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

The target villages received water from shallow wells, berkeds, and water catchments lacking a plastic geomembrane. The majority of these water sources require rehabilitation, while several others, particularly berked, are currently inoperable.

10. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.
    a. Yes
    b. No

few locally adapted varieties are available to farmers.

11. Do target farmers get trainings on farming techniques? If yes, list them.
    a. Yes
    b. No

The target farmers received many trainings on farming techniques, including the following: Land preparation training includes clearing and weeding the field, pre-irrigation, plowing or tilling, harrowing, flooding, and leveling, farming practices, organic farming and fertilizers, the application and safe use of chemical pesticides, GAP, and climate smart agriculture training.

12. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

Mixed farming involves cultivating and rearing different crops and/or livestock on the same piece of land; hence, this farming technique assists farmers by boosting their source of income, improving soil health, and minimizing the risk of crop and/or livestock failure. Additionally, farmers may have difficulties in managing different crops and animal species such as goats, sheep, camels, and cattle due to low rainfall and severe farming conditions, as well as needing to purchase livestock, seeds, and equipment. Furthermore, mixed farming can be difficult for agropastoral individuals who lack the necessary skills and expertise to carry out both tasks efficiently. As a result, for mixed farming to be successful, farmers must have crucial abilities and knowledge in both animal husbandry and crop management.

13. Does your institution have specific department, unit, or focal person to handle Climate Change issues?

	Yes	No
Department	✓	
Unit	Agriculture Extension Unit	
Focal person		

14. Does your institution have adequate financial resources, necessary skills, and technical expertise for effective implementation of the climate change adaptation?
    a. Yes
    b. No

Regional representatives of the ministry informed us that their institution lacks the technical expertise, the required skills, and sufficient funding to carry out climate change adaptation activities. Conversely, the restricted funds are allocated for the purpose of creating and preserving security as well as partially covering the cost of institutional employees' salaries. Fortunately, when there are climate-related issues, such as droughts, Somali businessmen, the diaspora, and the community form committees, which are frequently supported by the government, to raise funds and coordinate the funding to help disaster-affected communities across the country.

15. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies, or strategies?
    a. Yes
    b. No

The government has created a number of programs and policies, including the National Adaptation Programme of Action (NAPA), in response to the challenges posed by climate change. It additionally integrated climate change into its National Development Plan for the years 2020 to 2024.

16. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional, and local levels? If not, why?

Yes

17. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

The regional ministry representatives confirmed that they adhere to the national policy on climate change adaptation strategy, as well as the overall strategy of action to cope with the consequences of climate change. They also stated that they always maintain the goals and targets for tackling climate change in Somaliland, as well as the principles and techniques that direct the carrying out of actions aimed at mitigating the possible negative consequences of climate change on the development of the country. Because climate change creates significant risks to the food security and livelihoods of vulnerable people (rural community), their office assists and mobilizes rural villages.

18. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?
    If yes, please name who is involved and what role do they play, and who can join?

Their institution is a part of the Ministry of Agriculture and Development. Their role is to tackle environmental damage, deforestation, and land degradation. The ministry develops laws and conservation efforts. The ministry is also responsible for creating plans to reduce the effects of climate change. It promotes the use of renewable energy sources and strengthens vulnerable populations' ability to withstand the effects of climate change. In addition, they also work with the Ministry of Environment and Climate Change.

19. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges, and report on the progress of your work?

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

a. Yes
b. No

The climate change forums or coordination mechanisms we could share experiences, challenges, and report on the progress of our task comprise government ministries, educational institutions (Universities), NGOs, and researchers.

20. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

a. Yes
b. No,

If No, please explain why?

Exist coordination mechanism between our institution and other national level institutions is inadequate, because all the world countries are victims of the climate change challenges. As all the nations contribute to and suffer the impact of the climate disaster to various degrees since global emissions have been linked to the effects of climate change. Considering this, the only possible way to deal with the global issue is through international collaboration. On the other hand, global cooperation is vital in the struggle against climate change. Solid cooperation may assist mitigation and adaptation of climate change.

21. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

Planning, implementation, and adaptation to climate change all depend on developing institutional coordination and the ability at the national level. Strengthening climate change adaptation at the regional and federal levels is essential, as it aids the government in eliminating obstacles to climate change adaptation, since the whole country and communities need to find adaptation solutions and put them into action to tackle the effects of climate change both now as well as in the future.

22. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

a. Yes
b. No

If No, please elaborate further?

FOCUS GROUP DISCUSSION GUIDE

Qaloocato and Abdi Farah Villages in Odweyne District

Climate Resilience Agriculture in Somalia (GCF Project)

Annex 2.

QUESTIONNAIRE

09-12 March 2024

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Prepared By
Jimale Said
Field Based Agriculture Associate

Reviewed By
BenZid, Rym
Senior Environment Advisor

MARCH 2024

CONTENTS

LIST OF TABLES

1.0. Demographic variables

During the focus group discussion, 20 of the participants were men and 10 were women. Table 1 shows the respondents' gender-related data.

Table 1. Gender of respondents

Gender	Number of respondents
Male	20
Female	10
Total	30

1.1. Age of the respondents

The age of the participants in interviews must be considered during the focus group discussion to find out which age group primarily worked and resided in Agropastoral villages. Table two reveals that 5 of the respondents were between the ages of 20 and 30, 15 between the ages of 30 and 40, 5 between the ages of 40 and 50, while 5 over the age of 50. As a result, the majority of respondents were between the ages of 30-40.

Table 2. Age of the respondents

Age of the respondents	Number of respondents
20-30yrs	5
30-40yrs	15
40-50yrs	5
50 above	5
Total	30

1.2. Marital status of the respondents

In order to determine which group attended the data gathering activity the most frequently, the respondents were additionally inquired about their marital status. As shown in Table 3, 25 of the respondents were married, whereas 5 of the respondents were single. As a result, the majority of participants in this data collection activity were married.

Table 3: Marital status of the respondents

Marital status	Number of respondents
Single	5
Married	25
Total	30

1.3. What is your level of education?

During focus group discussions, the respondents' educational background is crucial since it frequently helps to gather reliable and accurate information. The respondents were questioned to find out their greatest level of formal education during the focus group session.

Table 4 presents a summary and presentation of the education-related data. 20 of the respondents were illiterate, two had completed secondary education, and eight had completed primary school.

Table 4. What is your level of education?

Institution	Number of respondents
Primary	8
Secondary	2
Illiteracy	20
Total	30

1.4. How much land do you own in hectors?

In order to identify which farm size, they owned the majority of the respondents were also asked to indicate the size of their land. **Table 5** presents the information related to the land size of the respondents. Five of the respondents owned more than ten hectors, whereas the majority of respondents (25) owned 5-10 hectors. Therefore, the majority of the target farmers owned 5–10 hectares.

Table 5. How much land do you own in hectors?

Farm size	Number of respondents
5-10 hectors	25
More than 10 hectors	5
Total	30

1.5. How long have you lived in this area?

Finally, the question "How long have you lived in this area?" was asked of the respondents in order to identify the number of years they had lived there. The results were compiled into the table below. The majority of respondents, as indicated by Table 6, spent five to ten years living in the target villages.

Table 6. How long have you lived in this area?

Years	Number of respondents
1-5yrs	3

5-10yrs	20
More than 10 yrs.	7
Total	30

Section two

Identification data

7. FGD villages	Qaloocato and Abdi Farah Villages
8. Village/location name	Odweyne District
9. Focus group participants (names)	30

53. How many households are in this village?
    - At the moment, the village has 475 households.
54. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest. Do not forget to locate rivers, villages, town.

55. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
6. Livestock		✓				
7. Crops	✓					
8. Small business			✓			
9. Remittance from relatives				✓		

10. Other (specify)					✓	

56. During the last 10 years, food security in this village has (circle your choice)
    4. Increased
    5. Decreased
    6. No change
57. During the last 10 years, the number of livestock in this village has (circle your choice)
    4. Increased
    5. Decreased
    6. No change
58. What kind of livestock production do we have in this village?

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
8. Scarcity of fodder and pasture	✓					
9. Animal diseases			✓			
10. Scarcity of water		✓				
11. Scarcity of labor						✓
12. Low market prices				✓		
13. Other (specify)					✓	
14.						

S#	Camel	Milk	Skin/Hides	Transport	Meat
1	Sheep	Milk	Skin/Hides	Butter	Meat
2	Goat	Milk	Skin/Hides	Butter	Meat
3	Cattle	Milk	Skin/Hides	Butter	Meat

59. During the last 10 years milk production or other livestock production in this area has increased.
    1. Increased
    2. Decreased
    3. No change
60. Indicate below the challenges in livestock production.

    Comment: Due to prolonged droughts, scarcity of water, and changing rainfall patterns, milk production or other livestock production in this area has decreased.

61. Has the rangeland area decreased over the last 10 years? Have the grazing routes changed? How and why?

The majority of the respondents pointed out that rangeland areas have been decreasing over the last ten years due to.

- Native grasses and bushes disappeared as a result of prolonged dryness and a shortage of rain.
- The climate change, global warming and increasing temperature.
- Weeds and invasive plants dominated rangelands.
- Desert Locust challenges
- Constant/endless social conflicts and disputes
- fencing of rangeland for private use
- Overgrazing and overstocking.
- Inadequate government rangeland management policies
- Mismanagement of the rangelands
- The presence of extremely water-consuming plants, such as Prosopis species.
- Natural constraints include soil erosion and droughts.
- Insect pests and plant diseases
- The role of environmentalists is missing.
- Activities related to urbanization.

62. During the last 10 years milk production per lactating animal has (circle your choice)
    1. increased
    2. decreased
    3. no change

63. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

    Respondents explained the new tendencies. This region was home to a variety of native species ten years ago. Some of these trees were utilized to collect fruits, which the villagers transported and sold in the Burco market. Some of the natural trees were also used to feed livestock. Many of those trees are no longer present in the area. Furthermore, during those periods, the communities frequently received adequate rainfall during the spring and autumn seasons.

64. Are crops cultivated in this village or area?
    - Yes
    - No
65. If yes, what kinds of crops are grown? Is there any irrigated crop?
    The farmers in the target villages informed us that they practice rainfed farming. Additionally, when the spring and autumn (Gu and Dayr) rains start each season, people grow crops including sorghum, sesame, beans, maize, and watermelon. Additionally, when they have adequate water on their berkeds, wells and other water sources, they perform irrigated farming by planting various vegetables such as tomatoes, okra, carrots, lettuce, cabbage, onion, beets, and peppers. Irrigated farms, on the other hand, exist in limited numbers.

66. What is the average yield of main crop per hectare?

S#	Main crop	Yield/hectare	Market price
1	Sorghum	4000 kg	$24/50 kg
2	Maize	1000	$20/50 kg
3	Sesame	1000 liters	$60/100 liters
4	Beans	1000	$45/50 kg
5	Tomato	1000 Kg	$10/10 kg

67. Have crop yields declined or increased during the last 10 years?
    - Increased
    - Declined
68. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?
    The targeted villages are among the greatest producers of fodder in the country. Furthermore, during droughts, this fodder is sold and transported to Berbera City to feed livestock before being shipped to Arab countries. It is also sold to pastoralist groups in neighboring areas.
69. What percentage of households' own land in this area or village? What are the main constraints when it comes to land ownership?
    Most of the respondents owned 5–10 hectors.
70. During the last 10 years land degradation in this area has:
    1. Increased
    2. Decreased
    3. No change

Comment: land degradation is partly a result of rising firewood use. The level of groundwater is further lowered when more wells are required due to frequent water shortages. Overgrazing causes desertification and soil erosion by destroying the plant cover.

71. What are the major causes of land degradation in this area?

The respondents identified the following as the main causes of land degradation.

- Deforestation
- Desertification
- Overgrazing
- extreme weather events such as recurrent droughts and lack of rain
- firewood use
- charcoal production
- Irresponsible use of natural resources
- Overstocking
- Lack of land use planning
- Erosion and,
- Unsustainable agricultural practices

72. Are there farms with soil conservation structures in this area? If yes, how many?

There are less than 40 farms with soil conservation structures in this area.

73. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- Yes
- No

74. What is the land use practices in this area?

There are different types of land use practices in the target villages, and they are.

- ❖ Residential
- ❖ Livestock grazing areas
- ❖ Agricultural
- ❖ transportation, and
- ❖ Commercial.

75. Do you have community initiatives for conserving your natural resources (rangelands, and water)?

1. Yes
2. No

If yes, please explain: Is there a community organization managing water, access to grazing areas?

There are community owned organizations conserving natural resources, notably rangelands and water resources, which are vital to the preservation of biodiversity and the protection of forests and rangelands.

76. What community committees exist in this village?

Both the villages have a management committee, and they are.

- Chairman of the village (Village head)
- Deputy Chairman
- Secretary and,
- Four committee members

77. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc.…)

Respondents from Qaloocato villages confirmed that youth and women make up 30% of village committees and are represented in governance bodies, whereas all committee members in Abdi Farah village are men.

78. Is there Prosopis in this village?

3. Yes
4. No

79. How long has Prosopis been in this village? ----------

Five years

80. What are the main sources of your drinking water (circle all that apply)

6. Berked------Number:
7. Shallow well-----Number:
8. Dam----------Number:
9. Deep well----------Number
10. Streams----------Number

81. What are the main water sources for irrigation?

The main sources of irrigation water are berkeds, wells, and water catchments.

82. Indicate below the challenges in crop production.

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	✓					
Frequent floods						
Outbreak of pests and diseases		✓				
New weeds			✓			
Scarcity of labor						
Soil erosion				✓		
Lack of improved seed					✓	
Low market prices						✓

83. In your opinion, during the last 15 years have droughts become (circle your choice)
    4. More frequent
    5. Less frequent
    6. No change

    Comment
84. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

    Prolonged droughts and shortages of water caused livestock deaths and crop failures. Furthermore, vulnerable rural people frequently face severe food insecurity; many have left their villages in search of water and pasture for their livestock. However, a shortage of clean water raises the risk of cholera and other illnesses. One of the simplest actions we can do in order to minimize the effects of drought is conserve water, store hay and grain, and sell weakened livestock.

85. In your opinion, during the last 15 years have floods become (circle your choice)
    4. More frequent
    5. Less frequent
    6. No change

    Comment: Low precipitation
86. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

    N/A

87. During the last 15 years, rainfall (circle your choice)
    4. increased
    5. decreased
    6. no change

    Comment

88. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing, or did you invest less/more in livestock rearing?

    Crop growth and production is reduced, livestock death due to the lack of pasture and water. Additionally, coping strategies such as growing of drought tolerant crops and multiple cropping is the best option.

89. During the last 10 years, soil and land degradation in this village has (circle your choice)
    4. increased
    5. decreased
    6. no change

    Comment

90. During the last 10 years, Gu rains have been coming (circle your choice)
    4. Early
    5. Normal time
    6. Late

91. Have water resources become.
    4. More available and accessible
    5. Less available and less accessible
    6. No change

92. What type of trees have declined in this area during the last 15 years?

    The community of both villages indicated that many trees have been declined over the past 15 years compared to earlier times. The grasses, acacia (Specifically Qudhac and Galool), and shrubs are the trees that have declined in this area.

    Comment: The primary causes of tree decline include deforestation, overgrazing, land degradation, fragmentation and loss of habitat, climate change, and invasive species.

93. During the last 10 years, have conflicts in this area.
    1. Increased
    2. Decreased
    3. No change

94. What are the causes of conflicts?

    During our visits to the target villages, we found no evidence of conflict, land, or natural resource disputes between the communities.

95. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

    They agreed that droughts and floods and change in rainfall pattern affecting them more than conflicts.

96. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.
    a. Yes
    b. No

97. How do you address conflicts?

    N/A

98. What coping mechanisms are used in this village in the face of various stresses e.g. droughts, floods, etc.?

N/A

99. What are your suggestions for conserving the natural resources in your area?

The respondents agreed that all of the things they need to survive, such as food, water, air, and shelter, are derived from natural resources; thus, natural resource conservation is essential for them, so that all living things can benefit from them now and in the future. They also suggested that these are quite important.

- ✓ Solar and wind energy are examples of alternative power sources.
- ✓ Plant trees to reduce soil erosion and combat climate change.
- ✓ Practicing water conservation in our villages.
- ✓ Growing vegetation in water catchment areas.
- ✓ Rainwater Harvesting
- ✓ Prevent deforestation and charcoal producing operations.
- ✓ Managing livestock grazing.

100. What are the major sources of fuel for cooking in this village?
Charcoal and firewood, and cow dung.

101. What type of stoves are used in this village?
Jikokoa and other local production stoves

102. Is there any community range or forest near your village?
1. Yes
2. No

103. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?
1. Slight degradation
2. Moderate degradation
3. High degradation
4. None

48. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

N/A

49. What activities do you suggest attaining the resource improvement?

6. Effective protection
7. Management including community participation.
8. Reseeding
9. Reforestation
10. Other (specify) ----------

49. What benefits do you get from the rangelands and forests?
- ✓ Nutrient Cycling
- ✓ Source of firewood and medicinal herbs.
- ✓ Pollutant Filtering

- ✓ Biodiversity Preservation
- ✓ Feed for the livestock.
- ✓ Providing animal habitat and open area for recreation.

50. What is the most important tree species you utilize to satisfy your household needs?

5. For fuel ----------
6. For construction ----------
7. For fodder ----------
8. For food ----------

S#	For fuel	For construction	For fodder	For food
1	Acacia bussie	Acacia bussie	Duur	Balanites orbicularis
2	Acacia misera	Acacia misera	Maajeen	Balanites aegyptica
3	Acacia albida Del	Acacia albida Del	Birre	Grewia tenax
4	Balanites aegyptica	Balanites aegyptica	Doomaar	Grewia pencillata
5	Balanites orbicularis	Balanites orbicularis	Timo-habloodle	Kleinia squarrosa

EFA data collection form

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	Qaloocato and Abdi Farah Villages, Odweyne District, Togdheer Region of Somalialnd. Contact Person. Ahmed Ibrahim Yousuf. (Ahmed.yousuf@fao.org) **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.**			
Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agropastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agropastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.			
General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	9			It is challenging to accurately determine the average family size in the area using qualitative methods due to the need for a comprehensive household survey. However, during our discussions with FGD participants, it was revealed that the average family consisted of nine individuals. Therefore, conducting a more extensive household survey may be necessary to obtain a more precise understanding of the demographic characteristics of the community.
Average land holding per individual agropastoral household (in ha)	10 ha			There exist agropastoral households that possess over 20 hectares of land, while others possess 1 hectare or less, resulting in an average land holding of 10 hectares per household. This variation in land ownership among agropastoral households can be linked to several factors,

				such as inheritance practices, historical land distribution, and economic resources. It is vital to take these factors into account when developing policies or programs aimed at fostering sustainable farming practices.
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)	Not Applicable			During our visit to the two villages, we discovered that there was no rental land available. According to the village committee, each farmer had their own plot of land to cultivate, thus eliminating the need for renting land to farm. Additionally, they mentioned that the community values self-sufficiency and sharing resources among themselves. This cooperative mindset has helped them avoid the need for renting land for agricultural purposes.
Average wage rate per day per agricultural employee (pure monetary wage)	80,000 SLSH per day.			The village committee told us that if a farmer needed someone to work in the field, they usually paid 80,000 slshes per day. This rate is considered fair and competitive within the two villages, ensuring that both farmers and workers are satisfied with the arrangement. It also provides employment opportunities for those in need of work.
Are there any taxes or fees that agropastoral folks pay? E.g., land tax? VAT, water tax? etc. If yes, please list them in detail.	No			
Somaliland shiling to USD exchange rate-current		1 USD = 8850 SLSH		
Average interest rate on a loan for agropastoral farmer (loan can be from middlemen, micro-lending institution, or bank, please specify)	No			Agricultural-pastoral farmers typically resort to informal lending practices within their communities, as they are unable to access micro-lending institution, or bank. These community-based loans do not incur interest charges, as they are repaid in their entirety without any additional fees or interest. Farmers often obtain these loans from local shops in their villages, and they return the full amount borrowed, which ensures that no interest is accumulated.
Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agropastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional	80 bags each bag is 50kg.			Qaloocato and Abdifarah Villages primarily cultivate sorghum, sesame, and cowpeas, and also grow cash crops such as watermelon, tomatoes, and onions. These crops are typically planted in two seasons of the year: spring and autumn. Farmers in these villages rely on

explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.				traditional farming methods and rainwater for irrigation, leading to fluctuations in crop yields based on weather conditions. Despite these challenges, the communities have been able to sustain themselves through a combination of subsistence farming and selling surplus crops in local markets. The village heavily relies on rainfall for watering its crops, which can sometimes lead to difficulties during dry spells. Despite this limitation, farmers in Qaloocato and Abdifarah Villages have developed effective strategies to maximize their yields and ensure food security for the community. In Qaloocato village, the crop farming method used by the locals is intercropping. This method has been passed down through generations because it is seen as a sustainable and efficient way of farming. It is difficult to find farmers in the village who use monocropping and crop rotation. On the other hand, farmers in Abdifarah village practice both intercropping and monocropping, but it is more common for them to grow cash crops only. The choice between intercropping and monocropping in Abdifarah village depends on the specific crop being grown and the market demand for it.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.				Post-harvest losses typically occur when farmers transport crops without proper bags or containers, resulting in damage and economic loss. Moreover, insufficient storage facilities for keeping crops fresh and protected from pests can also contribute to post-harvest loss. These losses can significantly impact food security in communities reliant on these crops for sustenance. To mitigate these issues, farmers need access to appropriate infrastructure and market opportunities. Harvest loss typically arises during good seasons when a substantial number of crops are harvested and preserved for future use. Despite our diligent efforts, some crops may be lost due to uncontrollable factors like droughts, locust or pest infestations. This not only affects our current food supply but also has consequences for future crops and the long-term sustainability of our agricultural practices. Minimizing harvest loss is essential to guarantee food security and economic stability in agricultural communities. Therefore, the likelihood of harvest loss is lower during bad seasons when there are no crops to harvest. However, during good seasons, the likelihood of harvest loss rises due to the abundance of crops that need to be harvested and stored properly.
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	2 times every year.			One of the most significant challenges faced by farmers is the recurring issue of drought, which typically occurs twice a year. In Somalia, there are two rainy seasons: Gu, which lasts from April to June, and Deyr, which spans from October to December. Consequently, if there is no

				rain during these periods, farmers encounter numerous difficulties. These timeframes are critical for planting and harvesting crops, as well as providing water for livestock. Without adequate rainfall during Gu and Deyr, farmers face considerable hardship in sustaining their livelihoods and may even experience food shortages.
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?				Crops harvested are divided into three categories. One-third of the harvest is reserved for household consumption, another one-third is sold, and the remaining one-third is stored for times of drought. This division ensures that the family has enough food to sustain themselves throughout the year, while also providing a source of income from selling a portion of their crops. Additionally, setting aside a portion of the harvest for times of drought helps to mitigate the risk of food insecurity during periods of low agricultural productivity. By carefully managing their crop distribution, the family is able to maintain food security and financial stability in the face of unpredictable environmental conditions.
List types and volumes of commodity byproducts. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agropastoral farm.				Farmers grow crops such as sorghum, cowpeas, and sesame primarily for household consumption, and any surplus is sold at local markets to generate income. In addition to this, animals on the farm are fed fodder, silage, and leftover crops to maintain their health and strength. Sorghum – 2 hectares Cow peas – 1 hectare Sessame – 0.5 hectare. Cash crops – 1 hectare
List volumes of all inputs necessary for farmers to plant and manage selected sample crops: **seeds (volume per ha)-note I need yields from improved versus regular seeds**, fertilizers (volume per ha), bags for collecting, etc.				**1 hectare for 2 galloons.** (This means that for every two gallons of seed you want to plant, you will need 1 hector of land to do so). **1 hectare for 80 – 100 kilograms**. (This means that for every hectare of land, 80–100 kilograms of fertilizer are recommended for optimal crop growth). Local people prefer to use seeds sourced from their own regions since these seeds have adapted to the specific climate and soil conditions of the area. Farmers believe that using local seeds will give their crops a better chance of thriving in their environment. Moreover, using local seeds helps to promote biodiversity and preserve traditional farming practices that have been passed down through generations.
List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)-				NA

note I need prices of improved versus regular seeds, fertilizers (price per kg), bags for collecting, etc.				
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.				1. Land preparation 1 day 2. Unnecessary trees are removed from the garden. This helps create a more organized and visually appealing space. 5 days 3. Subsequently, any debris is removed from the garden, which can either be composted or disposed of responsibly to maintain a clean and healthy garden.5 days. 4. The tractor digs up the field to ready it for planting crops. Following the preparation, seeds are sown, and the tractor assists with irrigation and upkeep during the entire growing season.2 days depend on the size of the farm. 5. Fencing 7 days 6. The farm awaits the rain to arrive and revitalize the crops.
Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agropastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agropastoral farm and prices of such tools.				irrigation system, Hand pump, Sickle, Shovel, Axe, Hoe, Tractor, Machete, Plough, Honey extractor, Beehive boxes, and Grain storage/sacks.
Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agropastoral farm				Fodder machinery, sorghum milling machine and oil grinding equipment.
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agropastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agropastoral household (please list # of goats' vs cows, vs camels, etc.				

Animal	Minimum	Maximum
Goats	20	150
Cows	1	20
Camels	1	50

				Donkey | 1 | 3
Average annual mortality of animals (if drought happens)-can be in % loss per animal type. Please list details.				Animal | Average annual mortality Goats | 50% Cows | 80% Camel | 10% Donkey | 10%
What is the % of animal sales per year when good versus bad year? Please state it per animal type.				| % of animal sales per year | Good Seasons | Bad Seasons Goats | 10% | 50% Cows | 0% | 20% Camel | 10% | 40%
Do farmers sell animals live? If not, describe how they do it.				Farmers usually do not sell livestock unless there is a severe drought or financial hardship. Livestock is an important source of income and livelihood for many farmers, so selling them is a last resort. .
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agropastoral household from such activities? If they consume that milk, please provide volume of consumption (average per HHs)				Milk Sold Good and Bad seasons. Animal Species Milk Production | Good Season | Bad Cattle | 3.5 – 4 Liters | 1 - Camel | 3.5 – 4 Liters | 1.25 Goats | 0.500 -0.700 Milliliter | 0.25 Agropatrolists commonly sell camel and cow milk, and they typically produce additional items such as ghee or butter. These items are frequently sold at regional markets or directly to customers in rural locations. However, they do not provide goat milk for sale, as they believe it is crucial for the growth and development of young children.
List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type				NA
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon				NA

Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.				***Qaloocato Village has two water catchments, and they are requesting.*** ✓ The two water catchments do not have a geomembrane, which results in limited water retention for brief periods of time. As a result, they have requested to install a geomembrane for the water catchment. ✓ They also requesting the installation of a water tower that is connected to the water catchment system, where a solar-powered pump will transport the water to the tower for distribution to the water kiosks. ✓ To support in the rehabilitation of 15 berkads who are currently not working. ✓ The issue of land erosion in my region is causing significant damage to the surrounding environment and requires immediate attention to prevent any further degradation of the land. It is crucial to address this problem promptly to mitigate its impact on the ecosystem. ***Abdifarah village.*** ✓ The community of this village are requesting the reconstruction of the water catchment system that was built 60 years ago and has since become completely dilapidated. They believe that restoring the water catchment will improve access to clean water and help mitigate the effects of drought in their community. ✓ The images below depict the water catchment system that is encircled by wells. The wells serve as a source of water for the catchment, ensuring a constant supply for collection and distribution. This setup allows for efficient utilization of rainwater and minimizes wastage in the process.

				 
For new constructions: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)				NA
For new constructions: Please state potential benefits associated with its construction-quantify all that you can. E.g., number of beneficiary agro-pastoral HHs that could benefit				
For water infrastructure rehabilitation activities: State what would be needed in terms of improving this water infrastructure (labour requirement/costs plus material, tools, etc.). Pleas eina s much detail as possible.				The community in Abdifarah village has been grappling with the issue of water scarcity for several years and has had to rely on contaminated water sources to meet their daily needs. With the rehabilitation of the water catchment 5,000 households will have an access to clean water, which will not only offer a dependable supply of clean water for the community but also alleviate the burden on women who currently have to travel long distances to fetch water. This project will also have a positive impact on the overall health and well-being of the village residents. Furthermore, the project will also benefit the local agriculture sector by offering farmers a reliable water source for their crops and livestock.
For rehabilitation of existing water infrastructure: Please state potential benefits associated with its rehabilitation-quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				

Puntland

KEY INFORMANT GUIDE
Government partners/Local authorities

Section 1: Information about Institutions and Respondents

Name of Institution:	Level	
Type of Institution:	i) National	
	j) Regional State	
Office headquarter City:	Garowe	
Respondent Name:		
Respondent's Position	Department Director of Rangeland-MoECC	
Respondent's contact:	Email:	
Date:		

70. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, ministry of environment and climate change has an overall mandate towards the climate change adaptation as The Ministry has core mandate for Climate Change Resilience.
The Ministry is the government institution responsible for formulating, coordinating, and implementing policies, laws, programs, and projects aimed at ensuring the sustainable development and improvement of the climate resilience conditions in Puntland.
In advancing policies and programs, the Ministry focuses on principles of good governance and human climate adaptation. Additionally, the Ministry collaborates closely with the International Development Partners, and Civil Society Organizations (CSOs) in climate adaptation development efforts.
The Ministry is obligated to provide every person a clean, healthy, and ecologically balanced environment, contribute to reliable food security, and affordable alternative energy for domestic use and build resilience against climate change, drought, and related disasters.
This can best be achieved through developing and implementing appropriate strategic interventions and building and nurturing close collaboration, partnerships, and networks with key stakeholders in environment, and climate change.
The Ministry will be guided by its Vision of ensuring that Puntland achieves sustainable environment management and climate resilience and its Mission which is to coordinate and oversee development and implementation of policies, programs, strategies, plans and partnerships to support sustainable environment protection and climate resilience initiatives in Puntland.
Enhance protection of Puntland's endangered species (animals and plants) by responding quickly to the advice of the communities/scientists and completing robust species-at-risk recovery plans in a timely way.

71. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

Limited community knowledge and awareness in addressing climate change.
Financial scarcity due to covid19 pandemic and reduced developmental programmes in the country.
Weak Enforceable law, policies and regulations.
Recurrent droughts and floods.

72. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- As a result of increased demand for energy, water, and land due to population growth, environmental degradation and climate change vulnerability may worsen.
- The process of rapid urbanization frequently leads to the expansion of cities into areas that are more susceptible to climate-related hazards, such as coastal regions or floodplains.
- Land degradation, agricultural expansion, and deforestation also alter ecosystems and decrease their ability to withstand the effects of climate change.

73. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

Yes, there has-been some governmental and donor initiates for responding climate change

1. NRM project
2. Biyoole project aimed at combating climate change through promoting rangeland, water sources and farming sector.
3. Climate governance.

74. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- Weak institutional capacities, fragmented governance structures, lack of coordination among stakeholders, and insufficient political will can impede the implementation of effective climate change policies and actions.
- Deficits in unique financial systems, the high initial expenses of renewable energy technologies, and restricted financial access, particularly for developing nations and marginalized groups, can be major obstacles.
- Limited funding for climate change mitigation and adaptation efforts, inadequate allocation for government tof resources, and competing budget priorities can hinder progress

75. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production.

1. Promoting of farmers Capacity building for the project.
2. Development of water harvesting techniques through construction of dams, drilling boreholes to address water scarcity.
3. Support for farmers for farm tools and equipment.
4. infrastructure development for agricultural productivity increases.
5. Reforestation efforts to stabilize soil erosion impacts for the farmers.
6. Promotion of solar energy to promote green initiatives and reduces pollution.
7. Encourage farmers essential crop gardening initiatives for improving community food security.
8. Combating and management of prosopis species which as detrimental effects in the crop fields.
9. Promoting farmer's capacities for GAP.

76. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

1. There are frequent failures in project implementation due to overlapping projects.
2. Donor initiatives should consider the Puntland five years plans and priorities for effective planning responses.

77. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

3. Clashes as a result of scarce water and pastures.
4. Increased land ownership disputes.
5. Climate change which us driving force for natural resources conflicts.
6. Limited community disaster preparedness ad responses.

78. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

1. Boreholes are private, therefore, the Garowe district does not manage the water.
2. Comprehensive plan is needed for rainwater harvesting and desalination of hard and salt water

79. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

1. Yes, they grow such drought resilience crops of maize, sorghum and beans but it's very small scale.
2. Community are now practicing planting crop resilience crops as fodder for their animals.

80. Do target farmers get trainings on farming techniques? If yes, list them.

Yes, it is true that some UN organizations and governmental agencies also provide training for Garowe farmers but farmers still lack modern irrigation practices for large scale produce.

81. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

Yes although it's very rare , as results of limited knowledge for mixed farming , financial scarcity and water scarcity .

82. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	Climate action Director	
Unit	Head of Climate resilience	
Focal person		

83. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

g) Yes
h) No

If No, please explain why?

-
- Financial scarcity
- Weak governance and law enforcement
- Limited technical expertise

84. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

For the MoERCC to carry out its mandate fully and effectively it has developed several policies, regulations, and guidelines. Some of these are mentioned here below:

- Puntland Environmental Policy.
- Puntland Agricultural Policy.
- Puntland Waste Management Policy.
- Puntland Rangeland Management Policy.
- Puntland Seed Policy.
- Puntland Rural Land Policy.
- Puntland Environmental law.
- Puntland Agricultural Act.

Puntland Environmental Impact Assessment Act.

85. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

For the MoERCC to carry out its mandate fully and effectively it has developed several policies, regulations, and guidelines. Some of these are mentioned here below:

- Puntland Environmental Policy.
- Puntland Agricultural Policy.
- Puntland Waste Management Policy.
- Puntland Rangeland Management Policy.
- Puntland Seed Policy.
- Puntland Rural Land Policy.
- Puntland Environmental law.
- Puntland Agricultural Act.
- Puntland Environmental Impact Assessment Act.

All above mentioned policies and acts are practiced with in Puntland.

86. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

The ministry doesn't have the role of implementing policies it's for law regulation agencies to implement.

87. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

Yes, the ministry of environment and climate change at federal level is the only body.

88. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

g. Yes
h. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

Yes, such coordination forums include Puntland environmental Conference, Puntland tree plantation week, Puntland Water day etc.

89. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

g. Yes
h. No, If No, please explain why?

No, further collaboration is needed, currently there is poor coordination between FGS and FMS.

90. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

Better cooperation between FGS and FMS.
It is inappropriate to politicize problems related to climate change or other developmental initiatives.

91. . Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

No , MoERCC is committed to closely collaborate all pertinent working climate change

92. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- It may be reinforced by honoring the duties and mandates of each organization both FGS and FMS this will lessen problems about mandates.
- Increased collaboration and support with government agencies related climate change responses.

Section 1: Information about Institutions and Respondents

Name of Institution:	Level	
Type of Institution:	k) National	
	l) Regional State	
Office headquarter City:	Garowe	
Respondent Name:		
Respondent's Position		
Respondent's contact:	Email:	
Date:		

93. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

- Community education and awareness-raising to steer clear of disaster-prone areas and waterways.
- Establishment of designated areas for waste disposal, prioritizing measures to safeguard community health.
- Implementation of rainwater harvesting initiatives to mitigate water scarcity.
- Provision of training on disaster and risk management to grassroots communities.
- Efforts to combat fire outbreaks to ensure community safety.

94. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Limited community and knowledge and understanding on climate responses
- Financial scarcity to effectively respond climate matters.
- Increasing community vulnerability to disaster as a results of population increase , recurrent shocks and Poverty.
- Law enforcement for existing policies, regulation and strategies is very limited.
- Poor governance and commitment of the central government on empowering local governments.

95. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- Implementing a comprehensive plan for waste management.
- Preserving human settlement in wetlands and other disaster-prone areas.
- Un authorized vehicles uses in rangelands causing severe degradation.
- Tree cutting for farm fences and livestock reducing vegetation cover of the district.
- Limited Enforcement of existing laws and policies for environmental resources conservation.

96. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- The district started an initiative whereby it charges the local community $1 for electricity and water, with every dollar raised going toward improving the district's development initiatives.

- Empowering the community to address the challenges of climate change through awareness and training.
- provided land for development projects such resettlement project of like Nagaad which is aimed to improve the resilience of the drought affected pastoral communities.
- There some initiatives from the donors including SURP 2 project which is designed for the development of roads of the district while considering social and environmental dimensions.

97. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- The financial resources are limited as the community did not receive the expected revenue share and no grants were provided.
- Limited legal enforcement capacity and understanding of the local community.
- Provision of basic community services such as roads, water wells, small-scale irrigation systems, healthcare services does not exist.
- limited education and skills development for district employees.

98. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

- Promoting of farmers Capacity building for the project.
- Development of water harvesting techniques through construction of dams, drilling boreholes to address water scarcity.
- Support for farmers for farm tools and equipment.
- infrastructure development for agricultural productivity increases.
- Reforestation efforts to stabilize soil erosion impacts for the farmers.
- Promotion of solar energy to promote green initiatives and reduces pollution.
- Encourage farmers essential crop gardening initiatives for improving community food security.
- Combating and management of prosopis species which as detrimental effects in the crop fields.
- Promoting farmer's capacities for GAP.

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99. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- There are frequent failures in project implementation due to overlapping projects.
- The district administration should be consulted to ensure fair allocation of available resources of the project.
- It is advisable to establish centralized food distribution centers to avoid duplication of food for asset efforts and prevent failures in community planning.
- Donor initiatives should consider the district plans and priorities for effective planning responses.

100. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- If the municipality had taken responsibility for land ownership, disputes would not have occurred since the land belongs to individuals and companies.

101. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure.

- Boreholes are private, therefore, the district does not manage the water.
- Yes, we have a comprehensive plan to hand over the management of the district's water resources to the district and its administration.

102. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- Yes they grow such drought resilience crops of maize , sorghum and beans but it's very small scale .

103. Do target farmers get trainings on farming techniques? If yes, list them.

- Yes, it is true that some UN organizations and governmental agencies also provide training that our districts do not know.

104. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

105. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	Social affairs	
Unit	Head of Climate resilience	
Focal person		

106. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

i) Yes
j) No

If No, please explain why?

- A rise in poverty and employment opportunities.
- Inadequate use of the local natural resources.

107. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

1. Yes, we enforce the laws and policies.
2. Environmental management act
3. Disaster management act

108. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- No, laws and policies developed by your district accepted and applied by other relevant institutions at the national, regional and local levels? If not, why.

109. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- The district current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels is very limited as results of limited financial capacity, and expertise.

110. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

- No as no coordination between federal and state level.

111. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

i. Yes
j. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

- No

112. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

i. Yes
j. No, If No, please explain why?

- No its in adequate , as a district we collaborate with Puntland ministry of interior only.

113. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

- It may be reinforced by honoring the duties and mandates of each organization; this will lessen problems about mandates.

114.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

- No its in adequate , but as district we are committed to actively participate climate coordination platforms and share information.

115. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- It may be improved by providing financial assistance for efficient planning of climate adaptation and enhancing the technical capabilities of local government employees regarding adaptation planning and responses.

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Government	
Type of Institution:	m) National	
	n) Regional State	
Office headquarter City:	Dangorayo	
Respondent Name:		
Respondent's Position	Elder	
Respondent's contact:	Email: Tel:	
Date:	17/03/2024	

116. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

- Ensuring the provision of assistance to address gully erosion problems and prevent further rangeland damage.
- Conducting assessments of the impacts of floods and providing assistance to affected areas.
- Implementing measures to mitigate water scarcity issues to improve crop and livestock productivity.
- Undertaking interventions to address the impacts of drought, including providing fodder for animals and agricultural activities.
- Implementing water conservation measures to ensure sustainable use of limited water resources and prevent further degradation.
- Participating in climate change adaptation workshops and conferences.

117. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Financial limitations stem from the reluctance of district residents to fulfill their tax obligations, impeding community participation in addressing climate change issues.
- Limited local commerce contributes to the district's economic challenges, reducing community involvement in climate change matters.
- Community members lack adequate knowledge and skills to effectively address the impacts of climate change.
- Weak enforcement of existing environmental protection regulations aimed at preserving the district's natural resources exacerbates environmental degradation.
- Land disputes arising from competition for scarce resources further exacerbate community tensions and hinder effective climate change adaptation efforts.
- Inadequate road infrastructure for coastal areas impedes access to the district, hindering support for climate change initiatives.
- Recurrent droughts exacerbate water scarcity and agricultural challenges, further stressing the community's resilience.
- Gully erosion threatens agricultural lands, urban settlements, roads, and grazing areas, posing significant environmental and economic risks.
- Illegal wildlife hunting contributes to the near-extinction of certain species, undermining ecosystem health and biodiversity conservation efforts.

118. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- the detrimental effects of new highways on rangelands.

- Socioeconomic problems including social exclusion, resource scarcity, and poverty make communities more vulnerable to the consequences of climate change.
- Deforestation, irresponsible agricultural practices, and overgrazing all lead to land degradation,
- Burning animal fences to keep animals out and prevent animal pests and disease infestations
- Unauthorized usage of vehicles on pasture lands.
- The poaching of wildlife.
- Rangeland conditions are adversely affected by gully erosion.
- New urbanization causing disputes and altercations.

119. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- There are a few completed conservation efforts, but they are rather uncommon. A few of these projects are the gully erosion restoration structure that has been led by donors in cooperation with government officials and is being executed in Farxamur, Ceemaad, Dangorayo, Dhigato Qolqol, baruura shiil and Dhumay valley.

120. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- Limited Funding: because no money is collected from the district's residents Inadequate enforcement: implementing current land resources management is poor.
- use of unauthorized vehicles on grazing grounds, deforestation; poaching of wildlife.
- New settlement over disaster-prone areas.
- Increasing the number of herd composition per nomadic household exacerbates land degradation and creates intricate feedback loops that complicate efforts to manage rangelands.
- absence of coordination: Ineffective action is hampered by fragmented governance and a lack of cooperation between various government departments, stakeholders, and local populations.
- The district lacks the institutional capacity and technological know-how to adequately address climate change.

121. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

- Distributing technologies and training farmers in good agricultural practices and integrated pest management will empower them to be more productive and sustainable.
- Enforcing environmental regulations will help conserve natural resources for future generations.
- improving infrastructure and market access would allow farmers to get their produce (crops and livestock) to market more easily and increase their income.
- Improving Water conservation schemes such as construction of dams, and drilling boreholes.
- Restoration of degraded lands such as gullies and bare land.

122. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- there have been notable accomplishments such as the rehabilitation of the in farxamur , ceemaad , dangorayo , dhigato qolqol ,dhumay baruura shiil valley and various community-led initiatives such as road repairs, rehabilitation borehole drilling, and the construction of health and educational facilities.
- However, ineffective monitoring and evaluation processes have led to the failure of some projects such projects include dhafaadhul valley, qolqol stockpiles,
- Moving forward, it's crucial to integrate best practices that prioritize sustainability and address the specific needs and priorities of the district.
- In order to restore gullies, gabions ought to be used instead of rock piles, and afforestation should be supported.

123. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- The capacity limitations that target communities may face in addressing resource-based conflicts and implementing land use plans can vary depending on the context, but some common challenges include:
- Communities may lack technical expertise in areas such as land management, environmental conservation, and conflict resolution, which can hinder their ability to develop and implement effective land use plans and strategies for addressing resource-based conflicts.
- Social divisions, cultural norms, and traditional practices can contribute to conflicts over land and natural resources.
- Weak governance structures, corruption, and lack of transparency in decision-making processes can undermine communities' ability to participate in land use planning and management effectively and hold authorities accountable for their actions.

124. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- There is now only one functioning borehole that provides partly desalinated saline water at a cost of 1.5 per cubic meter of water. Together, these boreholes supply 40% of the location's water needs. Water shortage is still a major problem in the district even with a rather strong water infrastructure.

- Water storage facilities must be developed in order to solve this issue. Plans also demand the construction of dams, extracting additional boreholes, and expanding the city's water supply networks in order to provide a sufficient supply of water for all citizens.

125. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- No, farmers in the district commonly do not grow climate-resilient crops but cash crops and other fruit trees as a result of Limited farm products, and water shortage.

126. Do target farmers get trainings on farming techniques? If yes, list them.

No, there is no farming-related training provided to the district farmers.

127. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

Yes, mixed farming practices offer various benefits such as income diversification and increased productivity, particularly during times of crop failure due to drought. However, they also pose challenges including the need for knowledge and skills, risks of disease transmission, and competition over resources.

To address these challenges and optimize the benefits of mixed farming, several solutions can be implemented:

Providing farmers with training on integrated pest management, sustainable grazing practices, and improved manure management techniques can enhance their knowledge and skills, enabling them to overcome challenges effectively.

Ensuring access to veterinary services for livestock health care can help minimize the risks of disease transmission, thereby safeguarding both animals and crops.

Effective mixed farming requires careful planning, knowledge, and support. By addressing these challenges through training programs, infrastructure development, and improved access to resources and markets, farmers can better manage their mixed farming systems and maximize their benefits.

128. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	No	No
Department	Social affairs	-
Unit	no	
Focal person	no	

129. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

k) Yes
l) No

If No, please explain why?

- No, a thorough assessment is required to ascertain whether the institution possesses the resources and expertise necessary for effective climate change adaptation. However, our district lacks the funding and needs skill empowerment in order to bring in more experts in the field for effective climate implementation.

130. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

- Yes, there are existing district regulations such as the Environmental Conservation Act, and the District Development Plan. However, enforcement of these regulations is hindered by financial scarcity.

131. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- Although our district has enacted a few environmental conservation regulations, we haven't applied for dissemination funding issues and insufficient enforcement.

132. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- If given sufficient assistance, our district is capable of implementing climate change adaptations in an efficient manner. We currently possess all of the required plans, policies, activities, and people resources. But having more backup and resources would make it much easier for us to implement these changes successfully.

133. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

Yes, it's highly probable that the Puntland Ministry of Environment and Climate Change (MoECC) collaborates closely with other relevant ministries such as Agriculture, Water, and Disaster Management to develop comprehensive climate change strategies. This collaborative approach allows for the integration of various sectoral perspectives and expertise, ensuring that climate change strategies are holistic and effectively address the diverse challenges posed by climate change in the region.

134. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

k. Yes
l. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

Yes, Puntland likely organizes environmental conservation conferences as well as disaster-related conferences. These events likely involve participation from all sectoral partners, including government ministries, non-governmental organizations, academic institutions, and other relevant stakeholders. Such conferences serve as important platforms for sharing knowledge, exchanging best practices, and coordinating efforts to address environmental challenges and mitigate the impacts of disasters in the region.

135. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

k. Yes
l. No, If No, please explain why?

No. Instead, within the current framework, efforts may be focused on improving advocacy, communication, information sharing, and teamwork. Furthermore, making certain that resources are distributed fairly among interested parties may enhance group initiatives pertaining to Puntland's conservation and disaster management.

136. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

To strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level, several actions can be done;

- Establish a dedicated body or authority to oversee the coordination of activities to adapt to climate change amongst different government departments and agencies.
- Encourage cooperation and information exchange amongst pertinent government departments at FGS and FMS, agencies, and ministries that are engaged in climate change-related initiatives.

- Make sure there are enough funds set aside to support community-based programs, infrastructure development, research, and other climate change adaptation measures.
- Boost the availability of trustworthy climate data and information to assist government decision-making and planning procedures that rely on evidence.

137.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

- The current capacity is inadequate. However, the district's willingness to actively engage in climate change forums, share experiences, and propose solutions is acknowledged. This proactive involvement at the local level is vital for fostering collaboration and driving meaningful action towards effectively addressing climate change challenges..

138. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- Implementing and enforcing existing policies and regulations related to climate change.
- Establishing a rangeland management agency to oversee the management of grazing areas and pastures.
- Supporting the district's plans and priorities concerning climate change adaptation and mitigation.
- Providing accessible and appropriate technology solutions tailored to the district's remote locations to bolster climate change resilience efforts.
- Equipping district workers with the necessary tools, skills, and knowledge to effectively address and adapt to climate change challenges.
- Establishing a development fund for the district to address climate change adaptation measures.

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Government	
Type of Institution:	o) National	
	p) Regional State	
Office headquarter City:	Garowe	
Respondent Name:		
Respondent's Position	Farmers chairman	
Respondent's contact:	Email: Tel:	
Date:	19/03/2024	

139. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, the farmers have a clear commitment to addressing climate change, with a primary focus on the following areas:

- Conserving forests.
- We are planting trees to mitigate the environmental problems we face and to protect our land.
- We are facilitating the distribution of water to our farms and livestock.
- Agricultural development and management.
- Clearance of prosopis species.

140. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Financial problems.
- Lack of knowledge and skills for addressing climate change
- Limited coordination among farmers .

141. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- Socioeconomic challenges such as poverty, resource scarcity, and social disparities increase communities' susceptibility to the effects of climate change.
- Gully erosion pose significant threats to the area's natural resources and crop fields.
- Excavation activities as some truck drivers collection construction soil to the seasonal river of the farms.

142. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- There is limited activities performed by donors and government agencies. Such as distribution of tractors, green houses , construction of houses.
- Distribution of seeds.
- Training of farmers
- Gully rehabilitation activities

143. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- Limited Funding: farmers cannot avoid farming technologies to increase their harvest.

- Reduced market prices for local farm products.
- Increased debt since most of the whole retailers do not have hard currency.
- Weak Enforcement: enforcing existing regulations on land use, Unauthorized vehicle uses on grazing lands, deforestation control, Wildlife conservation and is challenging due to limited resources.
- Livestock herders destroy crop yields as farms have limited fencing
- Lack of Coordination: Fragmented governance and a limited of collaboration between different government agencies, farmers, and hinders effective action.
- Limited capacity: The Jibagalle lacks the technical expertise including enough farmers capacity to effectively respond to climate change , farmers doesn't have enough knowledge and skills on good agricultural practices.

144. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

- Improved Irrigation Systems through exploring and promoting drip irrigation and other water-saving technologies.
- Promoting water Harvesting Techniques: construction of dams, drilling boreholes, training farmers on rainwater harvesting, water storage methods, and efficient use of available water resources.
- Promote the adoption of drought-tolerant crop varieties suitable for the district such as Maize, Sorghum and Beans.
- Crop Diversification: encouraging farmer's diversification of crops to reduce vulnerability to pests, diseases, and extreme weather events.
- Distribution of agricultural technologies to the farmers to increase their productivity.
- Training of farmer for sustainable and good agricultural practices(GAP) and Integrated Pest Management.
- Training of local community on best gully erosion Management techniques that has negative impacts on the livelihood sectors of the district.
- Promotion of water and soil conservation initiatives including gabions, stockpiles and other conservation structures.
- Enforcement of the existing regulatory to enhance environmental conservation.

145. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- there have been notable accomplishments such as the rehabilitation of the fodder plantation and various community-led initiatives such as prosopis management, and borehole drilling.
- Date palm plantation led by GEFA.
- Kobciye project for green houses installation, fences, drip irrigation and distribution of farm tools including tractors.
- ICRC Farm tools distribution and other food for work activities.
- However, ineffective monitoring and evaluation processes have led to the failure of some projects.
- Moving forward, it's crucial to integrate best practices that prioritize sustainability and address the specific needs and priorities of the farmers.

146. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- No conflicts since every farmer has its own crop field.

147. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- We currently have 40 operational boreholes. These boreholes collectively meet 30% of the local water demand for 140 farms. Despite having a relatively robust water infrastructure, water scarcity remains a pressing issue in the district.

- To address this challenge, there is a need to invest in water storage facilities. Additionally, plans include, drilling 20 new boreholes, to ensure an adequate water supply for all farms.

148. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- Yes, farmers in the district commonly grow climate-resilient crops such as sorghum, maize, and beans. Agriculture and livestock products serve as the main sources of income for the community, along with the export of Paspalidium desertorum hay (gargaro) , xulle iyo ayax makare. The export of hay and beans generates hard currency for the local community.

149. Do target farmers get trainings on farming techniques? If yes, list them.

- No, there is limited farming-related training provided to the district farmers. Including , date palm production and management , tomatoes iyo lemon or citrus .

150. Do target farmer practice mix farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

- Yes, mixed farming practices offer various benefits such as income diversification and increased productivity, particularly during times of crop failure due to drought. However, they also pose challenges including the need for knowledge and skills, diseases and pests and competition over resources by eating farm products.
- To address these challenges and optimize the benefits of mixed farming, several solutions can be implemented:
- Providing farmers with training on integrated pest management, sustainable grazing practices, and improved manure management techniques can enhance their knowledge and skills, enabling them to overcome challenges effectively.
- Provide farm fences with all necessary supplies including fodder, water and health services.
- Construction of animal health post to combat livestock diseases
- Effective mixed farming requires careful planning, knowledge, and support. By addressing these challenges through training programs, infrastructure development, and improved access to resources and markets, farmers can better manage their mixed farming systems and maximize their benefits.

151. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	No	No
Department		
Unit	no	
Focal person	no	

152. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

m) Yes
n) No

If No, please explain why?

- No, since there is no community tax collected, alternative measures need to be taken to enhance the district's capacity to respond effectively to climate change. This involves focusing on improving the technical skills and understanding of district workers regarding climate change.
- By investing in training and capacity-building programs, farmers can acquire the necessary skills and knowledge to develop and implement efficient responses to climate change challenges. This may include training on climate-resilient agricultural practices, water management techniques, renewable energy solutions, and disaster preparedness measures.
- Additionally, raising awareness among farmers about the impacts of climate change and the importance of proactive measures can foster a culture of adaptation and resilience within the community. This can ultimately lead to more effective and sustainable responses to climate change.

153. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

- No , there are no existing written regulations Jibagalle

154. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- no

155. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- As a farmer, we have the capacity to implement climate change adaptations effectively given adequate support. Currently, we have all the necessary, plans, actions, and human resources in place. However, additional backup and resources would significantly enhance our ability to execute these adaptations successfully for increasing productivity to combat food insecurity.

156. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

- Yes, it's highly probable that the Puntland Ministry of Environment and Climate Change (MoECC) collaborates closely with other relevant ministries such as Agriculture, .

157. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

m. Yes
n. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

- Yes, Puntland likely organizes environmental conservation conferences as well as disaster-related conferences. These events likely World food day which is commemorated in Puntland

158. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?
    m. Yes
    n. No, If No, please explain why?

- No, Efforts could be directed towards enhancing communication, facilitating information sharing, and fostering collaboration within the existing framework.

159. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

160.

- Create a National Climate Change Committee
- Develop Joint Work Plans
- Regular Communication and Information Sharing:
- Enhance Capacity Building
- Develop a National Adaptation Fund
- Resources Mobilization
- Improve Monitoring and Evaluation
- Effective disaster preparedness and response mechanisms.

161.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

- It's in adequate, as village, the willingness to actively engage in climate change forums and share experiences, as well as propose solutions, is acknowledged. This proactive involvement at the local level is vital for fostering collaboration and driving meaningful action towards addressing climate change challenges effectively for Jibagalle farmers.

162. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- Increase local knowledge and skills for climate change planning and adaptation.
- Enforcing existing policies and regulation towards the climate change.
- Supporting financially to effectively plan and respond climate change impacts.
- Supporting the Jibagalle farmers plans and priorities related to climate change.
- Providing accessible and appropriate technology solutions tailored for the local farmers to enhance climate change efforts.
- Equipping Jibagalle farmers workers with the necessary tools, skills, and knowledge to effectively address and adapt to the challenges posed by climate change.

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Community	
Type of Institution:	q) National	
	r) Regional State	
Office headquarter City:	Godobjiraan	
Respondent Name:		
Respondent's Position	Elder	
Respondent's contact:	Email:- Tel:	
Date:	14/03/2024	

163. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, the district has a clear mandate towards climate change, we mainly focus the following areas.

- ✓ Development and proper management of agricultural irrigation systems to obtain sufficient food production.
- ✓ Combating wildlife poaching.
- ✓ Fighting new urbanization which involves implementing strategies to manage and control the expansion of urban areas, preserving rural landscapes, and promoting sustainable development practices.
- ✓ Providing rural communities and remote areas with access to awareness to avoid areas prone to disaster.
- ✓ Mitigation of environmental degradation affecting land fertility, agriculture, urban areas, and water bodies.
- ✓ Implementing water conservation measures to sustainably manage the local scarce water resources.
- ✓ Community awareness on land resources conservation.

164. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- ✓ Insufficient expertise and skills on climate responses.
- ✓ financial constraints as district lacks tax revenue and other allocated budget for climate change responses.
- ✓ Limited technological capabilities in terms of transportation and office equipment's.
- ✓ Absence of readiness measures for addressing climate challenges effectively.
- ✓ Absence of fences on farms to prevent animals from disrupting agricultural fields.

165. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

a) New urbanization
b) Deforestation of existing tree species
c) Recurrent Bush fire which is hardly affecting the natural resources.
d) Un authorized vehicles using rangelands.
e) Wildlife hunting
f) Sand dunes and Gully erosion.

166. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

Government and donor initiatives are severely limited; gully conservation structure has been made in Xudun valley for some years ago.

167. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

1. Regulatory Weakness: Inadequate enforcement of existing policies on rural development, urban planning regulations of lesser importance, soil erosion control regulations, and poverty alleviation laws.
2. Financial Constraints: Absence of community taxation systems, lack of revenue generation mechanisms, and absence of a clear framework for implementing regulations.
3. Technological Deficiency: Lack of transportation vehicles and office equipment hindering efficient operations.
4. Infrastructure: Insufficient office space, understaffing, absence of essential office utilities, and inadequate wages and rights for employees.
5. Ecological Challenges: Issues such as soil degradation, overgrazing, and ecological imbalance.
6. Limited Community Engagement: Inadequate efforts in reaching out to the community for participation and awareness.

168. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

a) Establishment of agricultural irrigation systems...
b) Provision of agricultural equipment such as tractors, farm fencing, seeds, and training on Good Agricultural Practices (GAP) and their applications.
c) Water management improvements (including construction of water reservoirs in rural areas, installation of irrigation systems to optimize water usage, introduction of new drought-resistant crop varieties, and wastewater treatment facilities in cities.
d) Community education and workshops on sustainable practices.
e) Rehabilitation of water sources such as wells, ponds, and dams.
f) Implementation of soil conservation measures.
g) Enforcement of existing regulations and community policies for environmental conservation.
h) Rehabilitation of gullies features to reduce its impacts on rangelands and crop fields.
i) Sand dune stabilization to reduce its movements and future implications on roads, settlements, pastureland and crop fields.

169. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- World Vision has implemented an agricultural development project that has taken significant steps in enhancing farming practices.
- The community has enthusiastically embraced the project, demonstrating positive engagement as results of self-help.
- Gully restoration activities in the Xudun valley have been successful.

- The project has been effective in addressing the community's needs, with people actively participating in its progress and development.

170. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

a) Community awareness and training on natural resources conservations.
b) Financial support
c) Strengthening local security forces, community policing efforts to reduce land use issues.
d) In accessibility of the remote areas in case of incidents.
e) Limited conflict resolution techniques.

171. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- Currently, there is no comprehensive water management plan in place for the district to address the community's water needs during the dry season when the boreholes become saline, resulting in reduced availability of fresh water."

172. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- Yes, local farmers in the district cultivate drought-resistant crops such as maize, sorghum, and beans. This area is known for the cultivation of such crops and also exports hay grasses to generate foreign currency.

173. Do target farmers get trainings on farming techniques? If yes, list them.

- No , the farmers does not get any training on farm techniques.

174. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

a) yes, while this practice contributes significantly to around 30% of the local food and livestock production, challenges emerge notably during drought periods owing to resource depletion.
b) To address these challenges, I suggest providing fences to local farmers to safeguard their crops from animal disturbances. Additionally, ensuring an ample water supply is crucial to boosting their productivity and livestock watering.

175. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	Yes	No
Department	Agriculture	
Unit	no	

Focal person	no	

176. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

o) Yes
p) No

If No, please explain why?

No, due to the absence of tax collection at the grassroots level, the staff lacks essential skills and technical expertise to effectively address climate change. These challenges significantly impede our efforts towards successful climate change implementation.

177. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

No

178. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

No, the absence of written laws and policies in the district archives contributes to the challenge.

179. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

The district lacks law enforcement mechanisms such as courts and police services.

180. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

Yes, the Ministry of Environment and Climate Change, which is the primary body overseeing such matters in Puntland and Somalia. On joint efforts on gully erosion control and sand dune stabilization activities which is crucial for environmental conservation and resilience against climate change.

181. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

o. Yes
p. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

No

182. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?
   o. Yes
   p. No, If No, please explain why?

No, this district is inaccessible, and the government doesn't pay much resources on climate initiatives.

183. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

- Collaboration between FGS and FMS institutions and private sector entities involved in these activities is essential.
- Access to development projects aimed at enhancing these operations should be facilitated.
- Acquisition of vehicles to respond to disaster emergencies is crucial.

184.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

- The current coordination mechanism is considered insufficient to address climate change adaptation needs. However, as a district, we are dedicated to actively engaging in climate coordination platforms to exchange experiences and contribute to climate change adaptation efforts at the Puntland level.

185. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- Facilitating regular meetings between the central government and the district administration.
- Ensuring access to financial resources.
- Procuring suitable vehicles for transportation in remote areas.
- Providing support for disaster resilience and adaptation projects.
- Renovating office spaces.

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Government	
Type of Institution:	s) National	
	t) Regional State	
Office headquarter City:	Eyl	
Respondent Name:		
Respondent's Position	Elder	
Respondent's contact:	Email: Tel:	
Date:	16/03/2024	

186. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, the district has a clear mandate towards climate change, we mainly focus the following areas.

- ✓ Collaboration with relevant organizations involved in climate change adaptation efforts to share knowledge and resources.
- ✓ Rehabilitation of badlands that has detrimental effects on rangelands.
- ✓ Promoting environmental conservation and biodiversity protection to address ecological challenges sustainably.
- ✓ stabilization of sand dunes to lessen the effects on rangelands, pastures, agricultural lands, settlements, and roadways.
- ✓ Sustainable use of available water sources to reduce water scarcity in harsh period.
- ✓ Resolving conflicts over natural resources, especially scarce water and pasture, through dialogue and mediation.
- ✓ Increasing community education and awareness on natural resources conservation.
- ✓ Promoting sustainable water use to alleviate water scarcity during drought periods.
- ✓ Addressing conflicts over natural resources, particularly water and pasture.
- ✓ Enhancing community education and awareness on conservation of natural resources.
- ✓ enforcing laws and regulations to prevent unauthorized development in water ways including drainages and other disaster prone areas.

187. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Financial limitations as a result of the district community un able to pay taxes.
- Limited capacity and expertise towards climate change events.
- insufficient community knowledge and capacity to tackle the impacts of climate change.
- Weak enforcement of existing environmental protection regulations and customary norms for conserving natural resources in the district.
- Need for improvement in addressing erosion and other resource management issues.
- Limited access to roadways, hindering the fishing sector and agricultural productivity in the district.

188. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- Communities are more susceptible to the effects of climate change when they are impoverished, have limited access to resources, or experience social inequality.
- Soil erosion lowers the productivity of the land and can be caused by deforestation, overgrazing, and unsustainable farming methods.

- Cutting trees for agricultural fence and livestock
- The fishing industry, which relies on marine resources, is no longer profitable.
- unauthorized vehicles a passing through rangelands
- wild hunting
- Ineffective law enforcement.
- Sand dunes and gully erosions that negatively impact the condition of rangelands.
- Rangelands overgrazed.
- Human encroachment on rangelands and growing urbanization.

189. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- There are some conservation programs in place, however they are quite limited. a few of these initiatives include gully erosion restoration structure implemented in canjeel , gubato valley, that has been conducted by donors in collaboration with government authorities.
- The Ministry of environment and climate change and World Vision collaborated to respond to climate change by establishing a nursery and producing seedlings of drought-resistant seedlings.
- A local organization initiated a reforestation project.
- The Natural Resource Management (NRM) project has made notable contributions to addressing climate change issues.
- An effort has been undertaken to stabilize the sand dunes in Mareeya and gabac villages.

190. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

Fiscal

- Limited Funding: As a result of no taxes being collected, continuous support for large-scale efforts like reforestation to stabilize sand dune and other sustainable land management techniques is extremely rare.
- Lack of Allocated Funds for Climate Change Response: There are currently no designated funds allocated specifically for responding to climate change challenges in eyl district.

Regulatory

- Weak Enforcement: enforcing existing regulations on land use, Illegal vehicle routes in rangeland, deforestation control, Wildlife conservation and Sand Dune Stabilization is challenging due to limited resources.
- Strengthening disaster Preparedness.
- Enacting Legislation to Protect Marine Resources.
- There is still a deficiency in law enforcement regulations.
- new urbanization.

Institutional gaps

- Lack of Coordination: Ineffective action is hampered by fragmented governance and a lack of cooperation between various government departments, stakeholders, and local populations.

Limited capacity: To adequately address climate change, the district lacks the institutional strength, personnel remuneration, transportation vehicles, and technological know-how.

191. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

I. Supporting the adoption of modern irrigation techniques to enhance agricultural productivity.
II. Providing assistance to irrigation systems to ensure even water distribution. h. Accessing high-quality inputs and distributing them to mitigate crop risks. Distributing fishing and agricultural technologies to farmers to increase their productivity.
III. Training farmers in sustainable and good agricultural practices (GAP) and integrated pest management.
IV. Providing training to the local community on the best sand dune stabilization techniques that have negative impacts on the livelihood sectors of the district.
V. Promoting water and soil conservation projects, including laying down of gabions, stockpiles, and other conservation structures for valleys affected gully erosion.
VI. Establishing tree plantations, especially in areas affected by sand dunes.
VII. Enforcing existing regulations to enhance environmental conservation.
VIII. stablishing and fully equipping a Rangeland Police.
IX. Improving irrigation systems by exploring and promoting drip irrigation and other water-saving technologies.
X. Increasing the production of sweet potatoes, which is prevalent in the Eyl district.
XI. encouraging the construction of dams, the drilling of boreholes, and the training of farmers about harvesting rainwater, water storage strategies, and the effective use of the water resources that are currently accessible.

192. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

-

193. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- capacity limitations that target communities might face when addressing resource-based conflicts and implementing land-use plans:
- Forming a committee for dispute resolution and offering assistance, including equipment and knowledge.
- Inadequate ability to plan and execute land use
- Limited availability of technical assistance and extension services;
- Weak community organizations for managing resources;
- Poor community organizations for resolving conflicts.
- In sufficient information management and data for the resources at hand.
- Budgetary Restraints
- Limited understanding of conflict resolution techniques in the community.
- Limited financial resources may hinder communities' ability to invest in land management initiatives, conflict resolution mechanisms, and capacity-building activities.

194. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- In the Eyl district, the water infrastructure comprises plays a crucial role aimed at providing access to water for domestic, agricultural, and livestock use. Some common types of water infrastructure in the district include: natural springs, and dug wells.
- while water infrastructure in the Eyl district plays a crucial role in providing access to water, there may be challenges related to maintenance, design, and resource constraints that affect its effectiveness. It is important for local authorities and stakeholders to address these challenges through targeted interventions and investment in sustainable water management practices.

195. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- No, the district farmers only produce irrigated fruit trees and cash crops; they don't utilize drought resistance seeds since there isn't adequate land available to grow such types that are resistant to drought.

196. Do target farmers get trainings on farming techniques? If yes, list them.

- No , eye farmers don't receive training on farming techniques.

197. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

- No, farmers do not practice mixed farming methods.

198. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	No	No
Department	Social affairs	Yusuf Ahmed Osman
Unit	no	
Focal person	no	

199. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

q) Yes
r) No

If No, please explain why?

- No, the district's revenue is limited. To ensure effective responses, district staff' technical proficiency and comprehension of climate change must be enhanced.

200. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

- Yes, there are some existing district regulations in place and but lacks enforcement due to financial scarcity, limited community outreach is hindering its effectiveness and Among them include Environmental conservation act and marine resources conservation and District development plan.

201. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- As a district, we have created the aforementioned plans and actions, but we haven't applied for inadequate enforcement or budgetary difficulties.

202. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- As a district, we can execute climate change adaptations if we're given back-up, because currently, all necessary Policies, plans, actions, and human resources are all in place.

203. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

- Yes, Puntland Ministry of environment and climate change MoECC likely collaborates with other relevant ministries like Agriculture, Water, and Disaster Management to develop comprehensive climate change strategies.
- Anyone who is willing to take part can join especially youth groups, And women.

204. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

q. Yes
r. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

- no, Puntland environmental conservation Conferences, disaster related conferences. All sectoral partners.

205. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

q. Yes

r. No, If No, please explain why?

- No, efforts could focus on improving communication, information sharing, and collaboration within the existing framework and equal distribution of resources..

206. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

- Establishing the National Climate Change Committee
- Formulating Collaborative Work Plans
- Consistent Information Sharing and Communication:
- Generate a national Fund for Adaptation
  F. Allocation of Resources
- Enhance the Tracking and Assessment
- Resilient methods for a disaster preparedness and response.

207.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

No

208. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- upholding existing regulations and policies related to climate change

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Government	
Type of Institution:	u) National	
	v) Regional State	
Office headquarter City:	Dangorayo	
Respondent Name:		
Respondent's Position	District Mayor	
Respondent's contact:	Email: Tel:	
Date:	17/03/2024	

209. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

a) solve issues with gully erosion and minimize further rangeland degradation.
b) Community awareness on disaster prone areas settlements.
c) Combating land disputes and other pasture and water tensions
d) Fighting new urbanizations.
e) Combat Wildlife poaching .

210. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Financial limitations brought on by district inhabitants' refusal to pay their taxes. The district's inadequate commercial systems make it difficult for the community to invest in land resources. A community lacking enough expertise to deal with the effects of climate change.
- The district's natural resource preservation strategies and existing environmental protection laws are not being adequately enforced.
- Land disputes brought on by competition for limited resources.

211. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- New urbanization has effects on districts. Rangelands.
- New roads which has negative impacts on rangelands.
- Socioeconomic challenges such as poverty, resource scarcity, and social disparities increase communities' susceptibility to the effects of climate change.
- Activities like deforestation, unsustainable farming methods, and excessive grazing contribute to soil erosion, diminishing land productivity.
- Recurrent bushfires pose significant threats to the area's natural resources.
- Unauthorized vehicle uses on grazing lands.
- Poaching of wildlife.
- gully erosion negatively impacting rangeland conditions.

212. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- There are some conservation programs completed, however they are quite limited. a few of these initiatives include gully erosion restoration structure implemented in farxamur , ceemaad , dangorayo , dhigato qolqol

,dhumay baruura shiil valley, that has been conducted by donors in collaboration with government authorities.

213. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- Limited Funding: As a result of no taxes being collected from the residents, continuous support for large-scale efforts like reforestation to stabilize gully erosion and other sustainable land management techniques is extremely rare.
- Weak Enforcement: enforcing existing regulations on land use, Unauthorized vehicle uses on grazing lands, deforestation control, Wildlife conservation and gully erosion is challenging due to limited resources.
- Lack of Coordination: Fragmented governance and a limited of collaboration between different government agencies, stakeholders, and local communities hinders effective action.
- Limited capacity:
- The district lacks the technical expertise including, transportation vehicles, employee salary and institutional capacity to effectively respond to climate change.

214. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

- Promoting water Harvesting Techniques: construction of dams, drilling boreholes, training farmers on rainwater harvesting, water storage methods, and efficient use of available water resources.
- Promote the adoption of drought-tolerant crop varieties suitable for the district such as Maize, Sorghum and Beans.
- Fodder production technologies.
- Distribution of agricultural technologies to the farmers to increase their productivity.
- Training of farmer for sustainable and good agricultural practices(GAP) and Integrated Pest Management.
- Training of local community on best sand dune stabilization techniques that has negative impacts on the livelihood sectors of the Dangorayo district.
- Promotion of water and soil conservation initiatives including gabions, stockpiles and other conservation structures.
- Tree plantations especially areas affected by gully erosions.
- Enforcement of the existing regulatory to enhance environmental conservation.
- Establishing and fully equipped Rangeland police.
- Opening of existing roads to minimize new roads.

215. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- While there have been some noteworthy successes, like the restoration of the in the Farxamur, Ceemaad, Dangorayo, Dhigato Qolqol, and Dhumay Baruura Shiil Valley, there have also been a number of community-led projects that have failed, including road repairs, rehabilitation borehole drilling, and the building of health and educational facilities. dhafaadhul valley, qolqol stocks, and other projects
- As we move forward, it will be essential to incorporate best practices that give sustainability top priority while attending to the district's unique requirements and goals.

216. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- Communities may face a range of capacity constraints, but they are particularly rare when it comes to resolving conflicts centered around resources and carrying out land-use plans. Technical competence limits and institutional/organizational restrictions are two categories into which these constraints might be divided.
- Inadequate capacity for land use planning and implementation: Communities may be unable to plan and execute land-use plans successfully due to a lack of knowledge and abilities, which can result in inefficiencies and conflict.
- Weak community organizations capable of mediating and resolving disputes pertaining to resource management: Communities may lack powerful and efficient organizations for this purpose.
- Limited access to extension services and technical assistance hinders communities' ability to develop sustainable land-use plans and resolve conflicts effectively.
- Weak district organizations for resource management

217. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- Although we only have one functioning groundwater that provides salty water, other partially desalinated boreholes provide 40% of the water needed in the area.
- Water shortage is still a major problem in the district even with a rather strong water infrastructure.
- Water storage facilities must be purchased in order to solve this issue. Plans also call for building dams, excavating additional boreholes, and expanding the city's water supply networks in order to provide a sufficient supply of water for all citizens.

218. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- No, the district's farmers often cultivate fruit trees and green veggies. The community's major sources of revenue are limited agriculture goods, fisheries, and animal products.
- The food resilience crops need large scale production and large area of land.

219. Do target farmers get trainings on farming techniques? If yes, list them.

- No, there is no farming-related training provided to the district farmers.

220. Do target farmer practice mixed farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

- Yes, mixed agricultural approaches provide a number of advantages, including higher production and income diversification, especially in drought-stricken years when crops fail.
- They do, however, also present difficulties, such as the requirement for expertise and abilities, the possibility of disease transmission, and resource rivalry.

  -Several strategies may be used to solve these issues and maximize the advantages of mixed farming:
- Educating farmers on integrated pest control, sustainable grazing methods, and better manure management strategies may increase their knowledge and abilities and help them deal with obstacles in a productive way.

- Making sure livestock health care services are accessible to veterinarians can reduce the likelihood of disease spread, protecting crops and animals both.
- Careful planning, expertise, and assistance are necessary for mixed farming to be effective. By using training to solve these issues

221. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	No	No
Department	Social affairs	-
Unit	no	
Focal person	no	

222. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

s) Yes
t) No

If No, please explain why?

- No, since there is no community tax revenue collected, alternative measures need to be taken to enhance the district's capacity to respond effectively to climate change. This involves focusing on improving the technical skills and understanding of district workers regarding climate change.
- Additionally, raising awareness among district workers about the impacts of climate change and the importance of proactive measures can foster a culture of adaptation and resilience within the community. This can ultimately lead to more effective and sustainable responses to climate change in the absence of community tax revenue.

223. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

- Yes, there are existing district regulations such as the Environmental Conservation Act, and the District Development Plan. However, enforcement of these regulations is hindered by financial scarcity.

224. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- As a district, we have created the aforementioned plans and acts, but we haven't applied for inadequate enforcement and budgetary difficulties.

225. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- As a district, we have the capacity to implement climate change adaptations effectively given adequate support. Currently, we have all the necessary policies, plans, actions, and human resources in place. However, additional backup and resources would significantly enhance our ability to execute these adaptations successfully.

226. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

- Yes, there's a good chance that in order to create comprehensive climate change plans, the Puntland Ministry of Environment and Climate Change (MoECC) works closely with other pertinent ministries like Agriculture and Disaster Management. The integration of varied sectoral viewpoints and skills is made possible by this collaborative approach, which guarantees that climate change policies are comprehensive and adequately address the range of difficulties posed by climate change in the region.

227. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

s. Yes
t. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

- Yes, Puntland likely organizes environmental conservation conferences as well as disaster-related conferences. These events likely involve participation from all sectoral partners, including government ministries, non-governmental organizations, academic institutions, and other relevant stakeholders. Such conferences serve as important platforms for sharing knowledge, exchanging best practices, and coordinating efforts to address environmental challenges and mitigate the impacts of disasters in the district.

228. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

s. Yes
t. No, If No, please explain why?

- No, Efforts could be directed towards enhancing communication, advocacy, facilitating information sharing, and fostering collaboration.
- Additionally, ensuring an equitable distribution of resources among stakeholders could further strengthen collective efforts to address environmental conservation and disaster management in Puntland.

229. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

- Develop Joint Work Plans.
- Regular Communication and Information Sharing:
- Enhance Capacity Building
- Develop a National Adaptation Fund
- Resources Mobilization
- Improve Monitoring and Evaluation
- Establishing of developmental programs to reduce climate change impacts.
- Effective disaster preparedness and response mechanisms

230.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes

No

If No, please elaborate further?

- It's in adequate, as districts, the willingness to actively engage in climate change forums and share experiences, as well as propose solutions, is acknowledged. This proactive involvement at the local level is vital for fostering collaboration and driving meaningful action towards addressing climate change challenges effectively.

231. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- upholding the laws and rules that are currently in place for climate change.
- Establishing a disaster management organization to deal with crises including flooding.
- Endorsing the district's objectives and strategies related to climate change.
- Enhancing climate change initiatives by offering relevant and accessible technology solutions that are
  suited to the district's rural regions.
- Supplying district employees with the instruments, know-how, and resources they need to successfully confront and adjust to the difficulties brought on by climate change

Section 1: Information about Institutions and Respondents

Name of Institution:	Level: Government	
Type of Institution:	w) National	
	x) Regional State	
Office headquarter City:	Garowe/Cuun	
Respondent Name:		
Respondent's Position	Farmers chairman of Cuun	
Respondent's contact:	Email: Tel:	
Date:	12/03/2024	

232. Does your organization have a clear mandate in the areas of climate resilience agriculture and climate change adaptation at large? If yes, please specify.

Yes, the farmers have a clear commitment to addressing climate change, with a primary focus on the following areas:

- Conserving forests and rehabilitating gully erosion.
- Protecting farms to enhance productivity and address food insecurity.
- Planting trees to mitigate environmental challenges and safeguard our land.
- Facilitating water distribution to farms and livestock.
- Agricultural development and management
- Community awareness for environmental conservation and management.

233. What are the main barriers that are preventing your population/community from addressing the impact of climate change?

- Financial constraints.
- Insufficient knowledge and skills for tackling climate change.
- Limited coordination among farmers' associations.

234. What are the non-climate drivers of change that exacerbate the (potential) impacts of climate change?

- Societies experiencing poverty, resource shortages, and social disparities are more vulnerable to the consequences of climate change.
- The natural resources and agricultural lands in the area are seriously threatened by gully erosion.
- Tomatoes are not cultivated in agriculture fields due to pest and disease invasion.

235. Briefly describe whether/how government and/or donor initiatives are responding to the aforementioned climate change challenges.

- There is limited activities performed by donors and government agencies. Such as distribution of tractors, green houses, construction of houses.
- Distribution of seeds.
- Training of farmers
- Gully rehabilitation activities

236. Briefly describe pending barriers and/or gaps (fiscal, regulatory, technological, financial, ecological and institutional factors) that are inhibiting an effective response to the climate change challenges identified.

- Limited Funding: farmers cannot avoid farming technologies to increase their harvest.
- Reduced market prices for local farm products.
- Increased debt since most of the whole retailers do not have hard currency.
- Weak Enforcement: enforcing existing regulations on land use, Unauthorized vehicle uses on grazing lands, deforestation control, Wildlife conservation and is challenging due to limited resources.
- Livestock herders destroy crop yields as farms have limited fencing
- Lack of Coordination: Fragmented governance and a limited of collaboration between different government agencies, farmers, and hinders effective action.
- Limited capacity: The cuun lacks the technical expertise including enough farmers capacity to effectively respond to climate change , farmers doesn't have enough knowledge and skills on good agricultural practices.

237. What are the adaptation measures that you would like this project to address regarding to climate change related challenges facing agriculture production?

- Improved Irrigation Systems through exploring and promoting drip irrigation and other water-saving technologies.
- Promoting water Harvesting Techniques: construction of dams, drilling boreholes, training farmers on rainwater harvesting, water storage methods, and efficient use of available water resources.
- Crop Diversification: encouraging farmer's diversification of crops to reduce vulnerability to pests, diseases, and extreme weather events.
- Distribution of agricultural technologies to the farmers to increase their productivity.
- Training of farmer for sustainable and good agricultural practices(GAP) and Integrated Pest Management.
- Training of local community on best gully erosion Management techniques that has negative impacts on the livelihood sectors of the district.
- Promotion of water and soil conservation initiatives including gabions, stockpiles and other conservation structures.
- Enforcement of the existing regulatory to enhance environmental conservation.

238. Describe previous interventions implemented in the target areas, what went right and what went wrong and what are the best practices that can be in cooperated this project.

- there have been notable accomplishments such as the rehabilitation of the fodder plantation and various community-led initiatives such as prosopis management, and borehole drilling.
- Date palm plantation led by GEFA.
- Kobciye project for green houses installation, fences, drip irrigation and distribution of farm tools including tractors.
- ICRC Farm tools distribution and other food for work activities.
- However, ineffective monitoring and evaluation processes have led to the failure of some projects.
- Moving forward, it's crucial to integrate best practices that prioritize sustainability and address the specific needs and priorities of the farmers.

239. What are capacity limitations that target community face (list them) in order to address resource based conflict and implement land use plans

- No conflicts since every farmer has its own crop field.

240. What is the water infrastructure that exist in the target areas, do they work well, if yes, at what extend, if not, what was reason being, was there a robust design for water infrastructure?

- We currently have 40 operational boreholes. These boreholes collectively meet 30% of the local water demand for 140 farms. Despite having a relatively robust water infrastructure, water scarcity remains a pressing issue in the district.

- To address this challenge, there is a need to invest in water storage facilities. Additionally, plans include, drilling 20 new boreholes, to ensure an adequate water supply for all farms.

241. Do target farmers use climate change reliance seed? If yes list them. If not, why they did not use.

- Yes, farmers in the district commonly grow climate-resilient crops such as sorghum, maize, and beans. Agriculture and livestock products serve as the main sources of income for the community, along with the export of Paspalidium desertorum hay (gargaro) , xulle iyo ayax makare. The export of hay and beans generates hard currency for the local community.

242. Do target farmers get trainings on farming techniques? If yes, list them.

- No, there is limited farming-related training provided to the district farmers. Including , date palm production and management , tomatoes iyo lemon or citrus .

243. Do target farmer practice mix farming (crop and livestock)? If yes, to what extend it works to achieve its intended goal, what are the challenges that hinders its production and solutions as well.

- Yes, mixed farming practices offer various benefits such as income diversification and increased productivity, particularly during times of crop failure due to drought. However, they also pose challenges including the need for knowledge and skills, diseases and pests and competition over resources by eating farm products.
- To address these challenges and optimize the benefits of mixed farming, several solutions can be implemented:
- Providing farmers with training on integrated pest management, sustainable grazing practices, and improved manure management techniques can enhance their knowledge and skills, enabling them to overcome challenges effectively.
- Provide farm fences with all necessary supplies including fodder, water and health services.
- Construction of animal health post to combat livestock diseases
- Effective mixed farming requires careful planning, knowledge, and support. By addressing these challenges through training programs, infrastructure development, and improved access to resources and markets, farmers can better manage their mixed farming systems and maximize their benefits.

244. Does your institution have specific department, unit or focal person to handle Climate Change issues?

	No	No
Department		
Unit	no	
Focal person	no	

245. Does your institution have adequate financial resources, necessary skills and technical expertise for effective implementation of the climate change adaptation?

u) Yes
v) No

If No, please explain why?

- No, since there is no community tax collected, alternative measures need to be taken to enhance the district's capacity to respond effectively to climate change. This involves focusing on improving the technical skills and understanding of district workers regarding climate change.
- By investing in training and capacity-building programs, farmers can acquire the necessary skills and knowledge to develop and implement efficient responses to climate change challenges. This may include training on climate-resilient agricultural practices, water management techniques, renewable energy solutions, and disaster preparedness measures.
- Additionally, raising awareness among farmers about the impacts of climate change and the importance of proactive measures can foster a culture of adaptation and resilience within the community. This can ultimately lead to more effective and sustainable responses to climate change.

246. Does your institution develop and enforce climate laws and policies? If yes, please name any legislation, policies or strategies?

- No , there are no existing written regulations cuun

247. Are the laws and policies developed by your institution accepted and applied by other relevant institutions at the national, regional and local levels? If not, why?

- no

248. Can you tell us about your institution's current capacities of related to implementation of policies, strategies, plans and projects on climate change adaptations in all levels?

- As a farmer, we have the capacity to implement climate change adaptations effectively given adequate support. Currently, we have all the necessary, plans, actions, and human resources in place. However, additional backup and resources would significantly enhance our ability to execute these adaptations successfully for increasing productivity to combat food insecurity.

249. To your knowledge, is there a national/regional climate change coordination body in Somalia that your institution is part of?

If yes, please name who is involved and what role do they play, and who can join?

- Yes, it's highly probable that the Puntland Ministry of Environment and Climate Change (MoECC) collaborates closely with other relevant ministries such as Agriculture, .

250. Are there climate change forums or coordination mechanisms where you can meet with partners and others to share experiences, challenges and report on the progress of your work?

u. Yes
v. No

If yes, can you please describe what kind of coordination forum or mechanism and who is involved?

- Yes, Puntland likely organizes environmental conservation conferences as well as disaster-related conferences. These events likely World food day which is commemorated in Puntland

251. Do you think that the existing coordination mechanism between your institution and other national or sub-national level institutions is adequate to meet the needs of the climate change stakeholders including your institution?

u. Yes
v. No, If No, please explain why?

- No, Efforts could be directed towards enhancing communication, facilitating information sharing, and fostering collaboration within the existing framework.

252. What do you think should be done to strengthen institutional coordination and capacity for adaptation planning and implementation at the federal level?

253.

- Develop Joint Work Plans
- Regular Communication and Information Sharing:
- Enhance Capacity Building
- Creation working groups on climate change

254.. Do you think that the existing coordination mechanism is adequate to meet the needs of the climate change adaptation? Would your institution be willing and able to actively participate in a climate coordination platform on a regular basis to share information on climate change?

Yes
No

If No, please elaborate further?

- It's in adequate, as village, the willingness to actively engage in climate change forums and share experiences, as well as propose solutions, is acknowledged. This proactive involvement at the local level is vital for fostering collaboration and driving meaningful action towards addressing climate change challenges effectively for Cuun farmers.

255. Could you please discuss on how your institution's technical and managerial capacity for adaptation planning at the state level can be enhanced?

- Increase local knowledge and skills for climate change planning and adaptation.
- Enforcing existing policies and regulation towards the climate change.
- Supporting financially to effectively plan and respond climate change impacts.
- Supporting the Cuun farmers plans and priorities related to climate change.
- Providing accessible and appropriate technology solutions tailored for the local farmers to enhance climate change efforts.
- Equipping Cuun farmers workers with the necessary tools, skills, and knowledge to effectively address and adapt to the challenges posed by climate change.

Annex 2. Focus group discussions guide

Part1. Identification data **Godobjiran Cooperative farmers.**

10. District name	Godobjiran
11. Village/location name	Godobjiran district
12. Focus group participants (names)	• 4 participants

104. How many households are in this village?

There are more than 1800 Households
Farmers 1000
Pastoralists 500
Small Business 100
Settlements people who depend their daily from AID and Family are 200

105. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….

Figure 1Godobjiraan

106. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
11. Livestock		Livestock				
12. Crops	Crop					
13. Small business				Small Business		
14. Remittance from relatives						Family Support
15. Aid					Aid	
16. Fishing			Fishing			
17. Other (specify)						

107. During the last 10 years, food security in this village has (circle your choice)

7. Increased

8. Decreased
9. No change

Comment: Over the past decade, food insecurity has decreased due to a combination of factors such as prolonged droughts, rampant disease outbreaks, the adverse impacts of climate change, illegal fishing practices, and overexploitation of marine resources. These challenges have significantly restricted the availability of fish and other coastal food resources, exacerbating the vulnerability of communities reliant on these resources.

108. During the last 10 years, the number of livestock in this village has (circle your choice)
    1. Increased
    2. Decreased
    3. No change

Comment: In Godob Jiraan, the livestock population has decreased due to various factors including disease outbreaks, prolonged droughts, scarcity of fodder, and environmental degradation like the spread of sand dunes and soil erosion. Compounding this decline, the predator population, including foxes and hyenas, has grown, leading to increased predation on livestock and further reducing their numbers.

109. What kind of livestock production do we have in this village?
    1. Camel
    2. Sheep
    3. Goats
    4. Cow

We use this livestock for

    5. Meat
    6. Milk
    7. Survive
    8. Business
    9. Culture such as dowry

110. During the last 10 years milk production or other livestock production in this area has increased?
    1. Increased
    2. Decreased
    3. No change

Comment: Over the past decade, milk production from livestock has declined due to a combination of factors such as reduced rainfall, disease prevalence, scarcity of fodder, and recurring droughts. These conditions have resulted in a decrease in the overall milk output from the livestock.

111. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
15. Scarcity of fodder and pasture	Scarcity of Water					

16. Animal diseases		Animal Disease				
17. Scarcity of water			Scarcity of Folder and Pasture			
18. Scarcity of labor						
19. Low market prices				Low market price for the livestock	Labour	
20. Other (specify)						Limited support from government and Donors

Comment: The local community encounters numerous obstacles that undermine livestock production, including water scarcity, diseases, shortage of fodder and pasture, low market prices for livestock, labor issues, and inadequate support from the government and donors.

112. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

- Yes

Comment: Over the past decade, there have been significant alterations to the rangeland landscape. Notably, there has been a decline or disappearance of numerous tree species including Qurac (Acacia tortilis), Dureemo (Chrysopogon aucheri), Hareeri (Terminalia prunioides), and Canjeel (Mimusops anjel). The productivity of the rangeland has diminished due to factors such as overgrazing, prolonged presence of livestock in the area limiting their movement, occurrences of floods and limited rainfall, urbanization, and deforestation.

113. During the last 10 years milk production per lactating animal has (circle your choice)

1. Increased
2. Decreased
3. No change

Comment: 10 years ago, one goat per lactation was 2 litters, but now it is less than 1 litter. 10 years ago, one camel per lactating was 5 but is less than 2 liters per camel. This change has happened due to limited rainfall, disease, limited fodders, and pasture.

114. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- Yes

Comments: There has been a notable shift in the herd composition within Godob Jiraan Districts over the past decade. Previously, local communities maintained a substantial population of both cows and camels. However, presently, there are significantly fewer cows in the village, and the number of camels has also decreased due to constraints such as limited pasture and water availability, as well as disease outbreaks.

115. Are crops cultivated in this village or area?

- Yes

116. If yes, what kinds of crops are grown? Is there any irrigated crop?

- In Godob Jiraan, crops such as maize, sorghum, beans, watermelon, tomatoes, peppers, and onions are cultivated.

117. What is the average yield of main crop per hectare?

- The local farmers in the area cultivated onions at a rate of 1 kilogram per hectare, resulting in a harvest of over 150 sacks of onions. Each sack contains 50 kilograms, totaling 7,500 kilograms of onions.

118. Have crop yields declined or increased during the last 10 years?

- Over the past decade, the crop yield has decreased due to several factors including limited rainfall, scarcity of water sources, disease outbreaks, and land degradation such as the formation of sand dunes and gullies.

119. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- Yes, farmers in the region cultivate fodder and pasture during the rainy season. They utilize these resources for livestock consumption during the dry season, as well as for commercial purposes.

120. What percentage of households own land in this area or village? What are the main constraints when it comes to land ownership?

- In this district, 70% of households own land, while the remaining 30% do not own any land and instead reside in rental houses.

The main constraints when it comes to land ownership?

- The distribution of land ownership in the city tends to favor those who settled in the district earlier, granting them larger portions compared to those who arrived later. This discrepancy is often influenced by financial constraints faced by latecomers, making it difficult for them to acquire land. Additionally, poor governance may exacerbate this issue, leading to inequitable access to land resources within the community.

121. During the last 10 years' land degradation in this area has:

1. Increased
2. Decreased
3. No change

Comment: during the past 10 years, land degradation has escalated significantly in the district. Local communities have faced challenges such as the formation of sand dunes blocking major roads in the city, loss of biodiversity, and various forms of land degradation including gully erosion, sheet erosion, and rill erosion. Moreover, there has been a noticeable decline in the number of trees that once thrived in the area.

122. What are the major causes of land degradation in this area?
   A. Cutting trees for farm protection (Fencing)
   B. Cutting of trees for livestock fencing.
   C. Wood fire
   D. Settlement
   E. Bushfire
   F. Transportation which create large number of roads
   G. Floods, overgrazing, wildlife hunting.
   H. Drought and Climate Change
   I. Overgrazing

123. Are there farms with soil conservation structures in this area? If yes, how many?

- In the Godob Jiraan District, currently there are no farms equipped with soil conservation structures.

124. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- indeed, two soil conservation structures in the rangeland area of the Godob Jiraan District, specifically rock dams located in Xudun village.

125. What are the land use practices in this area?
   - Settlement
   - Agriculture
   - Pastoralist

126. Do you have community initiatives for conserving your natural resources (rangelands, and water)?
   1. Yes
   2. No

If yes, please explain: Is there community organization managing water, access to grazing areas?

- Yes, the community organization in Godobjiran is primarily led by elders. This organization plays a crucial role in conducting environmental awareness campaigns and managing natural resources, including water and pasture. One of its core objectives is to ensure equitable access to these resources for every member of the community, particularly in rural areas.

127. What community committees exist in this village?

In Godob Jiraan, several committees and organizations contribute to various aspects of community development and management:

- Cooperative Farm: This entity facilitates collective farming efforts among community members, promoting cooperation and shared resources for agricultural activities.
- Environmental Committee: Responsible for raising awareness about environmental issues and implementing conservation measures to protect natural resources such as water, soil, and forests.
- Health Committee: Focuses on promoting community health and well-being, organizing health education campaigns, and advocating for access to healthcare services.
- Education Committee: Works to improve educational opportunities within the community, advocating for better schools, organizing educational programs, and addressing issues related to access to education.

128. What percentage of the different village committees are women? And youth? Are

- Representation in Committee Seats: Approximately 30% of committee seats are allocated to women, allowing for their active participation and input in decision-making processes. Similarly, 20% of committee seats are reserved for youth members, ensuring their perspectives are also considered.
- Involvement in Leadership Roles: Women and youth are not only represented in committee seats but are also included in leadership positions within governance bodies. This includes roles such as Treasurer, Secretary, and other positions of responsibility, enabling them to contribute to the management and direction of community affairs.

129. Is there Prosopis in this village?

5. Yes
6. No

130. How long has Prosopis been in this village? ----------

131. What are the main sources of your drinking water (circle all that apply)

11. Barked---20---Number:
12. Shallow well-----Number:
13. Dam----1----------Number:
14. Deep well-----3-----Number
15. Streams----------3------Number

132. What are the main water sources for irrigation?

1. Boreholes & rain fed.

133. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	Drought					
Frequent floods						

Outbreak of pests and diseases		Disease				
New weeds				New weeds		
Scarcity of labor						
Soil erosion			Soil erosion			
Lack of improved seed					Lack of improved seed	
Low market prices						Low market price

134. In your opinion, during the last 15 years have droughts become (circle your choice)

1. More frequent
2. Less frequent
3. No change

Comment: During the past 15 years, drought has become more frequent due to limited rainfall and climate change.

135. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impact of drought on Crops

1. Food insecurity
2. Water shortage
3. Less yield production
4. Diseases

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge

Scoping strategies

- Plant drought resistance crop

Impact of drought on Livestock:

- Reduce animal production
- Increase animal death
- Outbreak disease

Scoping strategies

- Use folder

- Use backs for Water sources
- Sell animals which can be sellable
- Migration

136. In your opinion, during the last 15 years have floods become (circle your choice)
   1. More frequent
   2. Less frequent
   3. No change

Comment: The floods occur more frequently due to climate change and are affected by farmers, such as washing away crops and fertile soil, and also by livestock, such as the loss of thousands of livestock, an increase in disease outbreaks, and the destruction of infrastructure such as roads and water source infrastructure.

137. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impacts of floods on Crop

a. Food insecurity
b. Water shortage
c. Less yield production
d. Diseases

Coping Strategies

- We don't use any coping strategies in agriculture

Impact of floods on Livestock

- Animal death and loss
- Decrease animal production such as milk and meat (Heavy rains results reduced pasture as results rangeland degradation)

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge
- Contingence plan for the disaster response.
- Educating pastoral community on best agricultural practices.

Coping Strategies

- Avoiding flood prone areas
- Use Plastic bags protection for Livestock

138. During the last 15 years, rainfall (circle your choice)
   1. Increased
   2. Decreased
   3. No change

Comment: During the last 15 years, we have received less rain in Gadob Jiraan District due to climate change.

139. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

What are the main impacts on crops and livestock of changing rainfall pattern?

- The change in rainfall patterns significantly affects both crops and livestock. It leads to reduced agricultural productivity, decreasing fodder availability, and reduced water access for livestock. Consequently, these changes can cause a decline in animal production and overall agricultural output.

How do adapt to these changes

Crops

The local community has adapted to the impacts of changing rainfall patterns by implementing several strategies. These include:

- Planting drought-resistant crops
- Embracing mixed farming which combine crop cultivation with livestock rearing.
- Raising awareness about weather forecasting.

Livestock

- Migration
- Selling of livestock
- Increase Fodder storage
- Increase water storage mechanism

140. During the last 10 years, soil and land degradation in this village has (circle your choice)

1. Increased
2. Decreased
3. No change

Comment: The district is experiencing a notable increase in land degradation due to various factors, including:

- Sand dunes: The encroachment of shifting sand dunes is causing soil erosion and degradation, negatively impacting agricultural productivity and natural habitats.
- Floods: Periodic floods exacerbate soil erosion, leading to the loss of fertile topsoil and degradation of agricultural land.
- Recurrent droughts: Prolonged periods of drought contribute to soil degradation by reducing vegetation cover, increasing soil erosion, and diminishing water resources.
- Poverty: Economic constraints within the community led to unsustainable land management practices, such as overgrazing and deforestation, further exacerbating land degradation.
- Unplanned urbanization: Rapid and unplanned urban expansion of the district resulted in the loss of arable land, increased pollution, and disruption of natural ecosystems, contributing to land degradation.

Addressing these multifaceted challenges requires comprehensive strategies that prioritize sustainable land management practices, poverty alleviation initiatives, and integrated urban planning to mitigate and reverse the effects of land degradation in the district.

141. During the last 10 years, Gu rains have been coming (circle your choice)
    1. Early
    2. Normal time
    3. Late

142. Have water resources become
    1. More available and accessible
    2. Less available and less accessible
    3. No change

143. What type of trees have declined in this area during the last 15 years?

- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Canjeel (Mimusops Angel)

144. During the last 10 years, have conflicts in this area
    1. Increased
    2. Decreased
    3. No change

145. What are the causes of conflicts?

Limited resources such as

- Water
- Pasture
- Land ownership disputes

146. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

How do conflicts affect your community?

- Increase mistrust
- Decrease community cooperation
- Jeopardize of income sources
- Increase inequity

Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

- The community has been significantly impacted by factors such as drought, food scarcity, and shifts in rainfall patterns, which have had a more profound effect compared to conflicts in the district.

147. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.

Yes. conflicts over natural resources like land, water, and pasture can severely hinder the community's ability to derive benefits from these resources. Such conflicts often lead to disputes, displacement, and destruction, resulting in reduced access to essential resources and impeding agricultural productivity, livestock rearing, and overall economic development. Resolving these conflicts through dialogue, mediation, and equitable resource management strategies is crucial for

ensuring sustainable utilization of natural resources and fostering peaceful coexistence within the community Increase the inequality of natural resources Limited access to natural resources such as pasture, water, and land.

148. How do you address conflicts?

The community employs various mechanisms to address conflicts over natural resources:

- Local elders resolve small issues: Elders within the community play a vital role in mediating and resolving minor disputes related to land, water, and pasture through traditional conflict resolution methods.
- Arbitration: Arbitration involves impartial third-party intervention to facilitate negotiations and reach mutually acceptable resolutions between conflicting parties.
- Mediation by district administration: District administration mediates disputes between conflicting parties, aiming to achieve consensus and prevent escalation of conflicts.
- Major conflicts addressed by the district court: More significant conflicts that cannot be resolved through traditional or administrative channels are brought to the district court for legal resolution, ensuring adherence to established laws and regulations,

149. What coping mechanisms are used in this village in the face of various stresses e.g. droughts, floods, etc.?
- Increase community awareness regarding the impact of climate change.
- Use weather forecasting information.
- The district has an annual and five-years plan; therefore, climate change mitigation and adaptation were also part of our plan.

150. What are your suggestions for conserving the natural resources in your area?
- Rangeland Rehabilitation
- Ecosystem Restoration
- Land Closures

151. What are the major sources of fuel for cooking in this village?
- Wood fire
- Charcoal
- LPJ Gas

152. What types of stoves are used in this village?
- Charcoal stoves such as Chicakow stoves and Local stoves
- Wood fire stoves

153. Is there any community range or forest near your village?
1. Yes
2. No

154. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?
1. Slight degradation
2. Moderate degradation
3. High degradation

4. None

52. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- Dissemination of early warning system
- Increase preparedness of disaster at the community level.

53. What activities do you suggest to attain the resource improvement?

11. Effective protection
12. Management including community participation
13. Reseeding
14. Reforestation
15. Other (specify) Rangeland Rehabilitations such as Gully and Sand dunes, water Catchments such as dams and Boreholes, Support farmers such providing Equipment's.

54. What benefits do you get from the rangelands and forests?

- Food
- Medicine
- Fodder
- Timber
- Shed

55. What is the most important tree, crop or herbaceous species you utilize to satisfy your household needs?

9. Fodder or fuel
    - Gargaro (paspalidiumdesertorum)
10. Fuel
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
11. Construction
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
12. ----------
13. Food
    - Maize, Sorghum, Papaya, Water Melon and Beans

EFA Data collection Form Godobjiran

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	**Nugaal (Godobjiran city)** **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.**

	mohamed.ahmed@imcpuntland.so
Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agro pastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agro pastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.

General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	7 people	N/A	N/A	620hh= 7person per hh
Average land holding per individual agropastoral household (in ha)	2 ha	$10,000 per ha	Dollar	The average price of 2 ha is $20,000
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)	N/A	N/A	N/A	There is no rental land for farming in the Godobjiran city at all.
Average wage rate per day per agricultural employee (pure monetary wage)	2 employee	$300	Dollar	The average wage rate per employee is $5 per day.
Are there any taxes or fees that agro pastoral folks pay? E.g., land tax? VAT, water tax? etc. If yes, please list them in detail.	N/A	N/A	N/A	No taxation exists in the Godobjiran city at all
SOS to USD exchange rate-current	N/A	N/A	N/A	In Puntland State, the SOS system is inactive, replaced instead by the electronic dollar known as SAHAL, which has become the prevalent form of currency.
Average interest rate on a loan for agro pastoral farmer (loan can be from middlemen, micro-lending institution, or bank, please specify)	2 ha	12% interest rate	Dollar	The farmer take a loan from their relatives and Friends and the interest rate is 12%.

Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agro pastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.	1) 7500 kg Beans per Annual 2) 150 sack of Millets per Annual	$2-3 per each water melon. $20-30 for each sack of Bean. $18-25 for each sack of Millet.	Dollar	The primary commodities in demand are Beans, Millets, and Watermelon, ranked respectively. In a prosperous year, 150 sacks of beans are produced, contrasting with 10 sacks during a less favorable season. The pricing of these goods fluctuates according to market conditions.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.	1) 140 sack of beans and millets loss for a bad year	95% loss	Dollar	A single year of favorable productivity versus with two years of diminished output, influenced by the reliance on rainfall and the repercussions of climate change.
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	-	-	-	Two year bad versus one year good..
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?	2 ha	$20-30	Dollar	95% of the any commodities are selling, and 5% Is for consuming.
List types and volumes of commodity by-products. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agro pastoral farm.	1) Beans 2) Millets 3) Watermelon 4) Fodder(grass)	1) 95 % sold 2) 95 % sold 3) 95 % sold 4) 100 %		5) 95% of beans sold and 5% consume 6) 95% sold of millet sold and 5%consume 7) 95% of water melon sold and 5% consume 8) 100% of fodder sold.

		sold		
List volumes of all inputs necessary for farmers to plant and manage selected sample crops: **seeds (volume per ha)-note I need yields from improved versus regular seeds**, fertilizers (volume per ha), bags for collecting, etc.	1kg of seeds for 1 ha(Beans, Millets, Water-melon) .	$50	Dollar	1) 5 Labour, 2) Farm tools (1Tractor for land preparation, 5rakes, 5shovels,1kg seeds, green houses, and fencing). 3) Water source (Borehole, Dam, or Berkads. 4) Management(Operation and maintenance).
List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)- **note I need prices of improved versus regular seeds**, fertilizers (price per kg), bags for collecting, etc.	1) 2kg of seeds for two different commodities . 2) 1Tractor. 3) Farm Tools (5rakes, 2wheelbarrows, green houses,1seed drill,5 shovels, Axe, two pruning shears). 4) Drilling 1 borehole	1) $100. 2) $6000 in lump sum. 3) $20,0000 lump sum.	Dollar Dollar Dollar	1) 5Labours each for $150, (5labous*150dollar = $750 per month. 2) Cost for drilling new borehole (200m depth, $1m^3$ =200,200*200 = $40,000).
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.	1) 2 labour for permanent working, and 5labour for	1) $300 for 2 permanent labour	Dollar	2days for land preparation, and seeding needs 5 labour $300 wages. Capacity building for agro-pastoralist in terms of (forecasting, cultivating processes, soil suitability training, and Disaster risk reduction).

	temporary working(land preparation and seeding).	2) 3labour for temporary land preparation and seeding.		

Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agro pastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities

	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agro pastoral farm and prices of such tools.	**Farming Tools** 1. 1pcs of tiller 2. 1 pcs of tractor 3. 1 pcs of seed drill 4. Other small tools such as (shovels, greenhouses, Axes, rakes, wheelbarrow, pruning shears)	1. $7000 lump sum 2. $25,000 lump sum 3. $20,000 lump sum	Dollar	1. rakes (5pcs, ($15 each), 2. shovels (5 pcs ($10 each), 3. grape hoe 5pcs ($50 each), 4. wheelbarrow(3 pcs and $30 each)

Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agro pastoral farm	1. Cutter bar mower 2. Rotating drug mower 3. Mower-conditioner	$5000 lump sum $6000 lump sum $5000 lump sum	Dollar Dollar Dollar	The price for complete fodder machines varies and depends on the quality and quantity, and approximately $ 25000-30,000.
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agro pastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agro pastoral household (please list # of goats' vs cows, vs camels, etc.	7 people	N/A	N/A	1. 100 goats and sheep per individual agro-pastoral household 2. 20 Camels per hh
Average annual mortality of animals (if drought happens)-can be in % loss per animal type. Please list details.	50% of goats died if drought happens	-	-	1. Goats 50% died and remaining 50% 2. Camels 25% loss and 75$ remain
What is the % of animal sales per year when good versus bad year? Please state it per animal type.	1) 20% sold for good years 2) 2% sold for bad years	$400-1000 $300-700 $30-70	Dollar Dollar Dollar	1) $1000 for pregnant camel in good season and $400 for bad year. 2) 5 years old camel is $700 for good season and $300 for bad year. 3) goat $70 for good season, and $ 30 for bad year.
Do farmers sell animals live? If not, describe how they do it.				**yes**
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agro pastoral household from such activities? If they consume that milk, please provide volume of consumption (average per HHs)	1) 450ml of milk per hh 2) 2kg of meat	$5 $10	Dollar Dollar	1. 80ml of milk =$2 2. 1kg of meat = $5 3. One hh need 540ml and 2kg of meat per hh

	daily per hh			
List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type	1. Camel 2. Goat & Sheep	1) 500 – 1000 2) 30 - 70	Dollar	1) Pregnant camel $1700, and 5 years old camel is in the range of $500-600) 2) Male goat $50-60)
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon	ml	$ 1 for camel milk $ 1.2 for goat milk	Dollar	Each camel has 160ml of milk And each goat has 80ml of milk
Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.	Borehole rehabilitations in terms of (GI pipes, irrigation pipes, pump, cable, source power,)	$ 25000-30,000 lump sum	Dollar	1. Non-function borehole needs fully rehabilitation in terms of (steel casing, borehole development, supply system, elevator tank, 2. Plastic bag, fencing, Cleaning, pipes animal troughs
<u>For new constructions</u>: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)	1. Drilling borehole 2. Construction of water catchment 3. Plastic bag 4. Source power (solar &	1. $ 100,000 lump sum 2. $ 80,000 3. $4000 lump		1. New Borehole drilling (rotary drilling, Casing, borehole construction.) 2. Constriction for water catchment(Plastic bad, fencing, Pipes, Solar, Elevator tank, Pump, Cable,

	generator) 5. Irrigation pipes 6. Pump & cable 7. Water supply (elevate tank, Kiosks, animal troughs)	sum 4. $15000 lump sum 5. 20,000 lump sum		
<u>For new constructions:</u> Please state potential benefits associated with its construction-quantify all that you can. E.g., number of beneficiary agro-pastoral HHs that could benefit				1. Decreasing water scarcity 2. Water availability 3. Increasing crop production
<u>For water infrastructure rehabilitation activities:</u> State what would be needed in terms of improving this water infrastructure (labour requirement/costs plus material, tools, etc.). Pleas eina s much detail as possible.	1) GI pipe price 2) Solar panels price 3) Plastic bag price 4) Pu	1. $10,000 lump sum 2. $200 each panel 3. $5000 lump sum 4. $2500-3000 5. $12,000 lump sum		1. Decreasing water fetching for agro-pastoralist

	mp price 5) Elevator or tank 6) Pipes price Animal troughs	6. $20,000 lump sum $6000		
For rehabilitation of existing water infrastructure: Please state potential benefits associated with its rehabilitation- quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				1. Increasing crop production 2. Improving water quality 3. Increasing water availability 4. Enhancing water accessibility

EFA Data collection Form Eyl

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	**Nugaal (Eyl district).** **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.** mohamed.ahmed@imcpuntland.so
Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agro pastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agro pastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.

General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	8 people	N/A	N/A	3000hh= 8person per hh
Average land holding per individual agropastoral household (in ha)	2 ha	$13000	Dollar	
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)	N/A	N/A	N/A	There is no rental land for farming in the Godobjiran city at all
Average wage rate per day per agricultural employee (pure monetary wage)	2 permanent employee	$400	Dollar	Temporary employee 3 works 5days=$50 per day equals 250 dollar.
Are there any taxes or fees that agropastoral folks pay? E.g., land tax? VAT, water tax? etc. If yes, please list them in detail.	2ha	$15	Dollar	15 dollar of Land taxes for annually.
SOS to USD exchange rate-current	N/A	N/A	N/A	Puntland state the SOS is not functioning instead electronic dollar (SAHAL) is a common currency.
Average interest rate on a loan for agropastoral farmer (loan can be from middlemen,	2 ha	12% interest rate	Dollar	The farmer take a loan from banks and the interest rate is 12%.

micro-lending institution, or bank, please specify)				
Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agropastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.	1) 160 kg tomatoes per season 2) 160 of chili pepper per Annual 3) 110 kg of capsicum per season	1) 1kg of tomatoes *0.8 where bad season is 0.3 2) 1kg of chili pepper *0.8 where bad season 0.3 3) 1kg 0f capsicum *0.8 where bad season 0.3	Dollar	The top three commodities are 1) tomatoes, 2) chili pepper, and 3) capsicum. 160 kg of tomatoes for good season, and 20 kg of tomatoes for a bad Season. When it comes to irrigation systems, rainfed agriculture is widespread, with some farms relying on irrigation sourced from shallow wells with 10-20m depth.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.	1) 20kg of tomatoes harvested for a bad season.	87.5% loss per bad season.	Dollar	Two years bad versus one good year due to the dependence of rainfall, and climate change.
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	-	-	-	Two year bad versus one year good,66.6% is bad year, and remaining 33.3% is good season.
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?	8People	90% sold and 10% consumed	Dollar	90% of the any commodities are selling, and 10% consumed Is for consuming.
List types and volumes of commodity byproducts. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agropastoral farm.	Fodder(grass)	1 sack of fodder(50kg)= $3	Dollar	25% of fodder is consumed by animals and 75% is for sold
List volumes of all inputs necessary for farmers to plant and manage selected sample crops: **seeds (volume per ha)- note I need yields from improved versus regular**	2ha of land 1. 1.5 seeds of tomatoes is 2) chili pepper 1.5 of seeds, 3) 1.5 seed of capsicum	$37.5 $45 $30	Dollar	1) 6 Labour, 2) Fencing wire (1rolled=$125*16roll, and 400 steel fence). 3) Farm tools (1Tractor for land preparation, 5rakes,

seeds, fertilizers (volume per ha), bags for collecting, etc.				5shovels,1.5kg seeds for each 3 commodities, green houses). 4) Water source construction (Borehole, Dam, or Berkads). 5) Management(Operation and maintenance).
List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)- **note I need prices of improved versus regular seeds**, fertilizers (price per kg), bags for collecting, etc.	1. 4.5kg of seeds for three different commodities. 2. 1Tractor. 3. Farm Tools (5rakes, 2wheelbarrows, green houses,1seed drill,5shovels, Axe, two pruning shears). 4. Drilling 1 borehole	$112.5 $25000-30,000 in lump sum. $20,0000 lump sum.	Dollar Dollar Dollar	5. 5Labours each for $150, (5labous*150dollar = $750 per month. Cost for drilling new borehole (2m depth, $1m^3$ =200,20*200 = $4,000).
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.	1) 2 labours for permanent work, and 4labours for temporary working(land preparation and seeding).	1) $400 for 2 permanent labours 2) 4labour for temporary land preparation and seeding.	Dollar	1) 11days for land preparation, and seeding needs 6 labour $550 wages. 2) 15day of planting is $210 3) Capacity building for agro-pastoralist in terms of (forecasting, cultivating processes, climate change, soil suitability training, and Disaster risk reduction for flash floods).
Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agro pastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agropastoral farm and prices of such tools.	**Farming Tools** 1. 1pcs of tiller 2. 1 pcs of tractor	1. $6000 lump sum	Dollar	1. rakes (10pcs, ($15 each), 2. shovels (10 pcs ($10 each),

	3. 1 pcs of seed drill 4. Other small tools such as (shovels, green houses, Axes, rakes, wheelbarrow, pruning shears)	2. $25,000-30,000 lump sum 3. $20,000 lump sum		3. grape hoe 10pcs ($50 each), 4. wheelbarrow(10 pcs and $30 each)
Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agropastoral farm	1. Cutter bar mower 2. Rotating drug mower 3. Mower-conditioner	$5000 lump sum $6000 lump sum $5000 lump sum	Dollar Dollar Dollar	Pipes(10pcs and 100m for each and $ 2000 for each 100m pipe).
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agropastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agropastoral household (please list # of goats' vs cows, vs camels, etc.	8people	N/A	N/A	1. 150 goats and sheep per individual agro-pastoral household 2. 10 Camels per hh
Average annual mortality of animals (if drought happens)- can be in % loss per animal type. Please list details.				1. Goats 50% died and remaining 50% 2. Camels 75% loss and 25$ remain during drought period.
What is the % of animal sales per year when good versus bad year? Please state it per animal type.	1) 2% sold for good years 2) 10% sold for bad years	$800-1500 for pregnant camel $250-350 for 5 years old camel. $40-65 for goat	Dollar Dollar Dollar	1) $1500 for pregnant camel in good season and $800 for bad year. 2) 5 years old camel is $350 for good season and $250 for bad year. 3) goat $65 for good season, and $ 40 for bad year.
Do farmers sell animals live? If not, describe how they do it.				**yes**
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agro	1) 640ml of milk per hh 2) 2.5kg of meat daily per hh	$9.6 $25	Dollar Dollar	1. 80ml of milk =$1.2 2. 1kg of meat = $5 3. One hh need640ml and 2.5kg of meat per hh

pastoral household from such activities? If they consume that milk, please provide volume of consumption (average per HHs)				
List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type	Camel Goat & Sheep	250 – 1500 40 - 65	Dollar	1) Pregnant camel $1700, and 5 years old camel is in the range of $500-600) 2) Male goat $50-60)
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon	ml	$ 1.2 for camel milk $ 0.8 for goat milk	Dollar	Each camel has 160ml of milk 40ml for each goat
Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.	Dug wells/spring rehabilitations in terms of (GI pipes, irrigation pipes, pump, cable, source power,)	$ 25000-30,000 lump sum	Dollar	1) Spring and dug wells needs fully rehabilitation in terms of (constructing, sentry cup, cleaning, supply system or piping system, elevator tanks pumps, cables, 2) irrigation pipes.
<u>For new constructions</u>: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)	1. Drilling borehole 2. Construction of water catchment 3. Plastic bag 4. Source power (solar & generator) 5. Irrigation pipes 6. Pump & cable Water supply(elevate tank, Kiosks, animal troughs)	1. $ 100,000 lump sum 2. $ 80,000 3. $4000 lump sum 4. $15000 lump sum 20,000 lump sum		1. New shallow drilling for 12m depth (cable tool, Casing, borehole construction. Solar, Generator, irrigation) 2. supply system, Elevator tank 3. Constructing of Barkads 4. Construction for water catchment (Plastic bad, fencing, Pipes, Solar, Elevator tank, Pump, Cable,
<u>For new constructions:</u> Please state potential benefits associated with its construction-quantify all that				1. Decreasing water scarcity 2. Water availability

you can. E.g., number of beneficiary agro-pastoral HHs that could benefit				3. Increasing crop production.
<u>For water infrastructure rehabilitation activities:</u> State what would be needed in terms of improving this water infrastructure (labour requirement/costs plus material, tools, etc.). Pleas eina s much detail as possible.	1) GI pipe price 2) Solar panels price 3) Plastic bag price 4) Pump price 5) Elevator tank 6) Pipes price 7) Animal troughs	1. $10,000 lump sum 2. $200 each panel 3. $5000 lump sum 4. $2500-3000 5. $12,000 lump sum 6. $20,000 lump sum 7. $6000		1. Decreasing water fetching for agro 2. Irrigation Pipes price=10pcs and 100m for each, and $ 2000 for each 100m pipe).
<u>For rehabilitation of existing water infrastructure:</u> Please state potential benefits associated with its rehabilitation-quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				1. Increasing crop production 2. Improving water quality 3. Increasing water availability 4. Enhancing water accessibility for 3000hh approximately.

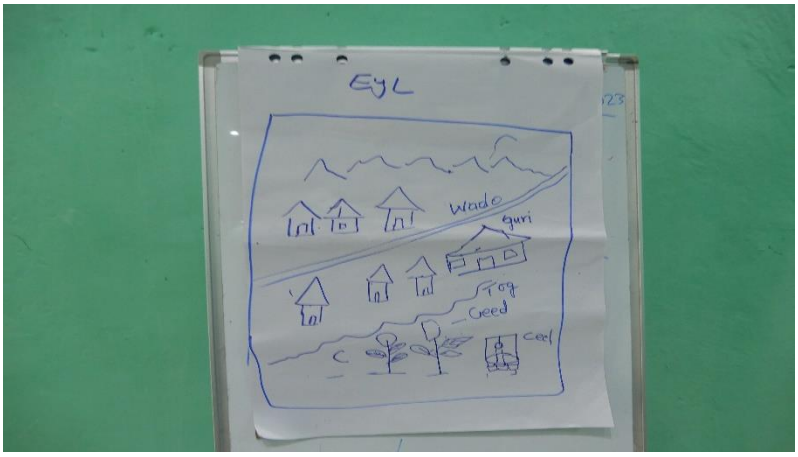
. Focus group discussions guide

Smallholder farmers FGD in Eyl district

Part1. Identification data

13. District name	Eyl
14. Village/location name	Eyl
15. Focus group participants (names)	6 participants

1. How many households are in this village?
- 2500HH
2. Could you please quickly draw on a flipchart the main agro-ecological zones in your area : rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….



3. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
18. Livestock	Most important					
19. Crops				Fourth most important		
20. Small business			Third most important			
21. Remittance from relatives					Fifth most important	
22. Sea	Second most important					

4. During the last 10 years, food security in this village has (circle your choice)
   10. Increased
   (11.) Decreased
   12. No change

Note: Over the past decade, there has been a significant decrease in food security, attributed to the crises affecting much of the world, including climate change and the COVID-19 pandemic.

- In addition, the majority of the farms in the Eyl district, crucial for sustaining people's lives, were submerged due to flooding.

5. During the last 10 years, the number of livestock in this village has (circle your choice)
   7. Increased
   (8.) Decreased
   9. No change

- Note: Droughts and illnesses led to a decrease in the animal population.

6. What kind of livestock production do we have in this village?

- Meet
- Milk
- Chees

7. During the last 10 years milk production or other livestock production in this area has increased?
   1. Increased
   (2.) Decreased
   3. No change

- Note: Over the past 10 years, there has been a decline in milk production within the Eyl district, attributed to recurrent droughts and diseases that have resulted in a reduction in the animal population.

8. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
1. Scarcity of fodder and pasture	1					
2. Animal diseases		2				
3. Scarcity of water			3			
4. Scarcity of labor					5	
5. Low market prices				4		
6. Other (specify)						

9. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

- Note: Yes, there has been a reduction in the rangeland areas, leading to the urbanization of many locations where animals previously grazed and lack of rainfall.

10. During the last 10 years milk production per lactating animal has (circle your choice)

1. increased
2. decreased
3. no change

- Note: due to food shortages and illnesses

11. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- No

12. Are crops cultivated in this village or area?

- Yes

13. If yes, what kinds of crops are grown? Is there any irrigated crop?

- Lemon
- Water melon
- Green Tomatoes
- Red Onion
- Green vegetables

14. What is the average yield of main crop per hectare?

- Water melon per hectare2700-4000 pieces.
- Green Tomatoes per hectare 9000kg-28,000kg
- Onion per hectare 17000kg-32000kg

15. Have crop yields declined or increased during the last 10 years?

- There has been a decline, resulting in both diseases and changes in climate. Moreover, floods took place in 2015, 2019, and 2021.

16. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- No

17. What percentage of household's own land in this area or village? What are the main constraints when it comes to land ownership?

- Geographically, the Eyl District is surrounding by mountains and streams, resulting in 60% of the residents owning land, while 40% lack available land for building or farming.

18. During the last 10 years land degradation in this area has:
    1. Increased
    2. Decreased
    3. No change
19. What are the major causes of land degradation in this area?

- Deforestation
- Soil *Erosion*
- Climatic change

20. Are there farms with soil conservation structures in this area? If yes, how many?

- No

21. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- No

22.

23. What are the land use practices in this area?

- Agriculture and rangeland

24. Do you have community initiatives for conserving your natural resources (rangelands, and water)?
    1. Yes
    2. No

- Water and rangeland Conservation Awareness Campaigns
- Rangeland Management Committees consist of community members, livestock owners, and relevant stakeholders collaborating to manage rangeland resources collectively.
- Overall, community initiatives play a vital role in conserving natural resources like water and rangeland, fostering stewardship, resilience, and sustainability in local ecosystems.

25. What community committees exist in this village?

- Village committee
- Education committee
- Natural resource committee
- Livestock committee
- Rangeland Management Committees

26. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc…)

- 40% women
- 20% youth

27. Is there Prosopis in this village?
    7. Yes
    8. No
28. How long has Prosopis been in this village?
    - There is no Prosopis in Eyl district
29. What are the main sources of your drinking water (circle all that apply)
    16. Berked we have 1500 mostly in depth 2m
    17. Shallow well we have 10 in depth 1.8m
    18. Dam----------Number:
    19. Deep well---------Number : 0
    20. Streams----------Number: 0
30. What are the main water sources for irrigation?
    - Natural wells and rainfall
31. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts		2				
Frequent floods	1					
Outbreak of pests and diseases			3			
New weeds						
Scarcity of labor						
Soil erosion				4		

Lack of improved seed					5	
Low market prices						6

32. In your opinion, during the last 15 years have droughts become (circle your choice)

    7. More frequent
    8. Less frequent
    9. No change

- **Note:** Certainly, in the past 15 years Eyl district has faced droughts, particularly evident in 2011, 2015, 2017, 2019, and 2021.

33. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

    main impacts of droughts on crops and livestock

- Reduced Crop Quality
- Water Scarcity
- Livestock Forage Shortages
- Livestock Health Issues
- Long-term Environmental Degradation

How do you anticipate these negative impacts?

- Drought Monitoring and Early Warning Systems
- Adoption of Drought-Resistant Crops and Livestock Breeds
- Range and Pasture Management
- Community Preparedness and Capacity Building

What are the drought coping strategies?

- Water Conservation Practices
- Drought-Tolerant Crop Varieties:
- Rangeland and Pasture Management

34. In your opinion, during the last 15 years have floods become (circle your choice)

    7. More frequent
    8. Less frequent
    9. No change

- Note: Over the last 15 years, the Eyl district has witnessed significant flooding events resulting in destruction of farms, residential buildings, and roads, leading to loss of life and financial hardship, particularly pronounced in 2019, 2015, and 2021.

35. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

What are the main impacts of floods on crops, livestock?

- Crop Damage
- Soil Erosion
- Livestock Losses
- Disruption of Animal Husbandry
- Loss of Agricultural Infrastructure

How do you anticipate flood negative impacts?

- Fostering collaboration and coordination among government agencies, community organizations
- Conducting public awareness campaigns and community training programs to educate residents about flood risks

What are the flood coping strategies?

- providing clear and accurate information to residents about flood risks, preparedness measures, and evacuation procedures through public awareness campaigns, community meetings.
- Building community capacity and resilience through training programs, workshops, and skill-building initiatives that empower residents to take collective action, support each other, and effectively respond to flood emergencies.

36. During the last 15 years, rainfall (circle your choice)
    1. increased
    2. decreased
    3. no change

37. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

- **Crops and livestock impact:** the number of crops we produce decreases while Animals suffer from food shortages and diseases.

Adaptation

- Farmers can diversify their crop selection to include varieties that are more resilient to changes in rainfall patterns.
- Implementing efficient irrigation systems, such as drip irrigation or rainwater harvesting.

Changing of cultivation

- We've decreased crop cultivation during the drought period due to the financial constraints faced by people.

Changing of livestock investment

- There was widespread economic hardship so people could not afford to buy livestock.

38. During the last 10 years, soil and land degradation in this village has (circle your choice)
    7. increased
    8. decreased
    9. no change

- Note: due to droughts and climatic changes

39. During the last 10 years, Gu rains have been coming (circle your choice)
    7. Early
    8. Normal time
    9. Mostly Late

- Note: due climatic change crisis

40. Have water resources become
    7. More available and accessible
    8. Less available and less accessible
    9. No change

41. What type of trees have declined in this area during the last 15 years?
- **Note:** Yes there are many trees that have decreased in Eyl districtsuch as (humbul, canjeel, caws, qura and jilab)

42. During the last 10 years, have conflicts in this area
    1. Increased
    2. Decreased
    3. No change
43. What are the causes of conflicts?
44. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?
45. Do conflicts have an impact on the natural resources (rangelands and water)? If yes,
- No

46. How do you address conflicts?
- There is no conflict in Eyl district, they are peaceful people.

47. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?
- Farmers select drought-resistant crop varieties and practice sustainable agricultural techniques like mulching and crop rotation to enhance soil fertility and water retention. Livestock owners may also diversify their herds to include breeds better adapted to local climate conditions.
- Overall, the combination of livelihood diversification, water management strategies, early warning systems, disaster preparedness plans, and social support networks enables the village to adapt and respond effectively to various stresses, including droughts and floods.

48. What are your suggestions for conserving the natural resources in your area?
- Encourage the adoption of sustainable agricultural practices such as conservation tillage, agroforestry, and organic farming to minimize soil erosion and enhance soil fertility
- Conduct awareness campaigns and educational programs to educate local communities about the importance of conserving natural resources and the benefits of sustainable resource management practices.

49. What are the major sources of fuel for cooking in this village?
- Commonly we use woods and cooking gas, charcoal.

50. What type of stoves are used in this village?
- 80% woods
- 5% charcoal
- 15% cooking gas

51. Is there any community range or forest near your village?
    1. Yes
    2. No
52. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?
    1. Slight degradation
    2. Moderate degradation
    3. High degradation

④. None

48. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- Conducting community awareness campaigns, training programs, and workshops to educate local residents about the risks associated with floods, droughts, and changing rainfall patterns, and empowering them to take proactive measures to protect themselves and their livelihoods.
- Promoting drought-resistant crop varieties, sustainable farming practices, and water-efficient irrigation techniques to enhance agricultural resilience to changing weather patterns.
- Undertaking reforestation efforts and implementing soil conservation measures to prevent soil erosion, improve water retention, and mitigate the impacts of floods and droughts on land degradation.

49. What activities do you suggest to attain the resource improvement?

1. Effective protection
2. Management including community participation
3. Reseeding
4. Reforestation
5. Other (specify) ----------

49. What benefits do you get from the rangelands and forests?

- Forests and rangelands help prevent soil erosion, reduce the risk of landslides, and maintain soil fertility.
- Many communities depend on rangelands and forests for their livelihoods, engaging in activities such as livestock grazing.

50. What is the most important tree species you utilize to satisfy your household needs?

1. For fuel
- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Canjeel (Mimusops Angel)
2. For construction
- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Canjeel (Mimusops Angel)
3. For fodder
- Gargaro (paspalidiumdesertorum)
4. For food

- Maize, Sorghum, Papaya, Water Melon and Beans

Focus group discussions guide

Part1. Identification data **Eyl Cooperative farmers**

16. District name	Eyl District
17. Village/location name	Daawad City
18. Focus group participants (names)	5 participants

53. How many households are in this village?
    There are more than 3600 Households
    Fishers 1000
    Farmers 300
    Pastoralists 800
    Small Business 500
    AID and Family support 600
54. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….

55. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
23. Livestock	Fishing					
24. Crops		Livestock				
25. Small business			Crop	Small Business		
26. Remittance from relatives						Family Support
27. Aid					Aid	
28. Fishing						
29. Other (specify)						

56. During the last 10 years, food security in this village has (circle your choice)
    13. ☐Increased
    14. ☐Decreased
    15. ☐No change

Comment: In the last ten years, food security has deteriorated due to prolonged droughts, epidemics, the adverse impacts of climate change, illegal fishing, and the excessive use of marine resources. These factors substantially reduce the availability of fish and other coastal food sources, heightening the vulnerability of communities reliant on them.

57. During the last 10 years, the number of livestock in this village has (circle your choice)
    10. ☐Increased
    11. ☐Decreased
    12. ☐No change

    Comment: Livestock numbers have significantly decreased over the past decade due to drought, floods, fodder shortages, and disease.

58. What kind of livestock production do we have in this village?
    1. Meat
    2. Milk
    3. Survive
    4. Business
    5. Culture such as dowry

59. During the last 10 years milk production or other livestock production in this area has increased?
    1. ☐Increased
    2. ☐Decreased
    3. ☐No change

Comment: Milk production from cows, goats, and camels has declined over the past decade due to a number of factors, including rainfall patterns, disease outbreaks, malnutrition, and prolonged drought. These factors have caused a decline in milk production in Eyl agro pastoralists.

60. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
7. Scarcity of fodder and pasture	Water					
8. Animal diseases		Disease				
9. Scarcity of water			Folder and Pasture			
10. Scarcity of labor				Low market price for the livestock		
11. Low market prices					Limited support from government and Donors	
12. Other (specify)					Labour	

Comment: The local population encounters numerous challenges including livestock rearing difficulties, diseases, and food shortages. Additionally, disruptions such as declining livestock market prices, labor issues, and inadequate support from both the government and donors further impede livestock farming.

61. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

    Yes, over the last 10 years, the rangeland has changed frequently as a result of drought, floods, and human activities, including urbanization, deforestation, overgrazing, agriculture, and population growth. All these factors have changed rangeland productivity and increased food insecurity and environmental degradation. For example, a large number of trees, shrubs, and herbaceous plants have declined or disappeared, such as jiic (Maerua crassifolia), qansax (Acacia reficiens), qurac (Acacia tortilis), dureemo (Chrysopogon aucheri), hareeri (Terminalia prunioides), and canjeel (Mimusops anjel).

62. During the last 10 years milk production per lactating animal has (circle your choice)
    1. ☐increased
    2. ☐decreased
    3. ☐no change

    Comment: Ten years ago the quantity of goat milk was 1.5 liters, now it is less than 0.5 liters. Moreover, the milk production per camel was 4 liters, but the average milk production per camel was lower.

63. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

    Yes, In the last decade, there have been significant changes in the composition of cattle, camels, and goats in Eyl District. Locals raise a lot of cattle and camels. However, due to frequent droughts, scarcity of water and food, environmental degradation, and infectious diseases, the number of animals in the villages is decreasing.

64. Are crops cultivated in this village or area?

    YES

65. If yes, what kinds of crops are grown? Is there any irrigated crop?
    - Crop that are growing in Eyl

    Water Melon, Tomato and peppers, capsicum, onion sweet potatoes, carrot, maize and sorghum
    - Irrigated crop

    Water Melon, Tomato, peppers, Tomato peppers, capsicum, onion and carrot

66. What is the average yield of main crop per hectare?
    - Local farmers in the area cultivated potatoes at a rate of 1 kg per hectare, resulting in more than **7500** pieces of sweet potatoes

67. Have crop yields declined or increased during the last 10 years?
    - Crop yields in the Eyl district have declined in recent decades due to several factors, including limited rainfall, s, soil erosion, disease outbreaks, and poor agricultural practices.

Comment: In 2019, there was a flood in Eyl, which had a severe impact on agriculture and caused a lot of damage to farmers.

68. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?
    - Yes, farmers grew fodder and pasture in the rainy and dry seasons to feed animals as well as for commercial purposes.
69. What percentage of households own land in this area or village? What are the main constraints when it comes to land ownership?
    - 65% of farmers and residents in Eyl District possess land ownership, while the remaining individuals do not own land and instead cultivate or reside on rented land

    The main constraints when it comes to land ownership?

    - Land ownership in the area tends to benefit long-term residents, ensuring them larger portions compared to newcomers. This inequality is often a result of financial limitations faced by latecomers, making it challenging for them to acquire land.
70. During the last 10 years land degradation in this area has:
    1. ☐Increased
    2. ☐Decreased
    3. ☐No change

Comment: Over the last decade, land degradation has increased significantly in the district. Environmental degradation includes formation of gully, rill and sheet. Moreover, a Sand dune blocking major roads in some village under Eyl districts such Gabac, Maraya and Kamal Villages. In addition, the number of trees planted in the area has decreased significantly.

71. What are the major causes of land degradation in this area?
    - Cutting trees for farm and livestock (Fencing)
    - Deforestation
    - Settlement
    - Illegal vehicle movement on rangeland
    - Floods
    - Drought
    - Overgrazing
72. Are there farms with soil conservation structures in this area? If yes, how many?
    - There is no farms with Soil conservation structure in Eyl District
73. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- **Yes**, there are 20 soil conservation structures in the rangeland area of Eyl districts, such as rock dams in Qarxis,Ceel Madoobe, Maraya, Badey,Aftogweyne, Biyo Cado,Gubato,Dhiganle, Xasbahale, Dixiyo, and Cadalle under Eyl district.

74. What are the land use practices in this area?
    - Settlement
    - Agriculture
    - Pastoralist
75. Do you have community initiatives for conserving your natural resources (rangelands, and water)?
    1. ☐Yes
    2. ☐No

If yes, please explain: Is there community organization managing water, access to grazing areas?

- **Yes**, community organizations in Eyl district are led by elders. Local elders play an important role in environmental awareness activities in the management of natural resources, including water and pasture. One of the primary goals is to make these resources available to all members of the community.

76. What community committees exist in this village?

- In Eyl District there are several committees and organizations contribute to various aspects of community development and management
- Fishery committee: The fishery committee works to coordinate, promote and advocate for fishery sector
- Cooperative Farms: This organization promotes cooperative farming efforts among community members and promotes cooperation and resource sharing for agricultural activities.
- Environment Committee: Responsible for raising awareness about environmental issues and implementing conservation measures to protect natural resources such as water, soil and forests.
- Health Committee: It focuses on promoting health and social welfare, organizing health education campaigns, and advocating access to health services.
- School committee: Advocate for quality schools, develop educational programs, address issues related to access to education, and work to improve educational opportunities within the community.

77. What percentage of the different village committees are women? And youth? Are

Women and youth represented in governance bodies (board, etc…)

- Representation in Committees: About 30 percent of committee seats are allocated to women, facilitating their active involvement and contribution to decision-making processes. Likewise, 20 percent of seats are designated for youth, ensuring their representation and participation.
- Women and young people are also held in government bodies (e.g., treasurer, council, members, secretaries, and some committee chairs).

78. Is there Prosopis in this village?
    9. ☐Yes
    10. ☐No
79. How long has Prosopis been in this village? -----N/A----------
80. What are the main sources of your drinking water (circle all that apply)
    21. Berked---400---Number:
    22. Shallow well-100----Number:
    23. Dam----No----------Number:
    24. Deep well-----No-----Number
    25. Streams----------10------Number
81. What are the main water sources for irrigation?
    1. Streams
82. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	Flood					
Frequent floods		Disease				
Outbreak of pests and diseases			Lack of Equipment's			
New weeds				Soil erosion		
Scarcity of labor						
Soil erosion					Limited quality seeds	
Lack of improved seed						Low market price
Low market prices						

83. In your opinion, during the last 15 years have droughts become (circle your choice)
    10. ☐More frequent
    11. ☐Less frequent
    12. ☐No change

    Comment: Over the past fifteen years the drought become more frequently due to climate change.
84. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impact of drought on Crops

1. Food insecurity
2. Water shortage
3. Less yield production
4. Diseases

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge

Scoping strategies

- Plant drought resistance crop

Impact of drought on Livestock:

- Reduce animal production
- Increase animal death
- Outbreak disease

Scoping strategies

- Use folder
- Use plastic bags for Water sources
- Sell animals which can be sellable
- Migration

85. In your opinion, during the last 15 years have floods become (circle your choice)
    10. ☐More frequent
    11. ☐Less frequent
    12. ☐No change

Comment: Yes, Climate change is leading to more frequent floods, which not only damage and erode farmland but also deprive it of fertile soil. Furthermore, these floods also result in the destruction of community infrastructure such as schools, roads, and water sources.

86. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impacts of floods on Crop

a. Food insecurity
b. destructions
c. removal of top fertile soil
d. Diseases.

Coping Strategies

- We don't use any coping strategies in agriculture

Impact of floods on Livestock

- Animal death and loss

- Decrease animal production such as milk and meat (Heavy rains results reduced pasture as results rangeland degradation)

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge
- Contingence plan for the disaster response.
- Educating pastoral community on best agricultural practices.

Coping Strategies

- Avoiding flood prone areas
- Use Plastic bags protection for Livestock

87. During the last 15 years, rainfall (circle your choice)
    4. ☐increased
    5. ☐decreased
    6. ☐ no change

Comment: Over the past 15 years, the Eyl area has received less rainfall due to climate change

88. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

The main impacts on crops and livestock of changing rainfall pattern?

- The change in rainfall patterns significantly affects both crops and livestock. It leads to reduced agricultural productivity, decreasing fodder availability, and reduced water access for livestock. Consequently, these changes can cause a decline in animal production and overall agricultural output.

How do adapt to these changes

Crops

The local community has adapted to the impacts of changing rainfall patterns by implementing several strategies. These include:

- Planting drought-resistant crops
- Embracing mixed farming which combine crop cultivation with livestock rearing.
- Raising awareness about weather forecasting.

Livestock

- Migration
- Selling of livestock
- Increase Fodder storage
- Increase water storage mechanism

89. During the last 10 years, soil and land degradation in this village has (circle your choice)
    10. ☐increased
    11. ☐decreased
    12. ☐no change
90. During the last 10 years, Gu rains have been coming (circle your choice)
    10. ☐Early
    11. ☐Normal time
    12. ☐Late
91. Have water resources become
    10. ☐More available and accessible
    11. ☐Less available and less accessible
    12. ☐No change
92. What types of trees have declined in this area during the last 15 years?

- jiic (Maerua crassifolia)
- qansax (Acacia reficiens)
- qurac (Acacia tortilis)
- hareeri (Terminalia prunioides)
- canjeel (Mimusops anjel)
- Geed quwaax (qaroon) = Commiphora Gileadensis

93. During the last 10 years, have conflicts in this area
    1. ☐Increased
    2. ☐Decreased
    3. ☐No change

Comment: there is no major conflict in Eyl district

94. What are the causes of conflicts?
    Limited resources such as
    - Water
    - Pasture
    - Land
95. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?
    Conflicts affect your community –
    - Decrease cooperation among the community
    - Increase mistrust of the local community

Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

- Impacts of climate change Rainfall, along with floods and droughts, has the greatest impact on local communities, resulting in food insecurity, poverty, and reduced agricultural and livestock productivity.

96. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.
97. Yes, conflicts over natural resources such as pasture, and water have a significant impact on the ability of local communities to benefit from these natural resources.

These minor conflicts must be resolved through dialogue, mediation, and unilateral approaches to resource management to ensure sustainable use of natural resources and promote peaceful coexistence among local communities. Improve access to natural resources such as pasture, water, and land.

98. How do you address conflicts?

- Local people or elders resolve problems: People from the communities have an important role in the mediation and dispute resolution on the land, water and pasture by using, with traditional mechanisms that resolve conflicts.
- Mediation: The mediation is a neutral intervention of the third part to falsify actions can resolve the issues between the conflicting parts.
- Major disputes heard in District Courts: Major disputes which cannot be resolved through traditional or administrative means are referred to District Courts for adjudication of applicable laws and regulations.

99. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?

- Advocate for increasing water source and folder availability
- Increase community awareness regarding the impact of climate change.
- Disseminate weather forecasting information.
- The district has an annual and five-year plan; therefore, climate change mitigation and adaptation were also part of our plan.

100. What are your suggestions for conserving the natural resources in your area?

- Increase environmental awareness
- Afforestation
- Rangeland Rehabilitation
- Ecosystem Restoration

101. What are the major sources of fuel for cooking in this village?

- Charcoal
- Wood fire
- LPJ Gas

102. What types of stoves are used in this village?

- Charcoal stoves such as Chicakow stoves and Local stoves
- Wood fire stoves

103. Is there any community range or forest near your village?

1. ☐Yes
2. ☐No

104. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?

1. ☐Slight degradation
2. ☐Moderate degradation
3. ☐High degradation
4. ☐None

Comment: Numerous trees and forests, including Qunba and Qandal, were once abundant, but their numbers have dwindled due to deforestation and inadequate and inefficient forest management practices.

52. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- Rangeland Rehabilitation
- Support farmers by providing fencing, seed and equipment's
- Increase Water sources such as Building dams, bore halls and shallow water
- Ecosystem restoration
- Land closure
- Afforestation
- Promote Climate Smart Agriculture

53. What activities do you suggest to attain the resource improvement?

1. ☐Effective protection
2. ☐Management including community participation
3. ☐Reseeding
4. ☐Reforestation

54. Other (specify

55. What benefits do you get from the rangelands and forests?

- Food
- Medicine
- Folders
- Timber
- Shed

56. What is the most important tree, and herbaceous crop, shrubs and species you utilize to satisfy your household needs?

5. Fodder or fuel
   - dureemo (Chrysopogon aucheri),
   - Gargaro (paspalidiumdesertorum)
6. Fuel
   - Jiic (Maerua crassifolia)
   - Qansax (Acacia reficiens),
   - Qurac (Acacia tortilis)
   - Hareeri (Terminalia prunioides),
   - Canjeel (Mimusops Angel)
7. Construction
   - Qurac (Acacia tortilis)
   - Hareeri (Terminalia prunioides),
   - Canjeel (Mimusops Angel)
8. ----------
9. Food
   - Maize, Sorghum, Papaya, Water Melon Beans, and coconut

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	**Nugaal (Dangoroyo city).** **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.** mohamed.ahmed@imcpuntland.so			
Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agro pastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agro pastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.			
General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	8 people	N/A	N/A	2000hh= 7person per hh
Average land holding per individual agro pastoral household (in ha)	1 ha	$50,000	Dollar	The average price of 1 ha is $50,000
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)	1 ha	$	Dollar	Land rental amounts is profit sharing which one-third of the net profit for each season.
Average wage rate per day per agricultural employee (pure monetary wage)	3 employees	$750	Dollar	The average wage rate per employee is $ 8.33 per day.
Are there any taxes or fees that agro pastoral folks pay? E.g., land tax? VAT, water tax? etc. If yes, please list them in detail.	1 ha	$60	Dollar	$ 60 for land tax per annual.
SOS to USD exchange rate-current	N/A	N/A	N/A	In Puntland State, the SOS system is inactive, replaced instead by the electronic dollar known as SAHAL, which has become the prevalent form of currency.
Average interest rate on a loan for agro pastoral farmer (loan can be from middlemen, micro-lending institution, or bank, please specify)	1 ha	10% interest rate	Dollar	The farmer take a loan from banks and their relatives and the interest rate is 10%.

Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agro pastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.	4) 200 carton of tomatoes per 3monthn 5) 300 carton of onion per Annual 6) 9000 pcs of water melon per season	$20-50 for each carton of tomatoes. $30-150 for each sack of onion. $1-4 per each water melon.	Dollar	The primary commodities in demand are tomatoes, onion, and Watermelon, ranked respectively. In a prosperous year, 200 carton of tomatoes are produced, contrasting with 67 carton of tomatoes during a less favorable season. The pricing of these goods fluctuates according to market conditions. When it comes to irrigation systems, rainfed agriculture is widespread, with some farms relying on irrigation sourced from shallow wells with 10-20m depth.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.	2) 133 carton of tomatoes loss for a bad year	66.5% loss	Dollar	One year of favorable productivity compared to two years of reduced output, affected by dependence on rainfall and the impacts of climate change.
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	-	-	-	Two years bad versus one year good.
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?	170 carton sold 30 carton consumed	$30-50	Dollar	85% of the any commodities are selling, and 15% is for consuming.
List types and volumes of commodity by-products. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agro pastoral farm.	1. Tomatoes 2. Onion 3. Water melon 4. Fodder(grass)	1) 85% sold 2) 85% sold 3) 85% sold 4) 100% sold		1. 85% of tomatoes sold and 15% consume. 2. 85% sold of onion sold and 15%consume. 3. 95% of water melon sold and 5% consume. 4. 100% of fodder sold.
List volumes of all inputs necessary for farmers to plant and manage selected sample	1kg of seeds for 1 ha(tomatoes, onion, and water-melon) .	$50	Dollar	6) 10 Labour, 7) Farm tools (1Tractor for land

crops: **seeds (volume per ha)- note I need yields from improved versus regular seeds**, fertilizers (volume per ha), bags for collecting, etc.				preparation, 10rakes, 10shovels,1kg seeds, green houses, and fencing). 8) Water source (Borehole, Dam, or Berkads. 9) Management(Operation and maintenance).
List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)- **note I need prices of improved versus regular seeds**, fertilizers (price per kg), bags for collecting, etc.	1) 3kg of seeds for three different commodities. 2) 1Tractor. 3) Farm Tools (5rakes, 2wheelbarrows, green houses,1seed drill,5shovels, Axe, two pruning shears). 4) Drilling shallow wells	1) $150. 2) $25,000-30,000 in lump sum. 3) $50,0000 lump sum. 4) $4000	Dollar Dollar Dollar	1) 9Labours each for $15 per day for 10days = $1350 and engineer $500, 2) Cost for drilling new shallow well (20m depth, 1m^2 =$200,20*200 = $4000).
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.	2) 3 labour for permanent working, and 6labour for temporary working(land preparation and seeding).	3) $750 for 2 permanent labours 4) 6labours for temporary land preparation and seeding.	Dollar	30days for land preparation, and seeding needs 6labour $10 per m$^{2.}$ Capacity building for agro-pastoralist in terms of (forecasting, cultivating processes, soil suitability training, and Disaster risk reduction, and pest practices training).
Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agro pastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agropastoral farm and prices of such tools.	**Farming Tools** 5. 1pcs of tiller 6. 1 pcs of tractor.	4. $7000 lump sum	Dollar	5. rakes (5pcs, ($15 each), 6. shovels (5 pcs ($10 each),

	7. 1 pcs of seed drill. 8. Other small tools such as (shovels, green houses, Axes, rakes, wheelbarrow, pruning shears)	5. $25,000-30,000 lump sum 6. $7000 lump sum 7. $20,000 lump sum	Dollar	7. grape hoe 5pcs ($50 each), 8. wheelbarrow(3 pcs and $30 each)
Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agro pastoral farm	4. Cutter bar mower 5. Rotating drug mower 6. Mower-conditioner	$5000 lump sum $6000 lump sum $5000 lump sum	Dollar Dollar Dollar	Irrigation Pipes(10pcs and 100m for each and $ 2000 for each)
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agropastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agropastoral household (please list # of goats' vs cows, vs camels, etc.	8 people	N/A	N/A	3. 150 goats and sheep per individual agro-pastoral household 4. 20 Camels per hh
Average annual mortality of animals (if drought happens)-can be in % loss per animal type. Please list details.				3. Goats 40% died and remaining 60% 4. Camels 25% loss and 75$ remain
What is the % of animal sales per year when good versus bad year? Please state it per animal type.	3) 20% sold for good years 4) 3% sold for bad years	$800-1200 per pregnant camel $400-600 for 5 years old camel $60-90 per goat	Dollar Dollar Dollar	4) $1200 for pregnant camel in good season and $800 for bad year. 5) 5 years old camel is $600 for good season and $400 for bad year. 6) goat $90 for good season, and $ 60 for bad year.
Do farmers sell animals live? If not, describe how they do it.				**yes**
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agropastoral household from such activities?	3) 400ml of milk per hh 4) 2.5kg of meat daily per hh	$5 $10	Dollar Dollar	4. 80ml of milk =$1 5. 1kg of meat = $5 6. One hh need 400ml and 2.5kg of meat per hh

If they consume that milk, please provide volume of consumption (average per HHs)				
List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type	3) Camel 4) Goat & Sheep	1. 400 – 1200 2. 60 - 90	Dollar	3. Pregnant camel $1200, and 5 years old camel is in the range of $400-600) 4. Male goat $60-90)
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon	ml	$ 1 for camel milk $ 1.2 for goat milk	Dollar	The average camel production is 160ml of milk
Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.	Borehole rehabilitation in terms of (GI pipes, irrigation pipes, pump, cable, source power,)	$ 25000-30,000 lump sum	Dollar	3) Plastic bag, fencing, Cleaning, pipes animal troughs
<u>For new constructions</u>: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)	7. Drilling borehole 8. Construction of water catchment 9. Plastic bag 10. Source power (solar & generator) 11. Irrigation pipes 12. Pump & cable 13. Water supply(elevate tank, Kiosks, animal troughs)	5. $ 100,000 lump sum 6. $ 80,000 7. $4000 lump sum 8. $15000 lump sum 9. 20,000 lump sum		10. New Borehole drilling (rotary drilling, Casing, borehole construction. Solar, Generator, Animal troughs, supply system, Elevator tank 11. Construction for water catchment(Plastic bad, fencing, Pipes, Solar, Elevator tank, Pump, Cable,)
<u>For new constructions:</u> Please state potential benefits associated with its construction-quantify all that you can. E.g., number of beneficiary agro-pastoral HHs that could benefit				1. Decreasing water scarcity 2. Water availability 3. Increasing crop production
<u>For water infrastructure rehabilitation activities:</u> State what would be needed in terms	8) GI pipe price	8. $10,000 lump sum	Dollar	Decreasing water fetching for agropastrolist

of improving this water infrastructure (labour requirement/costs plus material, tools, etc.). Pleas eina s much detail as possible.	9) Solar panels price 10) Plastic bag price 11) Pump price 12) Elevator tank 13) Pipes price 14) Animal troughs	9. $200 each panel 10. $5000 lump sum 11. $2000-3000 12. $10,000 lump sum 13. $20,000 lump sum 14. $6000		
<u>For rehabilitation of existing water infrastructure:</u> Please state potential benefits associated with its rehabilitation-quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				1. Increasing crop production 2. Improving water quality 3. Increasing water availability 4. Enhancing water accessibility

Focus group discussions guide

Part1. Identification data **Dangoroyo Cooperative famers**

19. District name	Dangoroyo District
20. Village/location name	Dangoroyo City
21. Focus group participants (names)	4 participants

105. How many households are in this village?

There are more than 4500 Households

Fishers **500**

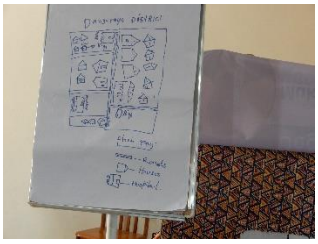
Settlement **3100**

Farmers **50**

Pastoralists **750**

Small Business **300**

106. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns



107. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
30. Livestock	Livestock					
31. Crops		Fishing	Crop			
32. Small business			Small business			
33. Remittance from relatives				Family Support		
34. Aid					Aid	
35. Fishing						
36. Other (specify)						

108. During the last 10 years, food security in this village has (circle your choice)

16. ☐Increased
17. ☐Decreased
18. ☐No change

Comment: Food security has declined significantly in the last decade due to the combined effect of several factors, such as prolonged drought, environmental degradation, the spread of endemic diseases and the negative effects of climate change. These challenges severely

affect natural resources and agriculture, exacerbating the vulnerability of communities dependent on these resources

109. During the last 10 years, the number of livestock in this village has (circle your choice)

13. ☐Increased
14. ☐Decreased
15. ☐No change

Comment: Livestock population have declined over the past 10 years due to drought, floods, limited fodder, diseases, environmental degradation land degradation such as gully, rill and sheet erosion which affected the rangeland productivity.

110. What kind of livestock production do we have in this village?

1. Meat
2. Milk
3. Survive
4. Commercial purpose
5. Culture such as dowry

111. During the last 10 years milk production or other livestock production in this area has increased?

1. ☐Increased
2. ☐Decreased
3. ☐No change

Comment: Over the past decade, several factors, including rainfall pattern, outbreak disease, food shortages and persistent drought, have reduced milk production from cows, goats and camels. These factors have caused a decline in milk production in Dangoroyo district.

112. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
13. Scarcity of fodder and pasture	Scarcity of water					
14. Animal diseases		Disease				
15. Scarcity of water		Low market price				
16. Scarcity of labor				Limited support from government and Donors		

17. Low quality seeds					Labor	
18. Other (specify)						

Comment: The communities in Dangoroyo encounter numerous challenges that hinder livestock farming. These include water scarcity, disease outbreaks, inadequate feed and pasture, low market prices for livestock, labor issues, and the necessity for government and donor assistance.

113. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

- Yes, over the last decade, the rangeland has changed due to recurrent drought, locust, and anthropogenic activities such as urbanization, deforestation, illegal vehicle movements, agriculture, and overgrazing. All these combinations have changed the rangeland and reduced the productivity of the rangeland. For example, a large number of trees, shrubs and herbaceous have declined or disappeared, such as Qurac (Acacia tortilis), Dureemo (Chrysopogon aucheri), Hareeri (Terminalia prunioides), and Canjeel (Mimusops anjel).

114. During the last 10 years milk production per lactating animal has (circle your choice)

1. ☐increased
2. ☐decreased
3. ☐no change

Comment: Ten years ago, a goat's lactation was 1 liter, but now it is less than 0.5 liters. 10 years ago, there were 4 per lactating camel but less than 2 liters per camel. This change is due to limited rainfall, diseases, limited forage and grazing.

115. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- Yes

Comments: The last decade has seen significant changes in the composition of the livestock population in the Dangoroyo area. The locals kept large numbers of cows and camels. However, due to constraints such as frequent droughts, water and fodder shortages, environmental degradation, and infectious diseases, the number of livestock in villages has declined or even declined.

116. Are crops cultivated in this village or area?

YES

117. If yes, what kinds of crops are grown? Is there any irrigated crop?

- Irrigated crop: Water Melon, Tomatoes, peppers, Tomato peppers, capsicum, onion and carrot

118. What is the average yield of main crop per hectare?

- Local farmers in the area cultivated water melon at a rate of 1 kg per hectare, resulting in more than **9000** pieces of water melon

119. Have crop yields declined or increased during the last 10 years?

- Crop yields have declined in recent decades due to a number of factors, including limited rainfall, limited water sources, soil erosion, disease outbreaks, and poor agricultural practices.

120. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- **Not,** the farmers do not cultivate any folder in Dangoroyo District

121. What percentage of household's own land in this area or village? What are the main constraints when it comes to land ownership?

- In Dangoroyo City, 65% of farmers and households own their own land, while the remaining farmers and households do not own land. Therefore, local residents cultivate and live on rented land.

The main constraints when it comes to land ownership?

- The distribution of land ownership within a village favors those who have already settled in the area, guaranteeing a larger share than those who arrive later. This gap is often due to financial difficulties for latecomers, making it difficult to obtain land. In addition, poor governance can lead to unequal access to land for communities, exacerbating the problem.

122. During the last 10 years land degradation in this area has:

1. ☐Increased
2. ☐Decreased
3. ☐No change

Comment: In the last decade, land degradation has increased significantly in Dangoroyo district. Local communities face challenges such as gully formation, rills, and sheets. This leads to reduced pasture productivity. In addition, the number of trees, shrubs, and herbaceous species in this area has been significantly reduced.

123. What are the major causes of land degradation in this area?

- Change of the rainfall pattern
- Cutting trees for farm animal (Fencing)
- Urbanization
- Overgrazing
- Illegal vehicle movements
- Floods,

124. Are there farms with soil conservation structures in this area? If yes, how many?

- No there is no farms with Soil conservation structure in Dangoroyo District

125. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- Yes, 20 soil conservation structures in the rangeland area of Dangoroyo. Those include Libaax,Dhigato, Barweyn, Dangoroyo City,Niriq, Bicil, Finley, and Xaajikhayr Village.

Comment: The existing soil conservation structures in the rangeland area are insufficient. Additionally, this district has witnessed the highest levels of land degradation, particularly in terms of gully erosion.

126. What are the land use practices in this area?

- Settlement
- Agriculture
- Grazing

127. Do you have community initiatives for conserving your natural resources (rangelands, and water)?

1. ☐Yes
2. ☐No

If yes, please explain: Is there community organization managing water, access to grazing areas

- Yes, In Dangoroyo District, community organizations are managed by elders who play crucial roles in promoting environmental awareness and managing natural resources like water and pastures. Their main aim is to ensure fair access to these resources for all members of society.

128. What community committees exist in this village?

- Dangoroyo District has several committees, such as the environmental committee, animal husbandry committee, fisher's committee, water management committee, and health committee.

129. What percentage of the different village committees are women? And youth? Are

Women and youth represented in governance bodies (board, etc…)

- Committee seats: Around 28.5% of committee seats are reserved for women, which guarantees their active participation and contribution in the decision-making process. Similarly, 14% of the seats are reserved for young people.
- Women and youth are also hold governance bodies (Such as Treasurer, Council, member, Secretory and some of them are even chair of the committee)

130. Is there Prosopis in this village?

11. ☐Yes
12. ☐No

131. How long has Prosopis been in this village? -------N/A----------

132. What are the main sources of your drinking water (circle all that apply)

26. Barked---30---Number:
27. Shallow well---5--Number:
28. Dam----6----------Number:

29. Deep well-----10-----Number
30. Streams----------10------Number

133. What are the main water sources for irrigation?

1. Deep well
2. Barked

134. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	Drought					
Frequent floods		Disease				
Outbreak of pests and diseases			Equipment's			
New weeds				Soil erosion		
Scarcity of labor					Limited quality seeds	
Soil erosion						
Lack of improved seed						Low market price
Low market prices						

135. In your opinion, during the last 15 years have droughts become (circle your choice)

13. ☐More frequent
14. ☐Less frequent
15. ☐No change

Comment: Over the last 15 years, drought has become more frequent due to limited rainfall and climate change.

136. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impact of drought on Crops

- Diseases
- Soil erosion
- Food insecurity
- Water shortage
- Less yield production

Anticipate these negative impacts?

- Endogenous knowledge
- Early warning System

Scoping strategies

- No Scoping Strategies

Impact of drought on Livestock:

- Reduce animal production
- Increase animal death
- Outbreak disease

Scoping strategies

- Use folder
- Use plastic backs for Water source
- Migration
- Sell livestock

137. In your opinion, during the last 15 years have floods become (circle your choice)
    13. ☐More frequent
    14. ☐Less frequent
    15. ☐No change

Comment: Yes, climate change is causing more frequent floods, which not only affect farmers by destroying them but also by taking away fertile soil. Additionally, thousands of livestock are dying during the flash flood.

138. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impacts of floods on Crop

e. Food insecurity
f. Water shortage
g. Less yield production
h. Diseases

Coping Strategies

- We don't use any coping strategies in agriculture

Impact of floods on Livestock

- Animal death and loss
- Decrease animal production such as milk and meat (Heavy rains results reduced pasture as results rangeland degradation)

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge
- Contingence plan for the disaster response.
- Educating pastoral community on best agricultural practices.

Coping Strategies

- Avoiding flood prone areas
- Use Plastic bags protection for Livestock

139. During the last 15 years, rainfall (circle your choice)

7. ☐increased
8. ☐decreased
9. ☐ no change

Comment: Over the last 15 years, the rainfall has decreased due to climate change.

140. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

- Changes in rainfall patterns have major impacts on crops, pastures, and livestock. This results in lower agricultural productivity, lower food availability and less access to water for livestock. Ultimately, these changes could lead to declines in livestock and agricultural production.

How do adapt to these changes

Crops

The local community has adapted to the impacts of changing rainfall patterns by implementing several strategies. These include:

- Planting drought-resistant crops
- Embracing mixed farming which combines crop cultivation with livestock rearing.
- Raising awareness about weather forecasting.

Livestock

- Migration
- Selling of livestock
- Increase Fodder storage
- Increase water storage mechanism

141. During the last 10 years, soil and land degradation in this village has (circle your choice)

13. ☐increased
14. ☐decreased
15. ☐no change

142. During the last 10 years, Gu rains have been coming (circle your choice)

13. ☐Early
14. ☐Normal time
15. ☐Late

143. Have water resources become

13. ☐More available and accessible
14. ☐Less available and less accessible
15. ☐No change

Comment: local community experienced limited sources which affected crop production

144. What type of trees have declined in this area during the last 15 years?

- Dhuur (Tamarix aphylla)
- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- (Dureemo) (Chrysopogon aucheri)
- Canjeel (Mimusops Anjel)
- Hareeri (Terminolia pruniodes)
- Cadey (Salvadora persia)
- Garaska (Dobera glabra)

145. During the last 10 years, have conflicts in this area

1. ☐Increased
2. ☐Decreased
3. ☐No change

Comment: there is no major conflict this area.

146. What are the causes of conflicts?

Limited resources such as

- Water
- Pasture
- Land

147. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

Conflicts affect your community –

- Decrease cooperation among the community
- Increase mistrust of the local community

Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

- Impact of climate change Such floods and droughts in a rainfall pattern have affected the local communities more, resulting in increased food insecurity, poverty, and reduced agricultural and livestock production, which leads to natural resource conflict.

148. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.

Yes, Conflicts over natural resources such as water, pasture and water have a significant impact on the ability of local communities to benefit from these natural resources.

How do you address conflicts?

• Local elders resolve minor issues: Community elders play an important role in mediating and resolving minor disputes over land, water and territory using traditional dispute resolution mechanisms.

• Arbitration: Arbitration is the impartial intervention of a third party to falsify actions and find a mutually beneficial solution between the disputing parties.

• Major disputes heard in District Courts: Major disputes which cannot be resolved through traditional or administrative means are referred to District Courts for adjudication of applicable laws and regulations.

149. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?

- Increasing community awareness of the effects of climate change.
- Use of weather forecast information.
- Districts have annual and five-year plans include mitigation and adaptation of climate change

150. What are your suggestions for conserving the natural resources in your area?

- Rangeland Rehabilitation
- Ecosystem Restoration
- Promote community based on Natural resource Management
- Land Closures

151. What are the major sources of fuel for cooking in this village?

- Charcoal
- LPJ Gas
- Wood fire

152. What types of stoves are used in this village?

- Charcoal stoves such as Chicakow stoves and Local stoves
- Wood fire stoves

153. Is there any community range or forest near your village?

1. ☐Yes
2. ☐No

154. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?

3. ☐Slight degradation
4. ☐Moderate degradation
5. ☐High degradation
6. ☐None

52. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- Dissemination of early warning system
- Increase and promote disaster risk reduction at the community level

53. What activities do you suggest to attain the resource improvement?

5. ☐Effective protection
6. ☐Management including community participation
7. ☐Reseeding
8. ☐Reforestation

57. Other (specify) Rangeland Rehabilitations and ecosystem restoration such as Gully and Sand dunes, water Catchments such as dams and Boharhalls, Support farmers such providing Equipment's
58. What benefits do you get from the rangelands and forests?

- Food
- Medicine
- Folders
- Timber
- Shed

59. What is the most important tree, herbaceous and crop species you utilize to satisfy your household needs?

10. Fodder

- Prosopis
- Libi (leuceana losephala)

11. Fuel

- Raqey (tamarindus indica)
- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Gargaro (paspalidiumdesertorum)
- Canjeel (Mimusops Angel)

12. Construction

- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Canjeel (Mimusops Angel)
- Prosopis
- Libi (leuceana losephala)

3. Food such as Maize, Sorghum, Papaya, Water Melon and Beans

Focus group discussions guide

Smallholder farmers FGD in Dangoroyo district.

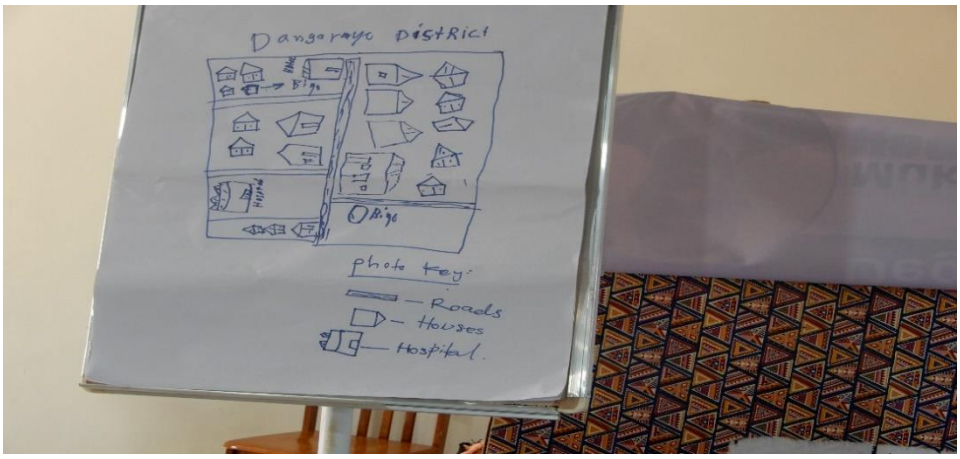
Part1. Identification data

22. District name	Dangoroyo
23. Village/location name	Dangoroyo
24. Focus group participants (names)	8 participants

155. How many households are in this village?

- 1500HH

156. Could you please quickly draw on a flipchart the main agro-ecological zones in your area : rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….



157. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
37. Livestock	Most important					
38. Crops						
39. Small business		Second most important				
40. Remittance from relatives				Fourth most important		
41. Sea foods			Third most important			

158. During the last 10 years, food security in this village has (circle your choice)

19. Increased
20. Decreased
21. No change

- **Note:** Over the past ten years, food security has experienced a notable decline, primarily due to worldwide challenges such as the conflicts in Ukraine and Russia, the impacts of climate change, and the emergence of the COVID-19 pandemic.

159. During the last 10 years, the number of livestock in this village has (circle your choice)

16. Increased
17. Decreased
18. No change

- Note: Droughts and diseases resulted in a decline in the animal population in Dangoroyo district.

160. What kind of livestock production do we have in this village?

- Meet
- Milk
- Chees

161. During the last 10 years milk production or other livestock production in this area has increased?

1. Increased
2. Decreased
3. No change

- Note: The productivity of milk is dependent on the rainy season; abundant rainfall leads to higher productivity, whereas inadequate precipitation results in reduced milk.

162. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
19. Scarcity of fodder and pasture	1					
20. Animal diseases		2				
21. Scarcity of water			3			
22. Scarcity of labor					5	
23. Low market prices				4		
24. Other (specify)						

163. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

- Note: Indeed, there has been a reduction in rangeland areas, due to urbanization where animals once grazed and degradation of of rangeland areas in Dangoroyo district.

164. During the last 10 years milk production per lactating animal has (circle your choice)
   1. increased
   2. decreased
   3. no change

- Note: as a result of food shortages and diseases.

165. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- No

166. Are crops cultivated in this village or area?

- No

167. If yes, what kinds of crops are grown? Is there any irrigated crop?
168. What is the average yield of main crop per hectare?
169. Have crop yields declined or increased during the last 10 years?
170. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- No

171. What percentage of household's own land in this area or village? What are the main constraints when it comes to land ownership?

- Approximately 60% of the residents within the Dangoroyo district own land, while the remaining 40% are constrained by financial barriers.

172. During the last 10 years land degradation in this area has:
   1. Increased
   2. Decreased
   3. No change

173. What are the major causes of land degradation in this area?

- The main causes of land degradation in the Dangoroyo district include deforestation, overgrazing, soil erosion, and urbanization.

174. Are there farms with soil conservation structures in this area? If yes, how many?

- No

175. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- No

176. What are the land use practices in this area?

- Shelter and rangeland.

177. Do you have community initiatives for conserving your natural resources (rangelands, and water)?
   1. Yes
   2. No

- Dangoroyo district has established local committees comprising community members tasked with supervising the management and sustainable utilization of water and rangelands.
- Conducting educational programs and awareness campaigns within the community to highlight the importance of conserving rangelands and water resources for future generations.

178. What community committees exist in this village?

- Village committee
- Education committee
- Natural resource committee

179. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc…)

- 30% women
- 40% youth

180. Is there Prosopis in this village?

13. Yes
14. No

181. How long has Prosopis been in this village?

182. What are the main sources of your drinking water (circle all that apply)

31. Berked 30 in depth 3m
32. Shallow well-----Number: 0
33. Dam----------Number: 0
34. Deep well 1 deep well in depth 320m
35. Streams 1

183. What are the main water sources for irrigation?

184. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts						
Frequent floods						
Outbreak of pests and diseases						
New weeds						
Scarcity of labor						
Soil erosion						
Lack of improved seed						
Low market prices						

185. In your opinion, during the last 15 years have droughts become (circle your choice)

16. More frequent
17. Less frequent

18. No change

- Note: Certainly, in the past 15 years, the frequency of droughts in the Dangoroyo district has been increasing, notably observed in the years 2010, 2016, 2018, 2019, and 2021.

186. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

main impacts of droughts on livestock

- Livestock Depletion: Droughts diminish available pasture and water sources for livestock, creating unfavorable grazing conditions. This leads to malnutrition, dehydration, and heightened vulnerability to diseases, ultimately causing livestock deaths and reducing herd sizes.
- Economic Losses: Droughts inflict substantial economic setbacks on farmers and pastoralists in the Dangoroyo district. Crop failures and livestock losses translate into reduced income and livelihood insecurity, exacerbating poverty and economic challenges within the community.
- Food Insecurity: The combination of crop failures and livestock losses due to droughts exacerbates food shortages and heightens food insecurity among the populace. This situation fosters malnutrition and hunger, particularly impacting vulnerable demographic groups such as children and the elderly.
- Environmental Degradation: Droughts worsen environmental degradation in the Dangoroyo district, leading to soil erosion, desertification, and biodiversity loss. These phenomena carry long-term implications for ecosystem health and natural resource management in the region.

How do you anticipate these negative impacts

- Early Warning Systems: Establishing robust early warning systems that monitor weather patterns, precipitation levels, soil moisture, and other relevant indicators can aid in forecasting drought conditions. This enables authorities and communities to proactively implement measures to mitigate the impacts before they worsen.
- Drought Preparedness Plans: Creating comprehensive drought preparedness plans at the district level is crucial. These plans should delineate strategies for water conservation, livestock management, and emergency response measures to minimize the adverse effects of drought.
- Water Management Practices: Enforcing sustainable water management practices, to assist conserving of water resources and ensuring their availability during drought periods.

Drought the coping strategies

- Buying supplementary foods
- Moving livestock in new areas
- Reducing calving rate
- Government interventions
- NGOs supports

- Social network

187. In your opinion, during the last 15 years have floods become (circle your choice)

16. More frequent
17. Less frequent
18. No change

- Note: in2013, a flood occurred in Dangoroyo district, impacting the livelihoods of both human and animal populations and resulting environmental damages.

188. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

The main impacts of floods on livestock in the Dangoroyo district include:

- Soil Degradation
- Livestock Losses
- Infrastructure Damage
- Disruption of Livelihoods

How do you anticipate these negative impacts?

- Community Preparedness: Promoting community preparedness through awareness campaigns, training programs, and disaster drills empowers residents to take proactive measures before, during, and after floods. This includes preparing emergency kits, developing evacuation plans.
- Early Warning Systems: Establishing robust early warning systems that monitor rainfall patterns, and weather forecasts can help anticipate flood events. This allows authorities and communities to issue timely alerts and evacuation orders, minimizing the risk to lives and property.
- Collaboration and Coordination: Fostering collaboration among government agencies, NGOs, community-based organizations, and other stakeholders is essential for effective flood risk management. Coordinating response efforts, sharing information, and mobilizing resources can enhance the overall resilience of the community to flood events.

What are the coping strategies?

- Community awareness during rainy season
- Moving animal to the new areas
- Government and international supports
- Buying supplementary feeds

189. During the last 15 years, rainfall (circle your choice)

10. increased
11. decreased
12. no change

- Note: due to climatic change

190. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

main impacts on livestock of changing rainfall pattern in Dangoroyo district

- Livestock Forage Availability: Fluctuations in rainfall patterns affect the availability and quality of forage for livestock grazing in the Dangoroyo district . Drought conditions can lead to reduced pasture growth and availability, forcing pastoralists to supplement feed with alternative sources or destock their herds. Conversely, heavy rainfall may promote lush pasture growth but also increase the risk of flooding and waterborne diseases for livestock.

- Economic and Food Security Impacts: The impacts of changing rainfall patterns on livestock can have significant economic and food security implications for communities in the Dangoroyo district Reduced livestock productivity may lead to income losses, increased food prices, and food shortages, exacerbating poverty and malnutrition among vulnerable populations.

  How do adapt rainfall pattern changes?
- Livestock Management Strategies: Implementing adaptive livestock management strategies such as rotational grazing, supplementary feeding, and breed selection helps mitigate the impacts of changing rainfall patterns on livestock production. By managing grazing areas effectively and providing supplementary feed during dry periods, pastoralists can maintain livestock health and productivity.

  Did you invest less/more in livestock rearing?

- Certainly, there has been an observed shift in investment towards livestock rearing for some individuals or communities. Livestock may be perceived as more resilient to variable rainfall patterns, as they can graze on a wider range of vegetation types and are less dependent on consistent water sources compared to crops. Therefore, farmers and pastoralists may choose to invest more in livestock rearing as a means of diversifying income and reducing risk in the face of uncertain rainfall.

191. During the last 10 years, soil and land degradation in this village has (circle your choice)
    16. increased
    17. decreased
    18. No change

Note: in Dangoroyo over the past decade has faced degradation and the Factors contributing to this degradation may include unsustainable land use practices, deforestation, overgrazing, and changes in rainfall patterns. Soil and land degradation pose significant challenges to natural resource management, and ecosystem health in the district.

192. During the last 10 years, Gu rains have been coming (circle your choice)
    16. Early
    17. Normal time
    18. Mostly Late
- Note: due to climatic changes

193. Have water resources become
    16. More available and accessible
    17. Less available and less accessible
    18. No change

194. What type of trees have declined in this area during the last 15 years?

Note: Yes, there were many trees that were reduced in the area of Dangoroyo , such as the Acacia tortilis and Mimusops Angel.

195. During the last 10 years, have conflicts in this area
    1. Increased
    2. Decreased

3. No change

196. What are the causes of conflicts?

- A conflict regarding land ownership is emerging in the Dangoroyo district.

197. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

How do conflicts affect your community?

- Social Tensions and Divisions: Land conflicts often exacerbate existing social tensions and divisions within communities, pitting neighbors and ethnic groups against each other. Competition for scarce resources can fuel resentment, mistrust, and violence, further escalating the conflict and undermining social cohesion.

Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

- In the Dangoroyo district, the impacts of droughts, floods, and changes in rainfall patterns are often more pronounced and directly affect the daily lives and livelihoods of the community compared to conflicts over land ownership.
- Droughts and floods pose immediate threats to livestock rearing, water resources, and food security, leading to livestock losses, and economic hardships.

198. Do conflicts have an impact on the natural resources (rangelands and water)? If yes,

Note: Absolutely, conflicts over land ownership and grazing lands in the Dangoroyo district have significant impacts on natural resources, particularly rangelands and water.

199. How do you address conflicts?

- Dialogue and Mediation
- Establishing community-based conflict resolution mechanisms, such as conflict resolution committees or traditional dispute resolution forums, provides local communities with accessible and culturally appropriate channels to address conflicts. These mechanisms empower communities to resolve disputes collaboratively and prevent escalation of tensions.

200. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?

Note: In the face of various stresses such as droughts, floods, and conflicts in the Dangoroyo district, the community employs several coping mechanisms to mitigate the impacts and build resilience:

- Utilizing techniques such as rainwater harvesting, water storage, and efficient irrigation aids in optimizing water usage during periods of scarcity like droughts.
- Traditional Wisdom and Coping Mechanisms: Leveraging ancestral wisdom and coping mechanisms inherited over generations enables communities to adapt to environmental challenges and manage risks adeptly.

201. What are your suggestions for conserving the natural resources in your area?

- Note: Engaging local communities in participatory natural resource management initiatives empowers them to take ownership of conservation efforts and promotes sustainable resource use. Establishing community-managed protected areas,

fisheries co-management schemes, and collaborative forest management initiatives fosters stewardship and enhances conservation outcomes.

202. What are the major sources of fuel for cooking in this village?

- Commonly we use woods and charcoal .

203. What type of stoves are used in this village?

- 90% woods
- 7% charcoal
- 3% cooking gas

204. Is there any community range or forest near your village?

1. Yes
2. No

205. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?

1. Slight degradation
2. Moderate degradation
3. High degradation
4. None

48. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- **Early Warning Systems (EWS):** Establishing robust early warning systems can help alert communities about impending floods or droughts. This includes monitoring weather patterns, river levels, and soil moisture content to provide timely warnings to residents.
- **Infrastructure Development:** Investing in infrastructure such as flood barriers, embankments, and drainage systems can mitigate the impact of floods by redirecting water away from vulnerable areas. Similarly, constructing water storage facilities like dams and reservoirs can help manage water resources during droughts.
- **Community Education and Awareness**: Educating local communities about flood and drought preparedness measures, including evacuation procedures, emergency supplies, and agricultural practices resilient to changing rainfall patterns, can empower them to respond effectively to disasters.

49. What activities do you suggest to attain the resource improvement?

9. Effective protection
10. Management including community participation
11. Reseeding
12. Reforestation
13. Other (specify) ----------

50. What benefits do you get from the rangelands and forests?

- Soil protection and erosion control
- Livelihood and economic opportunities
- Constriction of shelters

50. What is the most important tree species you utilize to satisfy your household needs?

13. For fuel

- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides)
- Canjeel (Mimusops Angel)

14. For construction

- Qurac (Acacia tortilis)
- Hareeri (Terminalia prunioides),
- Canjeel (Mimusops Angel)

15. For fodder

- Gargaro (paspalidiumdesertorum)

16. For food

- Maize
- Sorghum
- Papaya
- Water Melon
- Beans

EFA data collection form

Region within Somalia **In case of any questions, please contact Kate: katepankowska@gmail.com**	**Nugaal (Cuun farms).** **Please keep relevant name of the area (see above) you provide the information for and delete the rest.** **Please provide email of a person to contact for further clarifications if needed.** mohamed.ahmed@imcpuntland.so			
Without Project (WOP) Scenario:	**WOP:** A situation as it is now in that geographic area and how it would look like if no intervention was put in place. We need to model an average agropastoral farmer from your area including his/her annual activities and incomes. We need to make upfront assumptions to be able to collect data. I do realize that there will be differences within each geographical area, but we need to conceptualize one representative model for indicative results in each area due to lack of time. Please provide the data on that average agro pastoral farmer/agro-pastoral activities. Please be as detailed as possible ad fill in columns as applicable and in as much detail as possible. More detail is always better than less detail.			
General Information				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. price, %, exchange rate, etc.)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average household (HH) size	7	N/A	N/A	500hh= 7person per hh
Average land holding per individual agropastoral household (in ha)	2 ha			
Average land rental price in the area (for example if farmer wanted to rent 1 ha to produce a crop how much it would cost per season or year?)	1 ha	$400	Dollar	There are 400 dollar land rent per annual in the Cuun farms.
Average wage rate per day per agricultural employee (pure monetary wage)	2 employee	$300	Dollar	
Are there any taxes or fees that agropastoral folks pay? E.g., land tax? VAT, water tax? etc. If yes, please list them in detail.	1 ha	$20	Dollar	20 dollar for land taxes per annual.
SOS to USD exchange rate-current	N/A	N/A	N/A	Puntland state the SOS is not functioning instead electronic dollar (SAHAL) is a common currency.
Average interest rate on a loan for agropastoral farmer (loan can be from middlemen, micro-lending institution, or bank, please specify)	1 ha	12% interest rate	Dollar	The farmer take a loan from friends and Banks and the interest rate is 12%.

Cultivated Crops: Pick the main crops in the area that are the most frequently cultivated-a max of 2-3 commodities cultivated by agropastoral producers and provide details (as per table below). Assume that yield numbers should be provided per ha per year. And prices should be stated in SOS per kg or SOS/ tonne (whichever is more applicable). State if it is rainfed or irrigated farming. I suggest data on rainfed farming as it will be easier to introduce some irrigation activities to show intervention benefits.				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Annual yield per farming system and per commodity. Please provide details about prevalent cropping system (e.g., crop rotation, intercropping, monocrop). Please state in additional explanations how these crops are cultivated and how many seasons are there, etc. Input annual average yields per ha per season. State if it is rainfed or irrigated setup.	1. 5000 kg of onion per season 2. 5000kg of tomatoes per season	1. 1kg of onion $0.8 2. 1kg of tomatoes is $0.5	Dollar Dollar	The cropping systems are three types such as 1) Intercropping 2) Mono 3) Rotation 400 sacks onion for good year and 30 sacks of onion for bad year.
Annual average % post-harvest loss if good versus bad year? Please provide details/assumptions for each type of a year.				Two years bad verses one year good
Frequency of bad years (average)? For example, should we assume bad year every 3, 5, or how many years?	-	-	-	Two years bad verses one year good
What % share of chosen agricultural commodities is sold and what % is consumed in the household per year?	1. 360 sacks of onion sold 2. 40 sacks of onion consumed	1. $14,400	Dollar Dollar	1 sack of onions equals 50kg of onions 90% of onion is sold where 10% are consumed
List types and volumes of commodity byproducts. How are they used (consumed by animals versus sold)? All should be listed per 1 year per average agro pastoral farm.	Fodder(grass)	1 sack of fodder(50kg)= $2	Dollar	50% of fodder is consumed by animals and 50% is for sold
List volumes of all inputs necessary for farmers to plant and manage selected sample crops: **seeds (volume per ha)-note I need yields from improved versus regular seeds**, fertilizers (volume per ha), bags for collecting, etc.	(seeds, Labours, farm tools, green houses, fencing, water source)	$70,000 lump sum	Dollar	10) 5Labour, 11) Farm tools (1Tractor for land preparation, 4rakes, 2shovels,2seeds, green houses, and fencing). 12) Water source (100m depth of Borehole, and Dam. Management(Operation and maintenance).

List prices of all inputs necessary for farmers to plant and manage selected sample crops: seeds (price per kg)- **note I need prices of improved versus regular seeds**, fertilizers (price per kg), bags for collecting, etc.	5) 3kg of seeds for two different commodities. 6) 1Tractor. 7) Farm Tools (5rakes, 2wheelbarrows, green houses,1seed drill,5shovels, Axe, two pruning shears). 8) Drilling 1 borehole 9) Solar, Pipes	5) $100. 6) $20,000 in lump sum. 7) $10,0000 lump sum. 8) $5000 lump sum 9) $20,000	Dollar Dollar Dollar	3) 2 permanent Labours ($300 fees), and 4) 30 temporary labours for land preparation and seeding $20 daily wages for 30 days(manual methods). 5) Drilling dug well (17m, (17*200= $3400)
List all labour requirement in cultivation of these commodities. For example: land preparation: 1 day, seeding-2 days, etc.	2 labour for permanent working, and 30labour for temporary working(land preparation and seeding).	1. $300 per month for 2 permanent labour. 2. $20 wages for 30 labours for 30days.	Dollar	30days for land preparation, and seeding needs with 30temporary labours (manual methods). Capacity building for agro-pastoralist in terms of (forecasting, cultivating processes, soil suitability training, and Disaster risk reduction).
Farming machinery and tools: List here any investment costs in machinery or tools that would be needed per average Agropastoral HHs. Especially important for fodder/feed production but also milling and other on-farm activities				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Farming tools: tillers, thresher, etc. Please list in detail volume per agropastoral farm and prices of such tools.	**Farming Tools** 9. 1pcs of tiller 10. 1 pcs of tractor 11. 1 pcs of seed drill 12. Other small tools such as (shovels, green houses, Axes, rakes, wheelbarrow, pruning shears)	8. $7000 lump sum 9. $25,000 lump sum 10. $20,000 lump sum 11. $10,000	Dollar Dollar	9. rakes (5pcs, ($15 each), 10. shovels (5 pcs ($10 each), 11. grape hoe 5pcs ($50 each), 12. wheelbarrow(3 pcs and $30 each)
Machinery, e.g. milling equipment, fodder machinery. Pleas list volumes/# necessary and prices per individual agropastoral farm	7. Cutter bar mower 8. Rotating drug mower	$5000 lump sum $6000 lump sum	Dollar Dollar	4) The price for complete fodder machines with accessories varies and depends on the

	9. Mower-conditioner	$5000 lump sum	Dollar	quality and quantity, and approximately $ 25000-30,000.
Livestock: Pick the main 2-3 animals prevalent in herds in the area and provide details (as per table below). Assume that numbers should be provided per individual average agropastoral farmer/per year. And prices in SOS per kg or SOS/ tonne (whichever is more applicable)				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Average number of animals per individual agropastoral household (please list # of goats' vs cows, vs camels, etc.	7 people(1 hh)	N/A	N/A	1. 30 goats and sheep 2. 20 Camels
Average annual mortality of animals (if drought happens)-can be in % loss per animal type. Please list details.	1. Goats 2. Camels	N/A	N/A	5) Goats 96% died during extreme drought period and remaining 4%. 6) Camels 60% loss and 40$ remains.
What is the % of animal sales per year when good versus bad year? Please state it per animal type.	5) 6% sold for good years 6) 1% sold for bad years	$400-1500 $300-500 $30-80	Dollar Dollar Dollar	7) $1500 for pregnant camel in good season and $400 for bad year. 8) 5 years old camel is $400 for good season and $300 for bad year. 7) goat $80 for good season, and $30 for bad year.
Do farmers sell animals live? If not, describe how they do it.				yes
Do farmers sell animal milk or milk products? Please clarify what could be a potential annual income per agropastoral household from such activities? If they consume that milk, please provide volume of consumption (average per HHs)	5) 240ml of milk per hh 6) 2kg of meat daily per hh	$3 $10	Dollar Dollar	7. 80ml of milk =$1 8. 1kg of meat = $5 9. One hh need 240ml and 2kg of meat per hh
List prices of livestock chosen for this model. In SOS per type and kg or tonne of live animal-type	1. Camel 2. Goat & Sheep	1) 400 – 1500 2) 30 - 80	Dollar	5) Pregnant camel $1500, and 5 years old camel is in the range of $300-500

				6) Male goat $40-80)
List prices of milk coming from animals chosen for this model. In SOS per milk type per liter/gallon.	ml	$ 1 for camel milk $ 1 for goat milk	Dollar	Each camel has 160ml of milk And each goat has 80ml of milk
Irrigation or flood control infrastructure: Please provide info on potential infrastructure that is water-relevant that would need to be constructed or/and rehabilitated				
	Volume (e.g., yield, # of people, ha, etc.)	**Value (e.g. Price)**	**Unit (e.g., dollar, kg, etc.)**	**Additional explanations as necessary**
Name water infrastructure and its capacity and if it would need to be constructed or rehabilitated. State the size of that infrastructure in terms of water retention, etc.	Dug wells rehabilitation in terms of (GI pipes, irrigation pipes, pump, cable, source power,)	$ 25000-30,000 lump sum	Dollar	1. Dug wells needs fully rehabilitation (Solar, sanitary cup, construction, UPVC, 2. Plastic bag, fencing, pipes animal troughs
<u>For new constructions</u>: State construction costs with dividing them into material (list material costs in detail), labour costs (in detail) and operation and maintenance costs (listing all materials, vs labour and frequency of O&M) as well as a life of such infrastructure (average lifetime)	14. Drilling borehole 15. Construction of water catchment 16. Plastic bag 17. Source power (solar & generator) 18. Irrigation pipes 19. Pump & cable 20. Water supply(elevate tank, Kiosks, animal troughs)	12. $ 100,000 lump sum 13. $ 80,000 14. $4000 lump sum 15. $15000 lump sum 16. 20,000 lump sum		1. New Borehole drilling (rotary drilling, Casing, borehole construction. Solar, Generator, Animal troughs, supply system, Elevator tank).
<u>For new constructions:</u> Please state potential benefits associated with its construction-quantify all that you can. E.g., number of beneficiary agro-pastoral HHs that could benefit	N/A	N/A	N/A	1. Decreasing water scarcity 2. Water availability 3. Increasing crop production
<u>For water infrastructure rehabilitation activities:</u> State what would be needed in terms of improving this water infrastructure (labour requirement/costs plus	15) GI pipe price 16) Solar panels price	15. $10,000 lump sum 16. $200 each panel	Dollar Dollar	1. Decreasing water fetching for agro-pastoralist.

material, tools, etc.). Pleas eina s much detail as possible.	17) Plastic bag price 18) Pump price 19) Elevator tank 20) Pipes price 21) Animal troughs	17. $5000 lump sum 18. $2000-3000 19. $10,000 lump sum 20. $20,000 lump sum $6000	Dollar	
<u>For rehabilitation of existing water infrastructure:</u> Please state potential benefits associated with its rehabilitation-quantify all that you can (e.g., improved water availability, number of beneficiary agro-pastoral HHs that could benefit, etc.				1. Increasing crop production 2. Improving water quality 3. Increasing water availability 4. Enhancing water accessibility

Focus group discussions guide

Smallholder farmers FGD in Cuun village

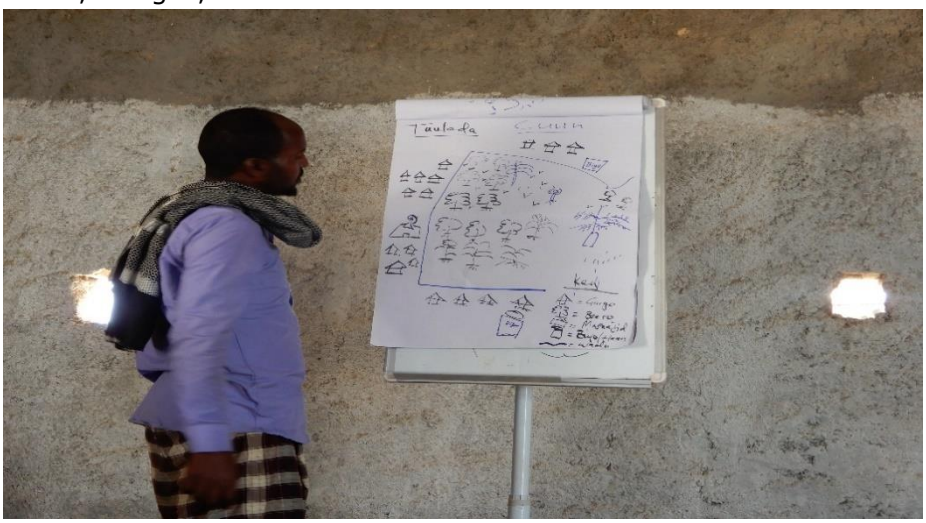
Part1. Identification data

25. District name	Garowe
26. Village/location name	Cuun
27. Focus group participants (names)	16 participants

206. How many households are in this village?

- 166HH

207. Could you please quickly draw on a flipchart the main agro-ecological zones in your area : rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….



208. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
42. Livestock		Second most important				
43. Crops	Most important					
44. Small business				Fourth most important		
45. Remittance from relatives					Fifth most important	

46. Palm collection			Third most important			

209. During the last 10 years, food security in this village has (circle your choice)
22. Increased
23. Decreased
24. No change

- **Note:** Frequent droughts have led to the deterioration of the food security system in Cuun village in the past decade. The primary concern for those facing diminishing food security is the impact of climate change. Moreover, the economic crisis and reduced food security have contributed to a downturn in both livestock and agricultural production markets.

210. During the last 10 years, the number of livestock in this village has (circle your choice)
19. Increased
20. Decreased
21. No change

Note: The livestock population in Cuun village has decreased over the past decade due to frequent droughts and diseases, leading to significant losses of animal life.

211. What kind of livestock production do we have in this village?

- Milk
- Meat
- Animal butter

212. During the last 10 years milk production or other livestock production in this area has increased?
1. Increased
2. Decreased
3. No change

- Note: Over the past decade, milk production from livestock has declined due to a combination these of factors such as droughts, disease prevalence and scarcity of fodder, these conditions have resulted in a decrease in the overall milk output from the livestock.

213. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
25. Scarcity of fodder and pasture	1					
26. Animal diseases					5	
27. Scarcity of water				4		
28. Scarcity of labor			3			
29. Low market prices		2				
30. Other (specify)						

214. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

- Note: indeed, there has been a reduction in the quality of pastures due to the effects of drought and climate change, leading to the depletion of numerous trees in the vicinity. Additionally, there are caves scattered throughout the grazing zones.

215. During the last 10 years milk production per lactating animal has (circle your choice)

1. increased
2. decreased
3. no change

- Note: over the past 10 years the milk production of Cuun village is decreased due to prolonged droughts and diseases in livestock for example:
- 10 years ago, one goat per lactation was 3 litters, but now it is less than 2 litter.
- 10 years ago, one camel per lactating was 5 but is less than 3 liters per camel .

216. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- Yes
- There has been a notable changes in the herd composition within Cuun village over the past decade. Previously, local communities maintained a substantial population of both shoats and camels. However, presently, there are significantly fewer shoats in the village, and the number of camels has also decreased due to constraints such as limited pasture and water availability and diseases.

217. Are crops cultivated in this village or area?

- Yes

218. If yes, what kinds of crops are grown? Is there any irrigated crop?

- Lemon
- Water melon
- Green Tomatoes
- Onion

219. What is the average yield of main crop per hectare?

- Water melon per hectare 300-500 pieces
- Green Tomatoes per hectare 11000kg-30,000kg
- Onion per hectare 18000kg-40,000kg

220. Have crop yields declined or increased during the last 10 years?

- Over the past decade, the crop yield has decreased due to several factors including limited rainfall, scarcity of water sources, disease outbreaks, and land degradations.

221. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- Yes, farmers in the Cuun village cultivate fodder and pasture during the rainy season and they utilize these resources for livestock consumption during the dry season.

222. What percentage of household's own land in this area or village? What are the main constraints when it comes to land ownership?

- 60% have an own land
- 40% they do not have and main constraint is lack of cost

223. During the last 10 years land degradation in this area has:

1. Increased
2. Decreased
3. No change

224. What are the major causes of land degradation in this area?

- Droughts
- Soil erosion
- Overgrazing

225. Are there farms with soil conservation structures in this area? If yes, how many?

- No

226. Are there soil conservation structures in the rangelands in his area? If yes, how many?

- No

227. What are the land use practices in this area?

- Settlement
- Agriculture
- Animal posturing

228. Do you have community initiatives for conserving your natural resources (rangelands, and water)?

1. Yes
2. No

- Indeed, leadership within the Cuun village community is predominantly comprised of elders. This group fulfills a pivotal function in orchestrating environmental awareness initiatives and overseeing the management of natural resources, notably water and grazing lands. A fundamental aim of this organization is to guarantee fair access to these resources for all community members, with a particular focus on those residing in rural areas.

229. What community committees exist in this village?

- Village committee
- Natural resource committee
- Agricultural cooperation commuttee

230. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc…)

- 30% women
- 20% youth
- 50% Other people

231. Is there Prosopis in this village?

15. Yes
16. No

232. How long has Prosopis been in this village?

- More than 5 years

233. What are the main sources of your drinking water (circle all that apply)

36. Berked :1 in depth 4m
37. Shallow well: 100 shallows well and mostly in depth 5m-20m
38. Dam----------Number:
39. Deep well 1 and in depth 80m

40. Streams : 2 streams

234. What are the main water sources for irrigation?

- Shallow wells and deep well

235. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts						6
Frequent floods					5	
Outbreak of pests and diseases		2				
New weeds						
Scarcity of labor			3			
Soil erosion						
Lack of improved seed				4		
Low market prices	1					

236. In your opinion, during the last 15 years have droughts become (circle your choice)

19. More frequent
20. Less frequent
21. No change

- **Note:** Yes, and their occurrence has increased more frequently over the years 2022, 2017, and 2016.

237. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

What are the main impacts of droughts on crops, livestock?

- The main impacts of droughts on crops and livestock in Cuun village include reduced crop yields due to lack of water for irrigation, leading to food shortages and economic losses for farmers. Livestock suffer from scarcity of grazing land and water sources, resulting in malnutrition, dehydration, and decreased milk or meat production. Additionally, droughts can increase the prevalence of pests and diseases, further endangering both crops and livestock. Overall, the livelihoods of farmers and the food security of the community are severely affected by droughts in Cuun village.

How do you anticipate drought negative impacts?

- Water management practices involve implementing sustainable methods to conserve water resources and guarantee their availability, particularly during periods of drought.
- Developing thorough drought preparedness plans at the village level is essential. These plans should outline strategies for conserving water, managing livestock, and implementing emergency response measures to mitigate the negative impacts of drought

- Setting up strong early warning systems to monitor weather patterns, precipitation levels, soil moisture, and other pertinent indicators can assist in predicting drought conditions. This allows authorities and communities to take proactive steps to alleviate the impacts before they escalate.

What are drought coping strategies?

- Rainwater harvesting: Collecting and storing rainwater during wet seasons to use during drought periods.
- Crop diversification: Planting a variety of drought-resistant crops to ensure some level of agricultural productivity even in dry conditions.
- Water conservation practices: Implementing measures such as drip irrigation, mulching, and soil moisture retention techniques to optimize water usage in agriculture.
- Livestock management: Providing supplementary feed, finding alternative grazing areas, and ensuring access to clean water sources for livestock during drought.

238. In your opinion, during the last 15 years have floods become (circle your choice)

19. More frequent
20. Less frequent
21. No change

- Note: In Cuun village, the increased frequency of floods, attributed to climate change, impacts farmers by causing the erosion of crops and fertile soil. Similarly, livestock are affected, leading to the loss of numerous animals, heightened disease outbreaks, and damage to infrastructure like roads and water sources.

239. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

What are the main impacts of floods on crops, livestock?

- The primary impacts of floods on crops and livestock in Cuun village include significant damage to agricultural fields and crops due to waterlogging and erosion. This leads to reduced yields and economic losses for farmers. Additionally, livestock are adversely affected by floods, experiencing displacement, injuries, and even death. Floodwaters can contaminate grazing areas and water sources, increasing the risk of diseases among livestock. Furthermore, infrastructure damage caused by floods, such as bridges and roads being washed away, hinders transportation and access to markets for both crops and livestock products. Overall, floods in Cuun village pose significant challenges to agricultural activities and livelihoods, requiring prompt mitigation and recovery efforts

How do you anticipate flood negative impacts?

- Early warning System
- Endogenous knowledge
- Contingence plan for the disaster response.

What are the coping strategies?

- Avoiding flood prone areas
- Utilize plastic bags as a protective measure for livestock to shield them from the cold
- Crop divarication

- Changing irrigation time

240. During the last 15 years, rainfall (circle your choice)
    13. increased
    14. decreased
    15. no change

- note: Over the past 15 years, Cuun village has experienced reduced rainfall as a result of climate change.

241. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?

What are the main impacts on crops and livestock of changing rainfall pattern?

- In Cuun village, alterations in rainfall patterns have a profound impact on both crops and livestock. This results in diminished agricultural productivity, scarcity of fodder for livestock, and restricted access to water for them. Consequently, these alterations can result in a decrease in animal production and overall agricultural yield.

How do adapt to these changes?

- The local community has adjusted to the effects of shifting rainfall patterns by employing various strategies. These include:
    - Planting drought-resistant crops
    - Embracing mixed farming which combine crop cultivation with livestock rearing.
    - Selling of livestock
    - Increase water storage mechanism.

242. During the last 10 years, soil and land degradation in this village has (circle your choice)
    19. increased
    20. decreased
    21. no change

- Note: The district is witnessing a noticeable uptick in land degradation, influenced by various factors, which include:

- Floods: Periodic floods worsen soil erosion, leading to the depletion of fertile topsoil and degradation of agricultural land.
- Recurrent droughts: Extended drought periods contribute to soil degradation by reducing vegetation cover, escalating soil erosion, and depleting water resources
- Sand dunes: The encroachment of shifting sand dunes triggers soil erosion and degradation, negatively affecting agricultural productivity and natural habitats.
- Unplanned urbanization: Rapid and unplanned urban expansion in the district results in the loss of cultivable land, heightened pollution, and disruption of natural ecosystems, thereby contributing to land degradation.

243. During the last 10 years, Gu rains have been coming (circle your choice)
    19. Early
    20. Normal time

21. Mostly Late

- Note: due to climate change

244. Have water resources become
    19. More available and accessible
    20. Less available and less accessible
    21. No change

245. What type of trees have declined in this area during the last 15 years?
    - Hareeri (Terminalia prunioides)
    - Canjeel (Mimusops Angel)
    - Qurac (Acacia tortilis)

246. During the last 10 years, have conflicts in this area
    1. Increased
    2. Decreased
    3. No change

247. What are the causes of conflicts?

Limited resources like:

- Farms
- Water competitions
- Grazing areas

248. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

How do conflicts affect your community?

- Decrease community cooperation
- Decrease of income and disturb livelihood
- Increase inequity

Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

- In Cuun village, the community has been markedly affected by elements such as drought, shortages of food, and alterations in rainfall patterns, which have had a more substantial impact when contrasted with conflicts within the village.

249. Do conflicts have an impact on the natural resources (rangelands and water)? If yes,

- Indeed, disputes over natural resources such as land, water, and grazing areas can significantly impede the community's ability to derive benefits from these resources. Such conflicts frequently result in disputes, displacement, and damage, leading to decreased access to vital resources and hindering agricultural productivity, livestock farming, and overall economic growth. Resolving these conflicts through dialogue, mediation, and fair resource management strategies is essential for ensuring the sustainable utilization of natural resources and promoting peaceful coexistence within the community. These conflicts exacerbate the inequality of natural resources, resulting in limited access to critical resources like pasture, water, and land.

250. How do you address conflicts?

- Local elders address minor issues: Community elders play a crucial role in settling minor disputes concerning land, water, and pasture using traditional conflict resolution methods.
- Arbitration: Impartial third-party intervention facilitates negotiations and the attainment of mutually acceptable resolutions between conflicting parties.
- Mediation by district administration: The district administration mediates disputes between conflicting parties, striving to foster consensus and prevent conflicts from escalating.
- Resolution of major conflicts by the district court: Significant conflicts that cannot be resolved through traditional or administrative means are brought before the district court for legal resolution, ensuring compliance with established laws and regulations.

251. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?
- Increase community awareness regarding the impact of climate change.
- Use weather forecasting information.

252. What are your suggestions for conserving the natural resources in your area?
- Rangeland Rehabilitation
- Ecosystem Restoration

253. What are the major sources of fuel for cooking in this village?
- woods and charcoal.

254. What type of stoves are used in this village?
- LPJ Wood fire
- Cooking Gas
- Charcoal

255. Is there any community range or forest near your village?
1. Yes
2. No

256. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?
1. Slight degradation
2. Moderate degradation
3. High degradation
4. None

48. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?
- Dissemination of early warning system
- Increase preparedness of disaster at the community level

49. What activities do you suggest to attain the resource improvement?

14. Effective protection
15. Management including community participation

16. Reseeding
17. Reforestation
18. Other (specify) ----------

51. What benefits do you get from the rangelands and forests?

- Food
- Shed
- Medicine
- Protecting winds for farm

50. What is the most important tree species you utilize to satisfy your household needs?

17. Fodder
    - Gargaro (paspalidiumdesertorum)
18. Fuel
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
19. Construction
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
20. Food
    - Maize, Sorghum, Papaya, Water Melon, Beans and papaya

Focus group discussions guide

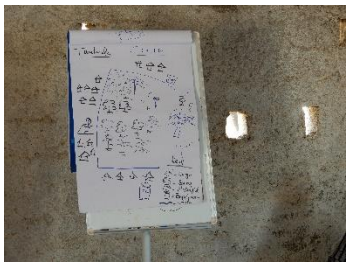
Part1. Identification data **Cuun Cooperative**

28. District name	Garowe
29. Village/location name	Cuun Cooperative
30. Focus group participants (names)	5 participants

257. How many households are in this village?

- There are more than 400 Farmers,100 pastoralists and 50 small business holders are in this village

258. Could you please quickly draw on a flipchart the main agro-ecological zones in your area: rangelands, irrigated area, rainfed area, forest…Do not forget to locate rivers, villages, towns….



259. Rank 1: most important, rank 2: second most important etc.

Source of livelihood	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
47. Livestock	Crop					
48. Crops		Livestock				
49. Small business			Small Business			
50. Remittance from relatives				Aid and Remittance		
51. Other (specify)					Palmer	

260. During the last 10 years, food security in this village has (circle your choice)

25. ☐Increased
26. ☐Decreased
27. ☐No change

Comment: Food security has decreased significantly over the last decade due to a several factors, including prolonged drought, environmental degradation, the spread of endemic

diseases, and the negative effects of climate change. These challenges are severely impacting natural resources and agriculture, exacerbating the vulnerability of communities dependent on these resources.

261. During the last 10 years, the number of livestock in this village has (circle your choice)

22. ☐Increased
23. ☐Decreased
24. ☐No change

Comments: Livestock populations in Cuun village have decreased due to various factors, notably epidemics, prolonged droughts, and fodder shortages.

262. What kind of livestock production do we have in this village?

Cuun village community are rearing livestock production for

1. Camel
2. Sheep
3. Goats
4. Cow

We use this livestock for

- Meat
- Milk
- Survive
- Business
- Culture such as dowry

263. During the last 10 years milk production or other livestock production in this area has increased?

1. ☐Increased
2. ☐Decreased
3. ☐No change

Comments: Over the last decade, a number of factors including low rainfall, widespread disease, food shortages and persistent drought have reduced milk production of cows, goats and camels. The combination of these has led to a decline in milk production in Cuun village.

264. Indicate below the challenges in livestock production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
31. Scarcity of fodder and pasture	Water scarcity					
32. Animal diseases		Disease				
33. Scarcity of water			Scarcity of fodder			

			and pasture			
34. Scarcity of labor				Low market Price		
35. Low market prices				Scarcity of labor		
36. Other (specify)						

Comment: Local residents face a number of obstacles that shake livestock production. Lack of water, diseases, lack of fodder and pasture, low prices for livestock in the market, labor problems, necessary support from the government and donors.

265. Has the rangeland area decreased over the last 10 years? Has the grazing routes changed? How and why?

Yes

- The Rangeland area has change due to
- Overgrazing
- Deforestation such as cutting trees for Fencing farm and animals
- Floods
- Climate Change
- Urbanization
- Transportation

Comment: The rangeland has significantly changed over the last decade. Today, there are dozens of trees and herbicious species that have disappeared or declined, including Qurac (Acacia tortilis), Dureemo (Chrysopogon aucheri), Hareeri (Terminia prunioides), Canjeel (Mimusops Engel), Dhuur (Tamarix aphylla), Garas (Dobera glabra), and Galool (Acacia bussei). All these declines led to environmental degradation in the rangeland.

266. During the last 10 years milk production per lactating animal has (circle your choice)

1. ☐increased
2. ☐decreased
3. ☐no change

Comments: Ten years ago, a goat's milk per lactation was 2 liters, now it is less than 0.5 liters. This change was caused by rainfall patterns, water scarcity, frequently drought, food shortages and environmental degradation.

267. Has there been a change in herd composition in this area during the last 10 years? If yes, please explain why and what is the new trend.

- Yes, there have been significant changes in the composition of livestock in Cuun village in the last decade. In the past, local people kept large numbers of cattle and camels. However, currently, the livestock population in the village has decreased or declined due to obstacles such as recurrent droughts, shortages of water and fodder, environmental degradation, and disease.

268. Are crops cultivated in this village or area?

Yes

269. If yes, what kinds of crops are grown? Is there any irrigated crop?

- Yes, Lemin papaya, Guava, Phoenix date Palma, Lime, Tamarindus indica Banana Peppers Capsicum, Cucumbers, Pumpkin carrot, tomato, onion, maize beans, and Sorghum.
- all these crops are irrigated such as Lemin papaya, Guava, Phoenix date Palma, Lime, Tamarindus indica Banana Peppers Capsicum, Cucumbers, Pumpkin carrot, tomato and onion.

270. What is the average yield of main crop per hectare?

- Local farmers in the area cultivated Tomatoes at a rate of 1 kg per hectare, resulting in more than **2,000** Boxes of tomato crop. Each box contains 10 kg, totaling 20,000 kg of onions.

271. Have crop yields declined or increased during the last 10 years?

- Over the past decades, crop yields have declined due to several factors, including limited rainfall, a lack of water sources, soil erosion, disease outbreaks, and poor agricultural practices.

272. Do you have farmers who cultivate fodder in this area? If yes, how do they use this fodder?

- Yes, the farmers of Cuun village cultivate fodder and pasture in the rainy season. These resources are used for animal consumption during the dry season as well as for commercial purposes.

273. What percentage of household's own land in this area or village? What are the main constraints when it comes to land ownership?

- In Cuun Village, 70% of farmers have their own land, while the remaining farmers do not have land and cultivate and live on rented land.

The main constraints when it comes to land ownership?

- In the Cuun farms, land ownership distribution tends to benefit long-term residents, ensuring them a larger share compared to newcomers. This gap is often driven by the financial constraints faced by latecomers, making it challenging for them to secure land.

274. During the last 10 years land degradation in this area has:

1. ☐Increased
2. ☐Decreased
3. ☐No change

Comment: Over the past decade, land degradation has increased dramatically in Cuun village. Local communities faced challenges such as gully formation, rill and sheet erosion, and reduced productivity in the rangeland. Moreover, there has been a remarkable decrease in the number of tree and herb species in the area.

275. What are the major causes of land degradation in this area?

- Deforestation
- Overgrazing
- Rainfall pattern

- Cutting tree for livestock and farm (fencing)
- Flood
- Urbanization
- Population Growth
- Transportation
- Poor agricultural practice

276. Are there farms with soil conservation structures in this area? If yes, how many?
- **Yes**, there are10 farm with soil conservation structure in cuun village

277. Are there soil conservation structures in the rangelands in this area? If yes, how many?
- **Yes** there are **4** soil conservation structures in cuun village area includes Xundurgaal, beerdalaasoole, wamaani iyo naar

278. What are the land use practices in this area?
- Farm
- Settlement
- Rangeland

279. Do you have community initiatives for conserving your natural resources (rangelands, and water)?

1 ☐Yes

2. ☐No

If yes, please explain: Is there community organization managing water, access to grazing areas?

- Yes, the Cuun community organization is led by elders. The local elders play a crucial role in environmental awareness campaigns and in the management of natural resources, including water and pasture. One of its main objectives is to ensure equal access to these resources for all members of society.

280. What community committees exist in this village?
- In Cuun Village, there are several committees, such as the cooperative farmer, water management committee, livestock committee, health committee, and organizations that contribute to various aspects of community development and management.

281. What percentage of the different village committees are women? And youth? Are women and youth represented in governance bodies (board, etc…)
- In committee, approximately 28.5% of seats are designated for women, allowing for their active engagement and input in decision-making processes. Similarly, 14% of committee seats are set aside for young people.

282. Is there Prosopis in this village?

17. ☐Yes

18. ☐No

283. How long has Prosopis been in this village?
- more than 13 years and the number were increased by every year

284. What are the main sources of your drinking water (circle all that apply)

41. Berked-10-----Number:
42. Shallow well---300--Number:
43. Dam------1----------Number:
44. Deep well----------Number
45. Streams-----1----------Number

285. What are the main water sources for irrigation?

- Shallow wells

286. Indicate below the challenges in crop production

Challenges	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Frequent droughts	Drought					
Frequent floods		Disease				
Outbreak of pests and diseases			Soil erosion			
New weeds				Lack of improved seed		
Scarcity of labor					Scarcity of labor	
Soil erosion						
Lack of improved seed						Low market price
Low market prices						

287. In your opinion, during the last 15 years have droughts become (circle your choice)

22. ☐More frequent
23. ☐Less frequent
24. ☐No change

288. What are the main impacts of droughts on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies

Impact of drought on Crops

- Food insecurity
- Water shortage
- Less yield production
- Diseases

1. Soil erosion

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge

Scoping strategies

- Plant drought resistance crop

Impact of drought on Livestock:

- Reduce animal production

- Increase animal death
- Outbreak disease

Scoping strategies

- Use folder
- Use backs for Water sources
- Sell animals which can be sellable
- Migration

289. In your opinion, during the last 15 years have floods become (circle your choice)

22. ☐More frequent
23. ☐Less frequent
24. ☐No change

Comment: **Yes,** Floods are becoming more frequent due to climate change, which is affecting not only farmers, including loss of crops and fertile soil, but also livestock, including the loss of thousands of livestock, increased disease outbreaks, and destruction of infrastructure such as roads and water sources.

290. What are the main impacts of floods on crops, livestock? How do you anticipate these negative impacts? What are the coping strategies?

Impacts of floods on Crop

i. Food insecurity
j. Water shortage
k. Less yield production
l. Diseases

Coping Strategies

- We don't use any coping strategies in agriculture

Impact of floods on Livestock

- Animal death and loss
- Decrease animal production such as milk and meat (Heavy rains results reduced pasture as results rangeland degradation)

Anticipate these negative impacts?

- Early warning System
- Endogenous knowledge
- Contingence plan for the disaster response.
- Educating pastoral community on best agricultural practices.

Coping Strategies

- Avoiding flood prone areas
- Use Plastic bags protection for Livestock

291. During the last 15 years, rainfall (circle your choice)

16. ☐increased
17. ☐decreased
18. ☐ no change

292. What are the main impacts on crops and livestock of changing rainfall pattern? How do adapt to these changes? Did you change the crops you are growing or did you invest less/more in livestock rearing?
The main impacts on crops and livestock of changing rainfall pattern

- Changing rainfall patterns significantly affect crops, rangeland, and livestock. This leads to reduced agricultural productivity, decreased food availability, and reduced access to water for livestock. Therefore, these changes could lead to a decline in livestock and agricultural production.

How do adapt to these changes

Crops

The local community has adapted to the impacts of changing rainfall patterns by implementing several strategies. These include:

- Planting drought-resistant crops
- Embracing mixed farming which combines crop cultivation with livestock rearing.
- Raising awareness about weather forecasting.

Livestock

- Migration
- Selling of livestock
- Increase Fodder storage
- Increase water storage mechanism

293. During the last 10 years, soil and land degradation in this village has (circle your choice)
22. ☐increased
23. ☐decreased
24. ☐no change

294. During the last 10 years, Gu rains have been coming (circle your choice)
22. ☐Early
23. ☐Normal time
24. ☐Late

295. Have water resources become
22. ☐More available and accessible
23. ☐Less available and less accessible
24. ☐No change

Comment: Cuun Village has accessible water sources, but there has been minimal investment in water infrastructure development.

296. What type of trees has declined in this area during the last 15 years?

- Qurac (Acacia tortilis)
- Garas (Dobera glabra)

- Papaya
- Guava
- Canjeel (Mimusops Anjel)
- Dhuur (Tamarix aphyllaool)

297. During the last 10 years, have conflicts in this area
    1. ☐Increased
    2. ☐Decreased
    3. ☐No change

298. What are the causes of conflicts?

Limited resources such as

- Water
- Pasture
- Roads
- Land ownership disputes

299. How do conflicts affect your community? Are droughts and floods and change in rainfall pattern affecting you more than conflicts?

Conflicts affect your community –

- Decrease cooperation among the community
- Increase mistrust of the local community
- Jeopardize village administrative function

Are droughts and floods and change in rainfall pattern affecting you more than conflicts

- Factors such as drought, food shortages and changing rainfall patterns had a major impact on communities, which had a greater impact than local conflicts.

300. Do conflicts have an impact on the natural resources (rangelands and water)? If yes, explain.

- yes. Minor conflict over natural resources such as land, water and pastures have a significant impact on the ability of communities to benefit from these resources. Displacement and destruction that reduces access to essential resources and hinders agricultural productivity, livestock production and economic development. Resolving these conflicts through dialogue, mediation and unilateral resource management strategies is essential to ensure sustainable use of natural resources and promote peaceful coexistence within communities. Increased access to natural resources such as pastures, water and land.

301. What coping mechanisms are used in this village in the face of various stresses e.g droughts, floods, etc.?

302. How do you address conflicts?

The community employs various mechanisms to address conflicts over natural resources:

- Local elders solve small problems: Community elders play a vital role in mediating and resolving small disputes involving land, water, and grassland through traditional conflict resolution methods.

- Arbitration: Arbitration involves the impartial intervention of a third party to facilitate negotiations and reach mutually acceptable solutions between the conflicting parties.
- In case of significant conflicts, the district courts handle them: The most notable disputes that cannot be resolved through traditional or administrative means are directed to the District Court for legal resolution, ensuring adherence to established laws and regulations.

303. What coping mechanisms are used in this village in the face of various stresses e.g. droughts, floods, etc.?

- Increasing community awareness of the effects of climate change.
- Use of weather forecast information.
- Districts have annual and five-year plans. That's why our plan included mitigating climate change and adapting to it.

304. What are your suggestions for conserving the natural resources in your area?

- Increase awareness environmental education
- Land closure
- Promote Water catchments such as dams

305. What are the major sources of fuel for cooking in this village?

- Wood fire
- Charcoal

306. What type of stoves is used in this village?

- Local stoves and Chicakow Stoves

307. Is there any community range or forest near your village?

1. ☐Yes
2. ☐No

308. If yes, to the above, what is the condition of the range or forest reserve compared with its status 10 years ago?

1. ☐Slight degradation
2. ☐Moderate degradation
3. ☐High degradation
4. ☐None

53. What are the main interventions to develop to anticipate the negative effects of floods and droughts or the change of rainfall pattern in your area?

- Dissemination of early warning system
- Increase preparedness of disaster at the community level.

54. What activities do you suggest to attain the resource improvement?

19. ☐Effective protection
20. ☐Management including community participation
21. ☐Reseeding
22. ☐Reforestation
23. Other (specify) ----------

55. What benefits do you get from the rangelands and forests?

- Food

- Medicine
- Fodder
- Timber
- Shed

56. What is the most important tree, crop or herbaceous species you utilize to satisfy your household needs?

21. Fodder or fuel
    - Gargaro (paspalidiumdesertorum)
    - Libi (leuceana losephala)
22. Fuel
    - Prosopis
    - Libi
    - Raqey
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
23. Construction
    - Qurac (Acacia tortilis)
    - Hareeri (Terminalia prunioides),
    - Canjeel (Mimusops Angel)
    - Prosopis
    - Libi (leuceana losephala)
24. Food such as Maize, Sorghum, Papaya, Water Melon and Beans