Project title: Support for Integrated Water Resources Management to Ensure Water Access and Disaster Reduction for Somalia's Agro-Pastoralists		
Country: Somalia	**Implementing Partner:** Office of the GEF Focal Point, Ministry of Energy and Water Resources	**Management Arrangements:** Direct Implementation Modality (DIM)
UNDAF/Country Programme Outcome*:* Development Priority 3: Progress from protracted socioeconomic and environment fragility and recurrent humanitarian crises. National Goal: Reduce the likelihood of conflict and lower the risk of natural disasters, including from climate change, Output 3.2: Improved measures in place for environmental governance, resilience to climate shocks and the management of natural resources		
UNDP Strategic Plan (2018 – 2021) Output: Signature solution 3: Enhance national prevention and recovery capacities for resilient societies: Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.		
UNDP Social and Environmental Screening Category: B *http://www.undp.org/content/undp/en/home/operations/social-and-environmental-sustainability-in-undp/SES.html*	**UNDP Gender Marker:** *2* *https://intranet.undp.org/unit/bpps/sdev/gef/default.aspx*	
Atlas Project ID (formerly Award ID): 00114166	**Atlas Output ID (formerly Project ID): 00112311**	
UNDP-GEF PIMS ID number: 5464	**GEF ID number:8028**	
Planned start date: *July 2019*	**Planned end date:** *June 2023*	
PAC meeting date: *18 September 2019*		
Brief project description:		

Water scarcity is a serious threat to Somalia and is hindering the country's economic and social development.[1] Throughout Somalia, trends of reduced surface water and groundwater reserves and increased occurrences of droughts and floods have been observed and are predicted to worsen.[2] In response, the proposed LDCF-financed project directly supports integrated water resources development and management for over 350,000 agro-pastoralists across Somalia. The development of a multi-sectorial Integrated Water Resources Management (IWRM) Strategy as well as technical and operational capacity building will support Somalia in planning sustainable water resources development schemes for all states down to local levels, particularly for states that formed as recently as 2015 and 2016. Investments in monitoring infrastructure will provide critical data for early warning dissemination in both arid regions and in key river basins to improve water resources management and contingency planning for agro-pastoralists, including nomadic pastoralists. Water mobilization from a diversified source of groundwater and surface water sources as well as construction of water diversion infrastructure will promote rural water supply and increased resilience in flood prone areas. Rural population's resilience will be further enforced by enabling them to exploit their agro-pastoral value chains and increase their asset bases. .	
FINANCING PLAN *(only cash transferred to UNDP bank account and budgeted under the same GEF project should be included under this section (1), all others should be included under section (2).*	
GEF Trust Fund *or LDCF or SCCF*	USD 8,831,000
UNDP TRAC resources	USD 1,500,000
(1) Total Budget administered by UNDP	**USD 10,331,000**
PARALLEL CO-FINANCING (*all other co-financing that is not cash co-financing administered by UNDP)*	
Ministry of Energy and Water Resources – Federal Somalia	USD 8,000,000
EU	USD 60,144,000
GWP	USD 100,000
(2) Total co-financing	**USD 68,244,000**
(3) Grand-Total Project Financing (1)+(2)	**USD 78,575,000**
SIGNATURES	

[1] Ministry of Energy and Water Resources, 7 March 2017, Priority Needs, Institutional and Human Capacity Building Program in IWRM

[2] CDKN AR5 IPPC: What's in it for Africa summarized from IPCC, 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

Signature: print name below	**Agreed by Government**	**Date/Month/Year:**
Signature: print name below	**Agreed by UNDP**	**Date/Month/Year:**

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List of Acronyms

ADESO	African Development Solutions
AfDB	African Development Bank
APFS	Agro-Pastoral Field School
CBO	Community-Based Organization
CCA	Climate Change Adaptation
CCD	United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa
CM/EWS	Climate Monitoring / Early Warning System
CTA	Chief Technical Advisor
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EA	Executing agency
EIA	Environmental Impact Assessment
EU	European Union
EWS	Early Warning System
FAO	Food and Agriculture Organisation
FP	Full-sized project
GBV	Gender Based Violence
GoS	Federal Government of Somalia
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEFSec	GEF Secretariat
HADMA	Humanitarian Affairs and Disaster Management Authority (Puntland)
Hydro-geo-meteo data	Hydrological, hydro-geological and meteorological monitoring data
IA	Implementing Agency
IC	International Consultant
ICPAC	Inter-Governmental Authority on Development Climate Predictions and Assessments Centre
IGA	Income Generating Activity
IGAD	Inter-Governmental Authority on Development
INC	Initial National Communication
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LDCF	Least Developed Countries Fund
LDCF1	First LDCF-financed project on climate resilience
LDCF2	Proposed LDCF-financed project on IWRM
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MEWR	Ministry of Energy and Water Resources
MoHADM	Ministry of Humanitarian Affairs and Disaster Management
MWR	Ministries of Water Resources (Somaliland and Puntland)
NADFOR	National Disaster Preparedness and Food Reserve Authority
NAPA	National Adaptation Programme of Action
NAP	National Adaptation Plan

NERAD	National Environment Research and Disasters Preparedness Authority
NRM	Natural Resource Management
NGO	Non-Governmental Organisation
OCHA	UN Office for the Coordination of Humanitarian Affairs
PIR	Project Implementation Report
PIT	Project Implementation Team
PM	Project Manager
PPG	Project Preparation Grant
PSC	Project Steering Committee
RBMA	River Basin Management Authority
RC	Regional Committee
SDMA	Somali Disaster Management Authority
SEP	Stakeholder Engagement Plan
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
STAP	GEF Scientific Technical Advisory Panel
TC	Technical Committee
ToR	Terms of Reference
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP-GEF	UNDP Global Environment Finance Unit
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WB	World Bank
WUA	Water User Association

II. DEVELOPMENT CHALLENGE

1. Somalia's paradox as a country is that it is becoming increasingly water scarce and economically water dependent.[3] In the north, over 80% of the country's landmass is classified as Arid and Semi-Arid Land (ASAL), making it relatively unproductive for agriculture, with nomadic pastoralism the only potential livelihood option. Somalia's ASALs house the greatest national proportion of pastoralists in Africa.[4] In the south, the country is considerably more lush with rivers that often flood. The riparian areas are unable to capture and use flood runoff effectively, such as for irrigation. Throughout all of Somalia, renewable water resources have reduced dramatically over the past 50 years (Table 1). Storage is another issue because the annual evapotranspiration rate can range from 1.5 to 6 times the amount of annual rainfall.[5]

Table 1: Fluctuations in renewable water resources availability from 1962 to 2011 (cubic meters per capita per year)

1962	1972	1982	1992	2002	2011
4,980	4,001	2,225	2,247	1,887	1,538

Source: UNDP and Government of Sweden. Water Governance in the Arab Region Managing Scarcity and Securing the Future 2013.

2. In Somalia, less than 30% of the population has access to clean water. In fact, Somalia ranks as the worst country of all the Arab states relative to access to drinking water.[6] At periods of drought, communities have no other option than to buy water from berkads (traditional water catchments). During the water stressed months, getting water from these berkads typically costs USD 6 per day for each rural household. Households are unable to meet the water needs of their families and livestock when the daily income of 73% of the country, predominantly rural households, lives under the poverty line and earns less than USD 1.25 per day. The berkads are also located far from households which adds to the burden of women and children who are responsible for fetching water.[7] Fetching times for water in Somalian rural communities can be up to one hour, a trip that is often required 5 to 6 times per day.[8]

3. Water and climate trends show reduced surface water availability, reduced groundwater reserves, and increased occurrences of drought and flood events. NAPA related consultations in 2013 revealed that flash flooding has created significant erosion and loss of fertile topsoil into the sea while extensive dry seasons have adversely impacted food security.[9] In recent years, gully erosion has destroyed important valleys creating deep gorges that often restrict mobility of both pastoralists and their animals. Erosion is a growing problem due to Somalia's alarming deforestation rate at 4%.[10] The recent drought following consecutive seasons of poor rainfall and low river water levels reduced average harvests by 70%, caused significant livestock deaths, contributed to drought-related stress

[3] Ministry of Energy and Water Resources, 7 March 2017, Priority Needs, Institutional and Human Capacity Building Program in IWRM
[4] SWALIM. Oct 2007. Water Resources of Somalia: Project Report No. W-11.
[5] idem
[6] UNDP and Government of Sweden. Water Governance in the Arab Region Managing Scarcity and Securing the Future 2013.
[7] Project Implementation Review of PIMS 5268: Enhancing Climate Resilience of the Vulnerable Communities and Ecosystems in Somalia 2016.
[8] https://www.unicef.org/somalia/wes_13736.html
[9] Somalia Ministry of National Resources 2013. National Adaptation Programme of Action on Climate Change for Somalia (NAPA 2013)
[10] Somalia annual deforestation rate is 4% (Ref: Hussein, S.M.S.H., Somali Institute for Development and Research Analysis (SIDRA) 2017 Understanding the Drivers of Drought in Somalia: Environmental Degradation as a Drought Determinant)

migration and has caused over 360,000 children to be acutely malnourished.[11] Consequently, the Drought Impacts Needs Assessment (DINA Oct 2017) identifies the drought needs of the country.[12]

4. Issues with water scarcity and flooding for pastoralists are expected to be aggravated by the impacts of climate change; future scenarios project dry periods that are predicted to be less prolonged but more frequent than those that have marked the country over the past decade.[13] As stated in the AR5 report by the IPCC, there is high certainty that temperatures will rise further across East Africa.[14] And though total annual precipitation is expected to increase, reversing a trend of frequent prolonged droughts that have marked the country over the past decades,[15] it is highly likely that this will be associated with an increased frequency of extreme wet days.[16]

Figure 1: Map of Flood Prone Areas: Somalia (Source: OCHA 2013)

5. Climate change prediction analyses have been derived from the FAO SWALIM programme database, the NAPA, predictions by IGAD's ICPAC as well as from neighbouring countries in the Greater

[11] FSNAU and FEWSNET Technical Release 2 Feb 2017. Risk of Famine Increases in Somalia.
[12] GFDRR, Ministry of Planning, Investment and Economic Development in partnership with the Ministry of Humanitarian Affairs & Disaster Management of the Federal Government of Somalia (FGS) and the Federal Member States (FMS) Jan 2018: Drought Impacts and Needs Assessment, Vol II. (DINA)
[13] Tierney, J.E., Ummenhofer, C.C., deMenocal, P.B., Science - Climatology. 2015: *Past and future rainfall in the Horn of Africa*. e1500682 9 October 2015.
[14] CDKN AR5 IPPC: What's in it for Africa summarized from IPCC, 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
[15] Tierney, J.E., Ummenhofer, C.C., deMenocal, P.B., Science - Climatology. 2015: *Past and future rainfall in the Horn of Africa*. e1500682 9 October 2015.
[16] CDKN AR5 IPPC: What's in it for Africa, CDKN, see reference above

Horn of Africa (GHA) region. Based on the IPCC Global Climate Models (GCMs), the most recent global projections show that Somalia is expected to experience a steady future increase in temperature, rising to 3.2 °C by 2080. A gradual increase in total rainfall is expected in Somalia with increasing seasonal variability as well as an increase in the frequency and severity of flash flood events.[17] It is highly likely there will be a disturbance in seasonal rain cycles. Rain cycles will become more irregular and an increase in torrential floods associated with more frequent occurrences of rainfall extremes.[18] An increase in the variability of rainfall patterns is likely to result in delayed onsets of extreme rainfall and less rainfall at certain critical times of the year, most likely reducing the yield of groundwater and shallow water reservoirs.[19]

Figure 2: Temperature Increase over the Greater Horn of Africa (GHA) by 2100 (Source: Somalia NAPA 2013)

Note: The coloured bars at the end of the orange envelope represent the different temperature projections reached by 2100, calculated under three climate emissions scenarios: i) B1 best case scenario (blue-low), the A1B scenario (orange-medium) and the A2 worst case scenario (red-high). The modelled projections show that in the best case scenario (blue), temperatures in will increase 3.1degC and in the worst case scenario (red), temperatures will increase 4.3degC across the GHA region.

6. Agro-pastoralists are highly vulnerable to such extreme rainfall conditions because they are dependent upon rain-fed rangeland grazing and subsistence farming and tend to have very few fixed assets.[20] Roughly 75% of Somalia's population (12 million) are located in rural areas with approximately 60% practicing pastoralism and 15% practicing agriculture. They account for the greatest proportion of the population living in extreme poverty. Water supply has become an issue for agro-pastoralists across the country due to decreased access and an increase in mineralization and salinization that has caused declining water quality.

7. For a population heavily dependent on pastoralism and agriculture, climate change is a serious threat to the lives and livelihoods of millions of people, moreover it is likely to aggravate existing drivers of conflict. Somalia grapples with a multi-layered conflict system, with the conflict against al Shabaab being the highest-profile element, while historic inequalities and grievances contribute to violent conflict at the local level and political instability nationally. In a context where the ability to avoid violent conflict has been compromised by decades of clan, political, and religiously motivated violence significant changes in Somalia's climate could further weaken mechanisms for avoiding or managing violent conflict.[21] Stresses of climate change on scarce water resources are expected to exacerbate resource conflicts within communities at the household and clan levels. Conflicts between

[17] Somalia Ministry of National Resources 2013. National Adaptation Programme of Action on Climate Change for Somalia (NAPA 2013)

[18] N Souverijns, W Thiery, M Demuzere and N P M Van Lipzig, *Drivers of future changes in East African precipitation***,** Environ. Res. Lett. 11 (2016) 114011: This increase in precipitation has been ascribed to a variety of causes, from increasing water vapor in a warmer atmosphere, or changes to moisture transport by the Hadley Circulation, which transports warm and moist tropical air from the equatorial region towards the poles.

[19] According to predictions by the IGAD Climate Prediction and Application Centre, 2013

[20] SWALIM. Oct 2007. Water Resources of Somalia: Project Report No. W-11.

[21] A Report from Expert on Climate Related Risks December 2018, Somalia Climate related Risk Assessment

farmers and pastoralists are common due to the lack of policies on land tenure and water rights.[22] llegal armed groups such as Al-Shabaab have increasingly attracted young people, particularly in rural regions who are affected by drought-induced food insecurity and who have no job prospects.[23] Economic welfare has been shown to be one of the most important factors associated with conflict.[24]

8. With the concentration of population and economic activity also located in the water-scarce, flood prone and conflict-ridden areas, climate-induced resource scarcity has adversely impacted the economy and could escalate violence and political instability. Already, the multi-dimensional poverty index (MPI) ranks Somalia 94 out of 104 countries and Somalia's rural and nomadic poverty rates are 94% and 99% respectively.[25] In the case of Puntland where 90% of the rural populations are pastoralists, Puntland's economy is losing at least USD 15m annually as a result of losses in the condition and services of ecosystems, most notably water resources.[26] Livestock accounts for 40% of the GDP and 88.2% of the agricultural GDP in Somalia. Pastoralism in Somalia has the highest percentage of the overall GDP versus all other countries in the IGAD region (e.g., Kenya, Uganda, Djibouti, etc). For example, sales of sheep and goats in Somalia is widespread (>80% of households) and households have an average of 10 animals per household.[27] With livestock accounting for more than 50% of export earnings,[28] and Somalia having over 76% of its population involved in pasture-based production systems, Somali's economy is thus very much dependent on sustainable water management.

9. Compounding the economic impacts on agro-pastoralism is the lack of basic water governance structures. Integrated Water Resources Management has been an internationally recognized methodology since 1992 when the Dublin Principals were jointly concluded at the International Conference on Water and the Environment. These principals emphasize that water management and development should be participatory, including with the involvement of women and that water is an essential and crucial economic good.[29] However, the concept has never been integrated into newly drafted water policies, strategies or plans for Somaliland and Puntland. Water policies for Somaliland and Puntland are required to be updated and made coherent across Somalia, with several states, such as 2 newly formed in 2015 and 2016, requiring new legislation (new southern states now include Southwest, Jubaland, Galmudug and Hirshabelle which are in addition to Somaliland and Puntland in the north). However, there is no clear and collaborative mapping for water policies, water acts and water quality standards. Developing a national strategic plan for IWRM, which focuses on rainwater harvesting, groundwater and surface water capture was highlighted as an urgent need by SWALIM 2007.[30] Somalia's NAPA (2013) also prioritized the development of IWRM as its fourth adaptation priority in order to ensure local level management structures are created and capacities built to ensure water access.

10. The GoS also requires significant institutional building to establish the basic governance structure for the water sector and related departments. Somalia still has to follow the world in

[22] African Research Initiative for Somalia 2013, Country Report on the Millennium Development Goals (MDG Report)
[23] Igarapé Institute: Somalia: The Role of Climate Change in Recurring Violence Nov 2017
[24] Burke, M. B., E. Miguel, S. Satyanath, J. A. Dykema, and D. B. Lobell, 2009: Warming increases the risk of civil war in Africa. Proc. Natl. Acad. Sci., doi:10.1073/pnas.0907998106.
[25] African Research Initiative for Somalia 2013, Country Report on the Millennium Development Goals (MDG Report)
[26] African Development Solutions, Care International, and the Ministry of Environment, Puntland. Dec 2013, Your Environment, Your Life, Baseline Survey report for Puntland on Natural Resources Management
[27] ILRI 2017. Mapping Livestock Value Chains in the IGAD region.
[28] Osman-Elasha B. 2008. Climate Variability and Change/ Impacts on Peace and Stability in Sudan and the Region, Nils Development forum – Khartoum – January 2008.
[29] UNEP-DHI Centre for Water and Environment. 2008. IWRM in Action. The UN World Water Assessment Programme
[30] SWALIM, Oct 2007. Potential for Rainwater Harvesting for Somalia, Technical Report.

switching to decentralized allocation, implementation of economic instruments for cost-recovery and stakeholder participation to enable coherent management of water, its allocation and environmental management. Prior to 1991, Somalia had an autonomous agency that delivered water for a fee. These experiences must be reintroduced to the IWRM Strategy proposed.

11. Building the skills of water professionals (management, technical, research and development) is also quite urgent. In particular, vocational skills to ensure water sector service delivery are almost entirely lacking in Somalia. Somalis do not have the technical knowledge to support understaffed ministries (Ministries of Water, Livestock).[31] As recommended by the Somaliland National Development Plan (2017 – 2021), there is a need to establish water technology institutes, water engineering faculties and water research in order to produce technical, water sector professionals.

12. Furthermore, due to the fact that approximately 60% of Somalia is arid or semi-arid and the availability of water resources is uneven and irregular both in space and time, adequate hydrogeological, hydro-meteorological data is required to be monitored in order to guide sustainable water capture techniques. The current situation is particularly dire because the monitoring network collapsed during the prolonged civil war in Somalia. The data gap post 1991 makes accurate flood and drought forecasting challenging. For the past 5 years, the FAO SWALIM, IGAD ICPAC and USAID's FEWSNET initiatives have focused on improving regional forecasting for Somalia, making use of the rehabilitated network of monitoring stations in addition to stations abroad (Kenya, Djibouti). **The network is still extremely sparse with no river level radar sensors and groundwater sensors functioning in the south.** Due to lack of adequate hydrogeological and meteorological information, many water resources development schemes cannot be designed optimally.

Table 2: **Existing and functioning monitoring stations across Somalia as of August 2018**

Type	Existing Network
Automatic Weather Stations (AWS)	**11(Total)** 4 in SL 3 in PL 4 in SC
Manual Rain Gauges	**103(Total)** 35 in SL 24 in PL 44 in SC
Synoptic Stations	**8(Total)** 35 in SL 24 in PL 44 in SC
River Level Radar Sensors	0
Groundwater Sensors	**6(Total)** 3 in SL 3 in PL 0 in SC

[31] JPLG, April 2012. Study on Sector Functional Assessments within Education, Health and WASH in Somaliland.

13. Somalia is also lacking technical and institutional capacity to disseminate timely early warnings and accurate hydrological information to enable the efficient and economic management of water resources. Alerts and early-warnings are produced by the donor-driven FEWSNET, FSNAU and SWALIM programmes. This configuration has created gaps in country-driven production of climate information by ministries, limited hydro-geo-meteo[32] data analysis skills in the relevant ministries' offices, limited skilled manpower, a shortage of adequate technologies to analyze hydro-geo-mete data, and a lack of continual capacity building. Consequently, the country's technical agencies have limited knowledge and capacities to translate forecasts into clear, understandable warnings or bulletins that communities can use for planning and reactive measures. One example is the optimization of the allocation of berkads (i.e., water points) across the country when water resources are limited: over-exploitation of water points has resulted in conflict and natural resource degradation such as during the 2011 drought.[33] There is thus the need to transfer capacities from FAO SWALIM, IGAD and USAID's FEWSNET to the appropriate Somali institutions.

14. No alerts have been designed to reach the majority of agro-pastoralists directly. The FRISC/DIGNIIN alert system, managed by FAO-SWALIM out of Nairobi, Kenya, gathers and sends flood and rainfall information to a small segment of the agro-pastoralists. However, these warnings have only reached select rural communities such as fisherman on the coast of Puntland due to a lack of funds to expand and improve the current system.[34] New improvements to the FRISC/DIGNIIN system show great potential such as by effectively using mobile phones to disseminate warnings. An average at least 1 in 4 pastoralists have access to a mobile phone.[35] Cell phones are also increasingly common among pastoralists and used, for example, to share information about livestock market prices.[36] However, the system must be expanded and most importantly, these skills must be transferred to Somalia agencies in order to ensure sustainability of the warning system.

[32] Hydro-geo-meteo : hydrological, hydrogeological and meteorological
[33] Environmental and Natural Resource Management Assessment, USAID, April 2014
[34] GCF Concept workshop conclusions 14 June 2017, Hergeisa, Somaliland.
[35] ADESO. December 2011. Assessment of the Education, Livelihoods, Living Conditions and Welfare of Somali Pastoralists.
[36] Tack, D. (2012). Pastoral communities: Opportunities and challenges for acute flaccid paralysis surveillance & routine immunizations. Unpublished manuscript.
https://www.tandfonline.com/doi/full/10.1080/23762004.2016.1205890

15.

16. Figure 3: Screenshot of FRISC/DIGNIIN warning by mobile phone (Source: FAO SWALIM)[37]

17. In order to do so, first and foremost, it is required to establish a National Hydrometeorological and Monitoring service (NHMS) to be responsible for all monitoring and forecasting. Currently, the Ministry of Energy and Water has the role of managing hydro-meteorological activities and monitoring at the federal level as well as its standard ministerial roles. The Ministries of Water Resources have similar roles for their respective states. None of these ministries have specialized personnel trained in hydrogeology, hydro informatics and meteorology. New Climate Information / Early Warning Centres were recently established in Mogadishu, Hargeisa and Garowe, however, they are lacking the technical and operational capacities to analyze and present data.

18. In terms of Disaster Risk Management (DRM), MoHADM (Federal level), HADMA (Puntland) and NADFOR (Somaliland) are the responsible agencies. MoHADM has only been operational for one and a half years. With limited institutional memory, it is practically impossible to promote and sustain monitoring and forecasting technologies. Furthermore, technical and operational flood and drought preparedness capacities are extremely weak in all 6 states of Somalia, with two newly formed in 2015 and 2016 respectively. Technical and operational capacity building for a core NHMS service with state-based outposts is necessary and urgent.

19. In the context of scarce water and predicted climate change, there is similarly a shortage of technical knowledge and capacity to apply groundwater capture and surface water mobilisation techniques in Somalia. The Water Departments have constructed numerous boreholes which have insufficient capacity and/or poor water quality and have been unable to capture wadis' periodic flows to store excess rivers flows for the dry seasons.[38] Somalia needs support in assessing its groundwater

[37] FAO SWALIM Update Sep – Dec 2015, 10th Ed.
[38] According to a survey conducted by the Ministry of Mining, Energy and Water Resources in 2012.

resources in addition to expanding other non-conventional water resources to meet its demand.[39] Conservation measures such as water recycling and rainwater harvesting are limited in spite of technical studies demonstrating Somalia´s good potential for water conservation and water harvesting.[40]Somalia Water Departments are also unable to control and divert flood flows in riverine basins. Intense rainfall events and subsequent floods are a source of vulnerability in the southern river basin areas. Canals have become unable to be utilized due to excessive sedimentation. Flood waters often breach banks causing contamination from inundated pit latrines into hand-dug wells.[41] Another challenge is that a significant portion of the country's water resources originate in neighboring Ethiopia, such as the shared river system of the Juba and Shabelle The total catchment area of the Shabelle basin is approximately 300,000 km2, of which 65% is located in Ethiopia and 35% in Somalia.[42] River basin management planning is required to ensure fair and sustainable access to good quality water for upstream and downstream communities.

Figure 4: Breach of flood banks along the Shabelle River during the flooding April 2018

20. In terms of Operation and Maintenance, at the local level, Water User Associations (WUAs), both public and partially private, are involved in the management and operations of rural water supply and irrigation systems. For smaller infrastructure (such as shallow wells), Water User Associations play an important role in user agreements, allocations, conflict resolution and mediation. Larger infrastructure (such as boreholes) use a Private Public Partnership framework where government approved private companies conduct operation and maintenance and ensure that water fees are collected, most commonly by mobile pay systems. In spite of these systems in practice in some locations in Somalia, such as in Puntland, **all Water User Associations and private water companies suffer from poor capitalization, limited technical skills, and limited if any awareness of Integrated Water Resources Management principles.[43]**

[39] UNDP and Arab Water Council. Status of IWRM in the Arab region report Dec 2005.
[40] SWALIM, Oct 2007. Potential for Rainwater Harvesting for Somalia, Technical Report.
[41] Danish Research Council. Beletweyne project expecting to benefit 116,000 people
[42] Figures provided by the Ministry of Energy and Water Resources, Federal Somalia
[43] Based on interview with Ibrahim Hussein, CARE Somalia, May 2018

21. Furthermore, Somali agro-pastoralists have limited means to diversify their livelihoods and to gain an asset base. A recent assessment by USAID indicated that building people's resilience to drought through a mixture of activities that builds income and assets is significantly more cost effective than continuing to provide emergency response.[44] Research indicates that vulnerable population groups, particularly women, account for almost 2/3 of low-income livestock keepers in different parts of East Africa. However, these groups are often placed at an unfair advantage or even excluded from value-chain development. The participation of women and youth is constrained by limited opportunities to develop capabilities. Youth and women's capacity reinforcement must be strategic by diversifying their roles in the livestock value chain.

22. Among all the aforementioned issues, the principal problem which this project seeks to address is Somali's limited technical and operational capacities on national and local levels to support an efficient, equitable and integrated approach to water resources management. The approach requires emphasis on integrating agro-pastoral needs and on building their resilience to the impacts of climate change. This normative solution is hindered by a number of institutional, financial, technological and informational barriers including:

- Lack of water governance frameworks and fragmented water resources management and planning;
- Unsustainable water management practices;[45]
- Limited hydro-geo-meteo monitoring and weak flood and drought warning capacities;
- Limited technical capacities for decentralized operation and maintenance of water infrastructure;
- Limited diversification of livelihoods for Somalia's agro-pastoralists.

More details on these aforementioned barriers are listed in Annex Q.

23. This problem is also compounded by several human-induced root causes such as:

- Marginalization of rural and nomadic populations rights to use water since they are often linked with land tenure;
- Limited physical, human and financial resources to cope with water issues;
- Significant population growth, causing rural water points to become stressed and serve as a source of conflict.[46]
- Poor sustainable land use management as evidenced by the proliferation of charcoal production[47]

III. STRATEGY

Supporting an enabling environment for IWRM

24. The LDCF-financed project (LDCF2)[48] will support agro-pastoralists to have an equitable, efficient and sustainable use of water resources. See the project map below:

[44] USAID Center for Resilience Economics of Resilience to Drought: Somalia Analysis January 2018
[45] Ministry of Water. May 2012. Background Paper on Water: Preparing Somalia's Future: Goals for 2015. Second Istanbul Conference, Turkey
[46] Hussein, S.M.S.H., Somali Institute for Development and Research Analysis (SIDRA) 2017 Understanding the Drivers of Drought in Somalia: Environmental Degradation as a Drought Determinant
[47] http://somali-charcoal.com/downloads.html
[48] LDCF2 refers to the second projects financed by the GEF's Least Developed Country Fund

Figure 5: Project Sites

Enabling Environment for Integrated Water Resources Management

25. Component 1 will provide an enabling environment with the development of an IWRM strategy. The strategy will consolidate the current patchwork of sectoral water policies and plans for each state so that a prominent national strategy will be used to achieve programming coherency. It will also provide a decentralized approach to water governance so that rural water supply is prioritized rather than neglected. The strategy will include consideration of pastoralist´s water needs who are often marginalized due to their lack of land tenure. The role of traditional leaders who support resource conflict management will be legitimised in the Strategy and recognized as decision-making structures and key actors for local governance.

26. Gender mainstreaming will be an integral part of the IWRM strategy and its implementation. Within IWRM women are central to the provision, management and safeguarding of water. The IWRM approach moves beyond the basic task of providing or managing water and water-related events by considering the social context within which these services are delivered and used. It is a process which aims to "**maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.**"[49]

Four pillars of IWRM that are supported by the LDCF2 project[50]

27. The project will promote gender empowerment and inclusion via IWRM by focusing on:

Social equity: A fair share of water benefits and responsibilities will be transmitted to women and men, poor and rich, young and old. This means fair opportunities for access, use, and control of water resources, as well as equitable acceptance of responsibility for the negative water impacts, so as to avoid placing higher burdens on the poor or disadvantaged members of society.

Economic efficiency: Given increasing water scarcity, the choice as to how each drop should be allocated and managed becomes central to maximizing social and economic benefits and ensuring sustainability. IWRM will be promoted across sectors to support cleaner production, water reuse and recycling and investment in water projects. The project will also promote financial sustainability to build, operate and maintain the diverse projects and facilities required to improve water access and assure water quality and quantity over the long-term through cost recovery and payment systems.

28. Water quality labs will also be established in Galmudug, Puntland, Jubaland, Hirshabelle and Southwest states. (Somaliland already has a lab thanks to support by AfDB and Sweden supported the development of a WQ lab on the federal level.) All labs will be equipped so that water management personnel can test for and ensure good quality water sources.

[49] CAP-NET , GWA 2014. Why Gender Matters in IWRM: A tutorial for water managers.
[50] idem

Table 3: Typical groundwater quality parameters and results for Somaliland and Puntland (Source: FAO-SWALIM 2012[51])

Parameter	*Minimum*	*Maximum*	*Average*
EC (µS/cm)	271	9 480	3 539.07
PH	6	10	7.68
TEMP (^{0}C)	19	38	26.40
Chloride (mg/l)	7.6	4 330	600.83
Sulfate (mg/l)	24	8 930	1 653.39
Nitrate (mg/l)	0.9	168	31.38
Nitrite (mg/l)	0.02	0.48	0.12
Ammonium (mg/l)	0.07	58	15.01
Fluoride (mg/l)	0.2	8.4	1.82
Hydrogen Carbonate (mg/l)	112	567	272.41
Carbonate (mg/l)	5	10	7.86
Aluminum (mg/l)	0.09	0.19	0.13
Arsenic (mg/l)	0.005	0.026	0.01
Barium (mg/l)	0.005	0.2	0.05
Lead (mg/l)	0.005	0.009	0.01
Boron (mg/l)	0.07	4.5	0.92
Cadmium (mg/l)	0.001	0.002	0.00
Calcium (mg/l)	21.6	825	305.03
Chromium (mg/l)	0.005	0.025	0.01
Iron (mg/l)	0.02	0.12	0.07
Potassium (mg/l)	1.7	111	21.54
Copper (mg/l)	0.005	0.012	0.01
Magnesium (mg/l)	8.41	2330	180.18
Manganese (mg/l)	0.006	4.2	0.89
Sodium (mg/l)	9.6	2530	353.28
Phosphorus total (mg/l)	0.05	0.11	0.07
Mercury (mg/l)	0	0	0.00
Silica (mg/l)	4.9	40	14.22
Strontium (mg/l)	0.51	21	7.05
Zinc (mg/l)	0.01	1.9	0.43
Iodine (mg/l)	0.006	2.6	0.27

29. In addition to Water Quality labs, technical and planning ministries will be provided capacity reinforcement on IWRM principles. Training will promote a decentralized approach to water governance by transferring capacities to all states and target districts. Using structured dialogue within the training sessions, a transparent and viable fee system will be re-established in the rural regions to support reliable service water delivery for the various uses of water and the range of people's water needs, including during drought periods. Approximately 150 government officials in all states will receive training on IWRM and the IWRM strategy. The training will enable them to plan and budget for climate induced impacts on water resources and how to establish fair fee systems to enable cost recovery for water service sustainability.

Water Point Management Capacity Building

[51] FAO SWALIM 2012 Hydrogeological Survey and Assessment of Selected Areas in Somaliland and Puntland

30. On a local level, IWRM training will be provided to approximately 20 agro-pastoralists in each of the 15 villages, 300 people in total. The project will build upon cases of successful water fee systems established prior to 1991 and now being re-established in select locations across Somalia. Currently, in some regions of Somalia, water tariffs are being paid indirectly at small infrastructure and directly for water services at large infrastructure. For smaller infrastructure such as shallow wells, the government uses its own funds or project funds to install a sand dam. The water table then becomes sufficient to have downstream shallow wells. The government powers the shallow wells with solar-power. The solar panels are generally oversized to provide extra capacity. This extra power is sold to local shops. For instance, each month $150 - $200 is collected from electricity sales to shops. The money raised from electricity sales is used to pay for operation and repair of the shallow wells.

31. A community Water User Association (WUA), or village operator identified by the community, uses revenues from electricity sales to operate and maintain the shallow wells. The Ministry of Water is responsible for training the village operator or WUA. This small infra O&M system is being successfully used in Somaliland, Puntland and Jubaland. It has the extra benefit of providing employment for the local communities and upholding traditional practices. Traditionally, agro-pastoralists have the habit of buying goods from stores and not paying for small water services.

32. In contrast, Operation and Maintenance with larger infrastructure such as boreholes, use PPP models. In a PPP model, a company is identified by the water sector in the government (such as the case of PSAWEN in Puntland). The private company must provide a financial commitment to repair a borehole. The government signs an agreement with the company to operate and maintain the borehole and to assign a fair tariff during all seasons, including drought seasons. In such a manner, the community still owns the borehole and employment remains with the company. The communities can pay for the water using mobile phone pay. This has prevented people from digging everywhere and finding poor quality, unsustainable water sources.

33. In addition to upscaling existing successful O&M practices for small and large water infrastructure, the project will implement Somaliland's Rural Water Supply Community-Based Management Manual which was developed in December 2015 and has yet to be implemented. (For more information on the Manual, please see Annex L.) In all cases of water management, the project will incorporate traditional leaders, women-based groups and NGOs/CBOs into decision-making processes so that they have a voice in water planning and management.

Table 4: Community Water User Association Structure

IWRM integration into university and TVET curricula

34. Component 1 will also be used to enhance the curricula and programmes at vocational institutes and at universities to incorporate instruction and teachings on sustainable water resource management in the context of climate change. Support for curriculum updates has worked well in the LDCF1 project where now 50 students at Amoud University in Somaliland are receiving targeting climate change adaptation technical training.

35. The LDCF2 project will upscale these good results and build IWRM-specific curriculum updates into at least 9 other universities and 9 technical institutes (TVETs) across Somalia. According to a stock-taking report on the gaps and opportunities for curriculum development, there is a varying background knowledge of students. Many have a limited math backgrounds for example. Fortunately, some courses in Somali universities cover water resources as well as environmental and agricultural aspects individually. None, however, consider holistic, integrated approaches.[52] The project will thus link with the existing agronomy and environmental science divisions to integrate IWRM. Several of the universities also have good IT facilities including wireless internet. This project will exploit the good potential for teaching students through computer-based practicals and projects.

36. After being developed in English, the IWRM module will be provided in English and Somali (and Arabic if certain cases). It will cover the fundamentals of IWRM, best water point/infrastructure O&M practices specific to Somalia and how to establish water tariffs based on socio-economic contexts ensuring equitable, pro-poor water supply. To engage the students, Somali or regional IWRM practices will be highlighted with opportunities with on-site trainings (e.g., water point repair). See Annex S for an example of the IWRM course outline.

37. By improving the technical education for youth, they can serve as a pool of recruits for the understaffed ministries and district departments. With properly trained recruits, the GoS will be well-positioned to deal with water-related challenges. This will provide a two-sided benefit by increasing employment and reducing poverty among youth who currently have one of the highest unemployment rates in the world (67%).[53]

River basin management

38. River basin management will also be practiced along the Juba and Shabelle Rivers in the south. These rivers are prone to flooding and significant sediment deposition after river banks are destroyed during intense rainfall events. The river banks are not robust because they are frequently broken by farmers trying to get water access for their farms during the dry season.

39. In response to poor water management in the riverine areas, the project will establish River Basin Management Authorities (RBMAs), officially recognized by the IWRM Strategy and the Ministry of Energy and Water Resources. The aim of the RBMAs will be to ensure fair access to water by upstream and downstream communities as well as maintaining river infrastructure (e.g., dredging of the channel and fortifying river banks).

First National Hydro-Meteorological and Monitoring Services Unit for Somalia

40. Under Component 2, the LDCF2 project will establish Somalia's first National Hydro-Meteorological and Monitoring Service (NHMS). A NHMS policy will be established under Component 1 to clearly establish the mandate of the service for all six states and the GoS. The NHMS as well as decentralized DRM and EWI/CI centers will receive capacity building on the timely collection, analysis

[52] Hydroc report on LDCF1: Climate Change Adaptation Modules for University Level Education. 2016. P150527

[53] http://fortuneofafrica.com/somalia/unemployment-in-somalia/ 2017

and dissemination of hydrological, hydro-geological and meteorological information. This information will serve Somalia in optimally planning water resources development schemes. It will also provide critical data and early warning products to improve water resources management and to enhance agro-pastoral production. The project will build off of FAO SWALIM's efforts in providing capacity reinforcement for the NHMS and it will integrate other successful warning system elements from USAID's FEWS NET.[54]

41. The project will also build strong links between the technical universities and the NHMS to support the weak government institutions working with DRM. Future graduates will be trained to operate and maintain the weather and climate monitoring networks and to perform data analysis. Collaborations between the universities and IGAD's ICPAC[55] will enable monitoring and forecasting knowledge to be exchanged and technologies to be promoted. Support by the Kenya Met Service and regional universities to the government-managed NHMS will facilitate knowledge and data transfer.

42. LDCF funds will be used to improve Somalia´s climate and weather services to target drought and flood forecasting products towards agro-pastoralists. Training will be provided to 6 people as forecasts over a period of 6 months. They will learn skills with not only downscaling existing GCM products but in using GIS and Remote Sensing software. Regionally and internationally available forecasting technologies will be exploited.[56] The new NHMS will also collaborate with other agencies such as the Red Cross / Red Crescent to disseminate warnings and relevant climate / weather information to agro-pastoralists such as by SMS or through traditional communication protocols. A feedback mechanism will be established so that alerts can be improved based on their utility and outreach speed.

Expansion of hydro-geo-meteorological monitoring network

43. Under Component 2, thirteen (13) Automatic Weather Stations (AWS), ten (10) manual rain gauges, nine (9) synoptic stations and four (4) radar river level sensors including fencing, security, spare parts, a secure data server, satellite data transmission and O&M running costs for 4 years will be procured and installed across Somalia to complement the existing stations (See Figure 7 below). FAO-SWALIM has installed a hydrometric network in Somalia. Other stations have been installed by the MoEWR in collaboration with Benadir University through the IGAD-HYCOS project. The project will provide training to technical personnel within Somalia´s NHMS so that they can perform, collect and analyze the data in addition to repair all existing and new monitoring equipment.

[54] http://fews.net/east-africa/somalia
[55] http://www.icpac.net/
[56] IGAD's ICPAC and UNDP's Global Climate Risk Management Programme and regional water-related networks such as the Southern and Eastern Africa Rainwater Network (SearNet)

Figure 6: Existing and proposed hydrological, hydrogeological and meteorological monitoring stations throughout Somalia

Key improvements to the existing flood and drought forecasting system

44. In Component 2, the FRISC-DIGNIIN alert system will be transferred to the NHMS. The project will enhance and expand the FRISC-DIGNIIN tool to collect and disseminate early warning and contingency planning information covering the whole country. The current warning tool only covers selected areas. The tool will run in close collaboration with the disaster management authorities in each of the three administrative regions with designated focal points. The tool will be expanded to cover agro-pastoralists with tailored messages such as to warn pastoralists when water points are dry. An example of a rainfall forecast already provided by the system is shown in the figure below.

Figure 7: Weekly rainfall forecast over Somalia for the period of June 18 – June 24, a product of the FRISC system, currently housed at FAO-SWALIM

Water mobilization / diversion activities

45. In Component 3, surface and groundwater will be mobilized and stored to support agro-pastoral economic and social development. Selected sites for water infrastructure are indicated below.

Table 5: LDCF IWRM Project Sites

No.	Project Districts
1	Baidoa
2	Luuq
3	Baletweyn
4	Ba'ad wayn
5	Guriel
6	Waajid
7	Kobdhaxad
8	Gardo
9	Dhahar
10	Bayla
11	Dangorayo
12	Libaaho
13	Celbilcinle
14	Beer
15	Habariheshay

46. Sites were selected based on an analysis of their vulnerability to climate change, access to water, security and other criteria defined in Annex N. The project will build off of other donor interventions such as successful sand dam construction in LDCF1 and rehabilitation of river embankments by the DRC by integrating best practices and lessons learned on water infrastructure construction and erosion management.

47. Also, as a SWALIM study has shown,[57] the most appropriate technologies will be chosen according to the terrain and climatic state. Initially, LDCF funds will also enable agro-pastoralists to exploit groundwater reserves sustainably because the monitoring network will be expanded to survey groundwater resources. A report detailing proposed localities and costs for sustainably exploiting groundwater reserves will be prepared. Galmudug is recommended for the hydrogeological study because FAO has already conducted hydro-geo studies in the north (Puntland and Somaliland). Most of the areas for study are accessible for field surveys. There is also quite a substantial amount of data on borehole drilling, borehole testing and water quality which can be used to validate the groundwater study. This activity includes extending the hydrogeology map as seen below and noting locations and depths which will provide good yield.

[57] SWALIM. Oct 2007. Water Resources of Somalia: Project Report No. W-11.

Figure 8: Four previously studied areas of interest in Somaliland and Puntland for groundwater (GW) exploration (FAO-SWALIM GW Study 2012)

Figure 9: Graph of Drilled Depths (m) for boreholes in Somaliland and Puntland (FAO-SWALIM GW Study 2012)

Figure 10: Graph of yields (l/s) from boreholes in Somaliland and Puntland (FAO-SWALIM GW Study 2012)

48. All groundwater extraction will be based on the detailed hydro-geological yield study. Groundwater will be extracted via boreholes predominantly in the south.

49. In the north, various earth and sand dams will be constructed with safety margins defined by climate information based on their successful implementation in other projects Sand dams have had tremendous success in Somalia via the LDCF1 project. A UNDP photographic essay shows live accounts on how they have saved lives.[58] In fact, the sand dam in Biyo-Gadud near Banderbeyla, Puntland has helped curb the effects of seasonal droughts and climate change for the Dhudo community, and the internally displaced peoples from wider Somalia as well as reduced the impacts of climate change-induced disasters like droughts and floods. Other donors such as the World Bank and the European Union are scaling up the use of sand dams as a result.[59]

Figure 11: Subsurface (sand) dams near Hargeysa (photo Z.Stevanovic) (FAO SWALIM)

50. Furthermore, soft nature-based measures (re-vegetation etc. with native, local plant and tree species) will be implemented alongside hard infrastructure solutions in order to reduce erosion impacts and increase groundwater infiltration. The use of check dams, which have been successfully implemented in the northern regions of Somalia, will be demonstrated in the country's southwestern regions to capture water from seasonal streams after short localized rains in the catchment areas.

Agro-pastoral value chain support

[58] https://undp-adaptation.exposure.co/sand-dams-save-lives May 2018
[59] http://www.so.undp.org/content/somalia/en/home/presscenter.html

51. The project will, furthermore, build the capacities of the agro-pastoralists on-the-ground to exploit value chains. Primary value chain actors include pastoralists and small-scale farmers. In agro-pastoral systems, livestock are kept for subsistence (milk and milk products), transportation (camels, donkeys), land preparation (oxen, camels), sale or exchange or insurance against crop failure. The project will provide value addition along the chain by training the local communities, particularly women on how to sustainably produce the products (milk, butter, cheese, eggs, hide, etc) and how to increase the efficiency of its delivery to the local shops, et. The support will inform the communities of how to produce or obtain quality feed inputs locally, how to work with a wide range of value-chain enablers including NGOs. The project will also promote use of improved forage varieties that are available locally and can be grown in local nurseries. Women will be the key drivers for value chain development so that they will have the ability to diversify their family's income sources. The project will thus support livestock value chain training as a means to enhance the development trajectory of the county.

52. The project will furthermore build off the Land-Use Policies in place for Somaliland and Puntland that have mandated rangeland rehabilitation and forage production in certain areas so that productivity of inputs can be increased (pasture and forage). Rehabilitation of the rangelands is critical because they provide the bulk of the feed across the region. Reforestation efforts will collaborate with charcoal programmes such as PROSCO and other relevant NRM projects focused on land-use management. It will also capitalize on the regional advances with livestock value chain enhancement by studying how to use web-based price and market information to improve the sales and diversification of activities for agro-pastoralists. For instance, agents of the Rwanda Ministry of Agriculture and Animal Resources are using an Android application to collect market and price data. Also, a private-sector start-up call Ari Farm is using a web portal to enable international investors to invest in Somali livestock and farms in order to earn revenues from milk sales.[60] The investments are enhancing the livestock market and creating jobs for nomads in Somalia. Both of these innovative sales methods will be investigated.

53. Based on all of the Components aforementioned, **innovative aspects** which the proposed project will deliver include:

- Developing Somalia's first over-arching gender-sensitive IWRM strategy to achieve water resource programming coherency and to plan for decentralized cost recovery for water systems;
- Creating an enabling environment for agro-pastoralists to have fair water rights;
- Establishing Somalia's first National Hydro-Meteorological Service and transferring capacities to the service
- Building strong links between the technical universities and the newly established NHMS to support the weak government institutions working with DRM, EWS/CI;
- Establishing Somalia's first River Based Management Authorities to ensure rivers and connecting canals are maintained and that surrounding villages, upstream and downstream have fair water rights
- Increasing employment opportunities for youth, including women, in water resources management by supporting students at universities and technical institutes;
- Providing on-the-pasture, in-the-farm, training for agro-pastoralists on value chain exploitation

54. The following Theory of Change shows the linkages between the development challenge and the immediate, underlying root causes. It details how the activities will address the current barriers and the partnerships that will be created to achieve the desired outcomes.

[60] https://ari.farm

Figure 12: Theory of Change: LDCF2 – IWRM Project Somalia

IV. RESULTS AND PARTNERSHIPS

The proposed activities to support the recommended outcomes are indicated below:

Table 6: Activities and Outcomes, Component 1

Component 1: National water resource management policy establishing clear national and state responsibilities
Outcomes 1: 1) Policy, legislative and institutional reform for improved water governance, monitoring and management in the context of climate change 2) Strengthened government capacities at national and district levels to oversee sustainable water resources management
All Activities Component 1
1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Three training workshops will be conducted for 150 participants, 30% women
1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy, which adds programming coherency to fragmented state level water policies, supports a decentralized approach to water governance that integrates traditional, customary water resources management practices and governs water extraction / access rights, water conservation, water quality, and pro-poor water supply[61]
1.3 Development and endorsement of a national Hydrometeorological policy and regulation for improved Meteorological service in Somalia
1.4 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs
1.5 Nine national students (at least 3 women), supported to attend IWRM higher degree programs. Nine (9) TVET students will also be supported (at least 3 women). A scholarship requirement for all recipients will be that they work within Somalia for the first 2 years after graduating.
1.6 Establishment of five Water Quality laboratories in Puntland, Galmudug, Southwest, Hirshabelle and Jubaland states.
1.7 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water

[61] This will build on existing state-based water strategies, policies and acts and will establish a transparent, viable and context-specific fee system to support existing and future service delivery options.

by upstream and downstream communities and to ensure maintenance of river-based infrastructure
1.8 Training at the district and village levels that provide awareness on IWRM as well as specific training for women on community water management.
1.9 Technical staff services relevant to IWRM, Gender Mainstreaming, Knowledge Management and Monitoring and Evaluation for Component 1

Table 7: Activities and Outcomes, Component 2

Component 2: Transfer of technologies for enhanced climate risk monitoring and reporting on water resources in drought and flood prone areas
Outcomes 2: 1) Improved water resource data collection and drought / flood indicator monitoring networks in Somalia's Arid and Semi-Arid Lands (ASALs) 2) Strengthened technical personnel from the National Hydro-Meteorological Services in IWRM and flood and drought forecasting 3) Better understanding of the current hydrological and hydrogeological situation
All Activities Component 2
2.1 Study on existing hydrological equipment with a recommendation on installation locations for new monitoring equipment. (partners: FAO and ICPAC)
2.2 Procurement and installation of 13 AWS, 10 manual rain gauges, 9 synoptic stations and 4 radar river level sensors including fencing, spare parts, secure data server and O&M for 4 years. Training for at least 4 engineers / 4 technicians within DGM to operate, maintain and repair all new weather stations will be provided by the vendors during the first 2 years. Training will focus on information collection, data treatment (including data quality checks) and operation and maintenance (O&M) tasks for weather equipment. Standard Operating Procedures (SOPs) will be put into place for 1) O&M and 2) data storage and collection. (partner: FAO)
2.3 Establishment of a National Hydro-Meteorological and Monitoring Service (NHMS)
2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters (at least 2 women) with regionally and internationally available forecasting technologies[62] using GIS and Remote Sensing tools and technologies (partners: ICPAC, FAO)
2.5 Improvements to FRISC-DIGNIIN early warning system to enable it to have country coverage and tailored warnings
2.6 Technical staff services relevant to Early Warning / Hydro-geo-meteo monitoring Knowledge Management and Monitoring and Evaluation and Gender Mainstreaming for Component 2

[62] (e.g., Kenya's space-based climate surveillance system,[62] the freely available CFS forecasting tool by NOAA in addition to tools and regional trainings developed through IGAD, UNDP's Global Climate Risk Management Programme, RIMES and EWS-Africa)

Table 8: Activities and Outcomes, Component 3

Component 3: Improved water management and livelihood diversification for agro-pastoralists
Outcomes 3: 1) Reduced vulnerability for agro-pastoralists to water resource variability through investment in water resource management infrastructure and training on the livestock value chain 2) Increased awareness of local communities on rainwater harvesting, flood management and water conservation during rainy seasons 3) A national groundwater development action plan that will increase access to water for pastoral communities in drought affected areas taking into consideration aquifer characteristics, extent, location, recharge, GW availability and sustainable yields
All Activities Component 3
3.1 Development of a Groundwater development action plan specifying the proposed number of boreholes, their geographical locations and their cost estimations (partners: FAO Norway)
3.2 (Hirshabelle, Southwest, Jubaland, Galmudug, Puntland and Somaliland) Physical investment in water diversion infrastructure (to control runoff and soil erosion) and RWH and groundwater extraction technologies (e.g., Hafir dams, solar-powered boreholes and shallow wells)
3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay) and including procurement of warehouses for value chain storage
3.4 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability
3.5 Technical staff services with regards to knowledge management for local communities on rainwater harvesting, flood management techniques and value chain exploitation

Table 9: Outcome, Component 4

Component 4: Gender mainstreaming, knowledge management (KM) and Monitoring and Evaluation (M&E)
Description of M&E / KM
The KM / M&E Component will focus on documenting best practices and spreading lessons learned on IWRM, effective hydro-geo-meteo monitoring and early warnings as well as agro-pastoral livelihood value chain skills transfer. This will be done by first conducting a baseline study. The study will include evaluating existing laws, policies and curriculums to determine how the existing position and status of women and youth can be improved with regards to water resources management. The project will demonstrate the evolution of all gender-disaggregated baseline indicators and the mainstreaming of

gender in all trainings and activities. See the Project Results Framework in Section VI. of this report. Component 4's budget includes conducting stakeholder workshops in all 15 target villages. A gender expert and a M&E / KM expert will be responsible for documenting the progress and storage of KM materials. All training materials will be collected and stored by the project's M&E / KM expert and will be housed on an open-access database for all relevant government representatives, universities and NGOs/CSOs in all 6 states.

Partnerships:

55. The LDCF2 project will implement the aforementioned activities between 2018 and 2022 in coordination with other partners/projects such as JPLG and AfDB. Please note the UNDP will have a direct link with AfDB and their DRSLP and RLACC projects. AfDB will be a member of the Technical Committee. Also, the LDCF2 project will build on WASH in Puntland, Southwest, Hirshabelle, Galmudug and Jubaland states.

56. Key Partnerships will be developed with these and the following organizations. The successes of these projects/initiatives are detailed as well as the value additionality of the LDCF2 project.

Table 10: Partnerships

Projects & initiatives	Relevant successes to LDCF2 Project	LDCF2 Additionality
LDCF 1 (2014–2019, GEF-LDCF/UNDP, USD 8m) Enhancing Climate Resilience of the Vulnerable Communities and Ecosystems in Somalia	Training strategy established on adaptation to climate change; establishment of district DRM committees; local Disaster Management plans; development of the National Climate Change Policy and State Land Use Policies	Guiding all DRM efforts by establishing the NHMS and providing early warnings. The IWRM Strategy will guide water resource planning.
SWALIM (2013 - 2018, EU, FAO, USD 15m) Somalia Water and Land Information Management Phase V	Managing meteorological monitoring stations and gathering weather and climate data as well as data on land and water resources throughout Somalia. FAO is responsible to act as a data centre supporting each ministry's mandate and to provide capacity development. SWALIM also supports the 3 primary DRM institutions by generating early warnings for floods, cyclones and other environmental threats.	Will further extend the data collection networks in Somalia. In collaboration with SWALIM's efforts, capacity building for the NHMS (Ministries of Water, Disaster Risk Management Units) in each state will improve flood warning and drought management with an emphasis on getting warnings to agro-pastoralists. The project will also enhance SWALIM's work by empowering youth, women and traditional leaders with technical water management knowledge so that they can serve to manage any data collection and flood – drought warning activities
ICPAC (IGAD) IGAD Climate	Timely acquisition of near real-time climate and remotely sensed data; Development of climatological statistics; Generation of climate	Will use IGAD's technical trainings to improve data analysis and forecast production

Prediction and Application Centre	prediction and early warning products for line ministries	
RESTORE (2016 - 2020, EU, EUR 8m) Strengthening the resilience of communities in Puntland and Somaliland project	Enhancing Somali institutional stakeholders' capacity to effectively coordinate, programme, manage and monitor resilience interventions	Feedback on effective resilience building measures in the water sector will be integrated into the IWRM Strategy.
UN-JPLG III (2008 - 2017, Sweden, EC, DFID, Norway and Denmark, USD 18.6m) United Nations Joint Programme on Local Governance (The districts being covered include Somaliland (Hargeisa, Burao, Odweine, Sheikh, Berbera, Borama, Gabiley, Zeylac), Puntland (Garowe, Bosasso, Eyl, Jariiban, Benderbeyla, Galkacayo, Gardo), the Interim South West Administration (Baidoa, Merka), the Municipality of Mogadishu and other districts including Beletweyen, Jowhar and Adado.)	Successful implementation of fair delivery of services on local levels; Development studies on water and natural resource management. supports regional institutions in Somalia, ensuring local governance contributes to fair delivery of services (water included). JPLG conducted sector studies in water and natural resource management to assess opportunities and capacities of key sector ministries. JPLG also developed a manual for a water sector feasibility study and a guide for public private participation.	Will build on JPLG-supported findings, particularly the water management study in order to mobilize water for agro-pastoralists in a manner which optimizes the balance of central and sub-national roles to maximize water service delivery. Through Component 1 of the LDCF project, the water governance systems will be updated to legitimize the customary laws and traditional leaders involved in water management. LDCF2 will also implement Somaliland's Rural Access Water Strategy which will give numerous benefits to JPLG including structuring of cost recovery and defining roles for local, decentralized O&M.
Water Infrastructure Development for Resilience In Somaliland (2016-2020, AfDB, 6m UA)	Construction and rehabilitation of water mobilization infrastructure; water harvesting and supply for human, agriculture and livestock consumption; Solar-powered irrigation and livestock watering systems	IWRM will enable coherency of water infrastructure planning
DRSLP II (Somalia) (2013-2021, AfDB, USD 22.5m) Drought Resilience and Sustainable Livelihoods Programme in the Horn of Africa	Building resilience and sustainable livelihoods for pastoral and agro-pastoral communities in drought-prone areas of Somalia, Improvement of water availability and accessibility; Improvement of livestock production and management, and infrastructure for market access; Building human and institutional capacity to handle agro-pastoral production, improve policy and	Capacity building from Component 1 of the LDCF-financed project will support the designs of surface water schemes and groundwater development so that they are in alignment with the over-riding IWRM policy and IWRM plans for the country. Training materials on water resources management

	institutional frameworks. Objective 1 aims to increase water availability for agro-pastoralists. Objectives 2 and 3 focus on i) market access, animal health and livestock management and ii) building capacities in agro-pastoral production and for the Ministries of Agriculture and Livestock.	from Components 1 and 3 will be shared with DRSLP to facilitate water and infrastructure operation and maintenance for complementary districts.
Danish Refugee Council (DRC) (2017-2019, USD 200,000)	The Danish Refugee Council is supporting the Beletweyne region to pilot hydroponic fodder production to enable pastoralists to deal with more frequent drought. The practice is 25 times more water efficient and can be practiced on limited land areas year-round versus traditional fodder production in fields. The pilot is providing training, particularly for women who can practice hydroponic fodder production in their backyards when they do not have access to open pasture. To deal with sanitation and environmental contamination problems related to inondations in river basins, DRC is also supporting river embankment rehabilitation and construction of floodwall barriers. The goal is to have robust flood river banks that can prevent flooding and subsequent contamination from inundated pit latrines and hand-dug wells.	LDCF2 will upscale successful river embankment stabilization methods and pilot more hydroponic fodder production in other locations.
(IDMP HOA) (2014 – 2018, DANIDA and Global Water Partnership (GWP), to be implemented by IGAD in Somalia, EUR 200,000) ***Integrated Drought Management Program in the Horn of Africa***	Enhancing partnership and collaboration/coordination for drought management and influencing policies by integrating IWRM as a tool for drought management. The Program will support the water-focused ministries in each zone.	Will build off the innovative approaches of drought management as piloted by IDMP and will build on the capacity reinforcement for drought management. Any drought management policies/programs to be developed by IDMP in the future will be integrated into the IWRM strategy so that water resources planning is more coherent and coordinated. Furthermore, the LDCF2 project will expand capacity reinforcement efforts by IDMP by providing the youth and women with technical expertise to manage and operate water systems.
Red Cross/Red Crescent and the Hunger Resilience Partnership (2016 – 2020, Kenya Red Cross, Iranian Red	Supporting the federal level to work together with other professional weather and climate communities to increase the reliability of forecasts. Hunger Resilience Partnerships are improving the resilience of vulnerable pastoralists and agro pastoralists in Puntland	Will support the Red Cross / Red Crescent Hunger Resilience Partnership by mobilizing water with the installation of infrastructure such as sand dams and by developing forecasts that

Crescent, USD 1,000,000)	and Somaliland to food insecurity and environmental shocks by supporting 2,500 pastoralists and agro -pastoralists households in Puntland (Mudug Region) and in Somaliland (Sool and Marodijeh regions) to improve their food and nutrition. It is promoting irrigation utilizing seasonal flood waters and diverting water from seasonal rivers and supporting community level initiatives for sustainable vegetable, fruit and fodder production including support for alternative incomes from sale of fruits, vegetables and fodder.	support agro-pastoralists to adapt to climate-induced flood and dry period conditions.
AfDB RLACC II Rural Livelihoods' Adaptation to Climate Change in the Horn of Africa II project ***(2017 – 2021, USD 9.985 m)***	RLACC II is supporting the resilience of pastoral and agro-pastoral communities throughout Somalia with construction of water harvesting infrastructure, rangeland rehabilitation, improvement of access to market, development of veterinary and health services and diversification of livelihoods (including generation of alterative income-generating activities). The project is providing trainings to communities on water resources infrastructure management, farming methods with drought resistant varieties and resilient rangeland management options. It is also integrating climate change into community development plans based on the development of their vulnerability profiles. The targeted localities are: (i) South Central Somalia: Hiiraan and Galguduud States, Localities of Beledweyn and Guriceel, (ii) Somaliland: Awdal region, villages of Quljeed, Ton and Salawley-Cheikh Hared, (iii) Puntland: Bari and Nugaal regions	Will set the foundation for water infrastructure planning and will contribute to rural capacity building on diversification of agro-pastoral livelihoods by enabling agro-pastoralists to exploit their milk and hide value chains.
PENHA (Pastoral and Environmental Network in the Horn of Africa) - USD 1 million funded by DFID through the UK Agritech Catalyst programme	PENHA is piloting a Seawater Greenhouse near Berbera. – The technology uses prevailing winds and solar PV for power. Sea water is treated by reverse osmosis and provides irrigation and drinking water. The treated water provides high yields for horticultural production and locally grown produce in a drought-proof and sustainable way. The Berbera site will train new family farming units for the uptake of the technology. A key feature is that, unlike commercial farming, women can provide much of the semi-skilled labor.	Will upscale the Seawater Greenhouse concept and find other applications for the technology. Will proliferate the training to other families, particularly women.

UN Joint Programme on Charcoal Reduction and Alternative Livelihoods (PROSCAL) (April 2016 to March 2020, USD 6.6 m)	Combatting against destruction of forests for charcoal by finding other alternative livelihoods for rural populations. http://somali-charcoal.com/downloads.html	Will support the Joint Programme by promoting sustainable planning and use of land and water resources for green economic development and by building the resilience of agro-pastoral livelihoods so that they can exit the charcoal trade and exploit sustainable agro-pastoral value chains to better adapt to climate change impacts
MDG initiative for Somalia- (2013-2019, funded by the EU, USD 34m,)	Reducing hunger and food insecurity in the Puntland region through improved and sustainable use of rangeland resources	Will provide water in the context of IWRM and support agro-pastoral livelihood diversification
Regional Prevention Strategy for the Horn of Africa (2019-23); United Nations Department of Political and Peacebuilding Affairs (DPPA) and the United Nations Development Programme (UNDP)	The five-year Strategy is the United Nations support framework for the Horn of Africa. It aims at operationalizing the Secretary-General's vision of prevention by rationalizing United Nations prevention-related mandates and encouraging joined-up action and system-wide ownership of outcomes. The goal of the Strategy is to rally multi-sectoral resources to lay the foundation for longer-term stability of communities, societies and nations across the region.13 This requires breaking the cycles of recurrent 8 crises and disasters that undermine individual and communal resilience, and that perpetuate the root causes of conflict. Hence, the Horn of Africa must be supported to better coordinate: risk-informed programming and preparedness for emergency response; disaster risk reduction; climate change adaptation; and conflict-prevention and peace-building while seeking to better integrate humanitarian and development programming where feasible and appropriate.	The project, as part of, components 1 and 2 will interface with the key institutions engaged in the implementation of Horn of Africa Strategy with the aim of improving data collection, analysis and early warnings for disaster risk reduction and livelihoods protection of agro-pastroalists. The network of weather and climate data equipment will be provided essential information to negotiate with neighboring countries about current and future scenarios of water resources availability. Thereby the project will provide a platform for evidence-based negotiations on cross-boundary water sources and building resilience of agro-pastroal communites.

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Risks and Assumptions:

Some risks are foreseen with the LDCF2 project. The following measures to mitigate the risks will be implemented.

Table 11: Risks and Mitigation Measures

Risk	Rating	Risk Mitigation Measure
Low level of cooperation between executing institutions due to political divisions and the existence of distinct states in Somalia	Medium	Management arrangements will be clear with the Ministry of Energy and Water Resources responsible for the Project Implementation Team. Each state will have a Project Officer who will be in charge of activity implementation on a day to day basis. Programme outcomes will be maximized by having six clear State Committees (led by a State Project Officer) which will include relevant government representatives, district officers and NGO/CBO representatives for each state. Furthermore, to unify water management responses, one federal IWRM policy will be generated.
Security risks	Medium	The target areas will be well chosen based on the criteria of having a stable security situation. To ensure security, the project will work through local NGOs/CBOs, who have experience in project implementation. Similar to the NAPA and LDCF1 preparation, project implementation will ensure that customary dispute resolution mechanisms are used to resolve any conflicts. Based on the successes of the LDCF1 project, project implementation will also ensure an inclusive, participatory approach involving all key stakeholders including women and youth, thereby adhering to IWRM by emphasizing stakeholder participation.
Limited climate monitoring inhibits forecasting capabilities	Low	Since national forecasting capacities are absent in Somalia, regional forecasting products will be exploited. The drought and flood forecasts will be targeted to agro-pastoralists through collaborations with FAO and the Kenya Met Service.
Lack of nationally-available expertise and human resources	Medium	Universities and technical institutes will be supported to introduce IWRM into existing degree programmes so that students can be trained in the most up-to-date relevant water management practices relative to their respective discipline. The issue of the unavailability of requisite human resources will also be mitigated by recruitment of foremost national experts and subsequently international experts (with preference given to those of Somali origin) who will work closely with in-country counterparts.
Increase in the frequency of flood events and continued drought	Medium	The project will take into account region-specific current climatic variability in the selection of water management practices. Water storage mechanisms will be provided and sized based on predicted climate change. Furthermore, the project will support agro-pastoralists, including women, to build resilience by diversifying their livelihoods (e.g., nursery establishment and hydroponic fodder production)
Targeted agro-pastoralists are sceptical and unwilling to exploit livestock products	Low	In Component 3, LDCF funds will be used to provide a gradual transition that allows time for adaptation with on-the-pasture, on-the-farm field demonstration sites. These sites will provide extensive training on how to exploit the value chain of livestock goods such as production of milk, yogurts and cheeses for both men and women. or both men and women. An idea is also to promote women-based groups to have sustainable businesses focused on the production and sale of value chain products. Such an approach will build on the entrepreneurial spirit of Somali women, use existing women-based groups and provide women with

Risk	Rating	Risk Mitigation Measure
		alternate livelihoods and sources of income. South-south exchanges such as with PENHA will also be promoted.
Insufficient technical and operational capacity on all levels	Medium	In Component 1 an IWRM policy will be developed to guide water management activities. It will act as the overarching strategy to achieve programming coherency. LDCF funds will also be used to provide significant training for the ministries, district governments and local communities on IWRM and for the communities on RWH, seawater harvesting, flood management and water conservation. O&M training will be based on Somaliland's rural water access strategy. Also, O&M will be based on best practices by CARE International who have noted that large infrastructure are best maintained with PPPs where private companies are hired and legally agree with the Ministries of Water to pay specific tariffs that are fairly adjusted during climate extremes to ensure equitable distribution. Also, based on CARE's best practices, small scale water infrastructure will be maintained by using the revenues from electricity sales to local stores. The stores are provided with electricity from the surplus solar pumping energy installed at water infrastructure. Significant vocational and university training will also be provided on IWRM to enable the government ministries and technical agencies to have a pool of qualified and competent recruits. Early warning and forecast production will also be supported by building national NHMS capacities, enabling national experts in hydrology, hydro-geology and meteorology to have sufficient skills to create or build on regional forecast products.

Stakeholder engagement plan:

57. Bilateral and multilateral stakeholder consultations also took place during project concept development in order to collect information and confirm costs and management arrangements. The overall goal of stakeholder consultations has been to identify relevant agencies involved with supporting rural community adaptation and disaster risk preparedness, particularly those who will be responsible for continuing project activities in the long-term. Consultations have ensured the proposed project is grounded in local realities whilst being aligned with national policies and will support agro-pastoralists. The activities included under LDCF2 have been prioritized following a thorough screening process and in consultations with the local stakeholders.

58. The following table shows the Stakeholders involved in the project. Roles of the organizations / institutions during project implementation are indicated in Annex G, the Stakeholder Engagement Plan.

Table 12: Stakeholders

Federal Sector	State Members	Technical Agencies	Regional Sector	NGOs	Donor Partners
Office of the Prime Minister Directorate of Environment. Office of the Prime Minister Ministry of livestock and forestry. Ministry of Women and Human Rights Development. Ministry of Agriculture, Ministry of Planning, MoHADM (Federal level DRM agency) Ministry of Petroleum and Mineral Ministry of Energy and Water Ministry of Fishing	**1. Somaliland** Ministry of Women and social affairs Ministry of Environment and Rural Development and MoPlanning Ministry Of Agriculture, Livestock, Water, Energy, NDRC, NADFOR (Somaliland) **2. Puntland** Office of the state president Ministry of Women and Human Rights. Environment and livestock, Mineral Resources and planning. Puntland State Agency for Water, Energy and Natural Resources (PSAWEN), HADMA (Puntland) **3. Galmudug State** Office of state president Ministry of Environment Ministry of women Energy and livestock, agriculture and planning	Somali National University (Mog), Banadir University (Mog), Darul Hikma University (Mog), Hargeisa University, Amoud University, Burao University, Puntland State University, Institute for Development and Research Analysis (SIDRA) IGAD ICPAC Kenya Meteorological Service	Districts of Baidoa Luuq Baletweyn Ba'ad wayn Guriel Waajid Baidoa Kobdhaxad Gardo Dhahar Bayla Bursallah Dangorayo Libaaho Celbilcinle Beer Habariheshay	SOSCENSA (federal) WARDI (federal.) Candlelight, ADESO, Agricultural Development Organization, Nagaad network, Care international, KAALO, Puntland women association, Pastoral development cooperatives, RASAWAD welfare association (RAWA), Center for Peace and Development(CPD), Somalia development and relief organization (SDRO) , (TARDO), SONYO	AfDB, European Union / European Commission, NORAD

Somali Marine Resource Research Center	**4. Hirshabelle** Office of state president Agriculture and livestock, mineral Ministry of environment Ministry of women and human Rights **5. Southwest State** Ministry Environment and water Ministry of agriculture, planning Ministry of Women and human Rights **6. Jubaland** Ministry of environment and water Ministry of livestock Ministry of women and human rights				

59. The project outcomes, outputs and activities are based upon the recommendations of the stakeholders given the technical, operational and financial constraints of the project. The Stakeholder Involvement Plan has been created to provide a framework to guide interactions between implementing partners and the key stakeholders, particularly end-users, to validate project progress. A multi-disciplinary team will be responsible for the engagement of the stakeholders to ensure that the project is able to achieve its objectives. All stakeholders involved in the baseline self-capacity assessment will be addressed again in order to track the efficacy of stakeholder capacity building, both operationally and technically. Also, the National Women's Union will continue to be involved and consulted in order to ensure women are properly trained and engaged. Gender-focused NGOs/CSOs will have the role of conducting gender-disaggregated surveys to ensure women develop skills to diversify their livelihoods and are involved in decision-making. Details of the Stakeholder Engagement Plan are provided in Annex G.

Gender equality and empowering women:

60. Women play a crucial role in water provision in Somalia, as they are the ones who are responsible for fetching water. In particular, women traditionally play a strong role in water markets, and are active as shareholders in some of the water companies active in Puntland and Somaliland. Due to their importance, gender mainstreaming has been ensured in several aspects of this project. The National IWRM policy to be developed will be gender-sensitive. All training will be targeted to at least 30% women on national and local levels in accordance with UNDP´s Somalia Gender Equality and Women´s Empowerment Strategy II (2015 – 2017) and the UN´s Gender Equality Strategy (GES) (2018-2020) . Furthermore, training on water infrastructure Operation and Maintenance and the value chain of livestock products will be geared towards women. Activities such as hydroponic fodder production which takes place in backyards are geared and targeted towards women's involvement.

61. Rural women make small amounts of money from selling milk, and they make decisions on how to use that small income. This income is lost when livestock is lost to drought/flood. Due to deaths from continuing conflict and disasters, the number of women-headed households has increased. This income is lost when livestock is lost to drought/flood. Due to deaths from continuing conflict and disasters, the number of women-headed households has increased.[63]Clan-based systems are used to cope with most issues surrounding natural resources and natural disasters. The clan elders meet when there is a problem, but also have regular meetings. Women do not participate in these meetings, and are only involved in making logistical arrangements such as food and accommodation. However, some women are indirectly involved by advising their husbands on topics that are discussed in the meetings (FROS, 2013). [64]

62. Creating opportunities for Somalia´s youth will also be a priority for the project. Seventy-three per-cent of the population in Somalia is below the age of 30, and has been noted to be the highest in the country's history. This is especially critical in Somalia because close to 70% of Somalia´s youth are unemployed. Many young people are trapped in an environment of violence, fear, unemployment and poverty (UNDP, 2012). There is also a rise in youth unemployment as a result of the adverse impacts of droughts and floods on the economy. Unemployed youth are drawn into crime, drugs and other delinquent behaviour. Migration to urban areas that is partly driven by climate change, often leads to children becoming beggars or street-children to survive (IMF, 2017). This not only erodes their hopes for human development but also makes them more likely to become part of conflict. Climate change

[63] Judith G., J. E.B. (2016). The impact of war on Somali men and its effects on the family, women and children. Rift Valley Institute. Available from: http://riftvalley.net/publication/impact-war-somali-men-and-its-effects-family-women-and-children#.W5JKBOgzbIU
[64] UNDP Somalia V&A Study 2017

often leads to increased conflicts over limiting resources. This has a particularly severe impact on youth, many of whom are unemployed. First, children and youth suffer from malnutrition due to lack of calcium intake when livestock is lost and crops are destroyed due to extreme climate events like droughts and floods.[65]

63. Studies have also shown an inverse relationship between the level of education and adaptive capacity (Lutz, 2010; Wamsler et al., 2012; Williams et al., 2015). This is particularly critical for Somalia, where there is a limited availability of schools. The problem is further complicated by the high dropout rates during times of climate crises of children enrolled in schools.

64. Via the LDCF2 project, youth will become empowered with water management and weather/climate data collection knowledge thanks to updates to educational curricula and vocational training programmes. Educational programmes supported by LDCF2 will enable Somalia´s youth to be directly recruited to serve the understaffed ministries. Similarly, the youth will be trained to perform operation and maintenance on water infrastructure.

65. Training on the livestock value chain will provide more diversified livelihood options, particularly to poor rural women and access to innovative technologies and practices for land and water management. The capacity building will provide them an asset base from producing and selling milk, hide and vegetable products. The incomes generated will be used for family consumption, sustaining the levels of flood supplies, health services and access to education.

66. Similarly, this project also builds off of women's inherent creativity in finding solutions with their gender-based knowledge. This can include better choices of species to reforest, identification of vulnerable water sources and more effective water (including river-based) management schemes. This can also include knowing where to plant trees to prevent less flood-induced runoff. Activities such as hydroponic fodder production and nursery development will takes place in backyards and are geared and targeted towards enabling women to gain an asset base. Having a diversified source of income will enable women to build more resilience to climate shocks.

67. Finally, by improving the existing drought and flood alert system (DIGNIIN), over half of the beneficiaries of the tailored alerts will be women. Component 2 of this project will also establish an NHMS that has sufficient capacity and integrated system of data collection and analysis to create targeted contingency planning and alert information that can be tailored to women's needs. The alerts will be provided by mobile phone in the Somali language and will inform all target rural populations on contingency plans during floods, dry periods and droughts. For example, alerts will be provided to women when gardens should be managed efficiently during expected dry periods. Also, the communities will be informed when water points become dry or on when easy to build flood diversion works should be constructed by communities.

68. A gender analysis and gender action plan is included in Annex H. Both have been based on a Vulnerability Assessment conducted in 2017 by the Somalia UNDP CO on women and youth in Somalia. (UNDP CO).

South-South and Triangular Cooperation (SSTrC):.

The project as described in Tables 2-4 will create various South South and Triangular Cooperations as detailed below in Table 8.

Table 13: South-south and Triangular Cooperations

SSTrc Partner	Description of Cooperation

[65] idem

GWP	Support with the development of the IWRM Strategy and for trainings on IWRM.
FAO SWALIM	FAO SWALIM prepared a groundwater action plan and other studies which will be the basis for groundwater extraction interventions in LDCF2
IGAD Climate Prediction and Applications Centre (ICPAC)	Trainings for forecasting for the newly established NHMS and decentralized agencies (DRM, EWS/CI)
UN Economic Commission for Africa (ECA) Africa Policy Center	Support to engage Somalia in climate change negotiations on a global level
Red Cross Red Crescent	Support for alert dissemination.
PROSCO or any other charcoal-focused initiatives	Support with reforestation efforts
Economics of Land Degradation	Support for reforestation efforts and sustainable water resource planning
Agroforestry Center in Nairobi	Support for reforestation and soft revegetation interventions that will reduce erosion and increase groundwater infiltration
Kenya Forestry Research Institute (KEFRI)	Trainings were already provided by KAFRI on adaptation technologies and best practices on CCA and will continue to be provided.
Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)	Trainings for forecasting and early warnings for the newly established NHMS and decentralized agencies (DRM, EWS/CI)
The Kenya Meteorological Service will train the NHMS in Somalia.	Trainings for forecasting and early warnings for the newly established NHMS and decentralized agencies (DRM, EWS/CI)
IGAD's Hydrological Cycle Observing System (HYCOS) project under the In-land Water Resource Management Programme (INWRMP);	Support for hydrological monitoring and data exchange
Trickleup.org	Ensuring that the project will support the most vulnerable to advance their economic and social well-being with regards to sustainable water management, access to early warnings and diversification of agro-pastoral livelihoods

National Ownership

69. The Government has outlined priorities for dealing with the aforementioned water resource issues and implementing IWRM as recently as 2017.[66] Similarly, Somalia´s ***National Adaptation Plan of Action (NAPA)*** process indicated that there is an urgent need for protection and management of water resources through an integrated and strategic approach that accounts for climate change (NAPA priority number 2). Adaptive water governance is required to reduce poverty and vulnerability as well as to protect environmental resources. Water planning, taking into account nomadic and sedentary rural population needs as well as population growth and climate change, is required. Any construction or rehabilitation of community level infrastructure must ensure that water sources are protected and

[66] Ministry of Energy and Water Resources, 7 March 2017, Priority Needs, Institutional and Human Capacity Building Program in IWRM

monitored and that a mechanism for maintenance of the schemes is in place. Specifically, the project aligns itself with Programme Area 2: Integrated Water Resources Management to Ensure Water Access is provided to Vulnerable Populations and Sectors. All project components are also aligned with the three broad NAPA programming areas including: a) Sustainable Land Management; b) Watershed Management and Development; and, c) Disasters Management.

70. The project will also satisfy ***UN conventions*** which Somalia recently took the step to ratify in 2012. The conventions, including the UNFCCC, the Convention on Biodiversity, the UNCCD and the Kyoto Protocol will be supported by providing sustainable water management, reforestation and re-seeding measures. Additionally, with UNDP acting as the Executing Agency, they will have a strong interest in aligning project interventions with the current LDCF1 project and the proposed GCF project. UNDP is providing project assurance and management support for both. A MoU between GWP and UNDP has been signed to strengthen the development of the IWRM Strategy. Similarly, UNDP and FAO jointly support Component 3 of the LDCF2 project.

71. The project is highly aligned with the recent ***National Development Plan (NDP) (2017 – 2020)***[67] developed by the Ministry of Planning and International Cooperation (MOPIC) with the support of UN agencies. The LDCF2 project supports targets as defined in the NDP for increasing livestock productivity as well as improving natural resources management, disaster management and food security. It will support the NDP in developing a training strategy by 2018 for government institutions. Curriculum development on IWRM in Output 1 will enhance educational and vocational programmes. Also, the NDP will be able to build upon the training materials on rehabilitating, construction and maintaining and operating water infrastructure that will be developed through the LDCF-financed project for the Ministries of Water Resources in all states. The IWRM policy from the project will serve to coordinate any erosion and flood control plans by the NDP. Similarly, Output 3 will support the NDP with on-the-ground activities that will improve water resource management.

72. The project is also aligned with the ***Somalia Integrated Strategic Framework (ISF)*** (2014 – 2017) developed by UN Somalia. A key priority UN initiative with which the project is aligned includes developing water management programmes and plans for rural water supply. The ISF also emphasizes constructing, rehabilitating and maintaining flood control infrastructure. The project is furthermore aligned with the ***Somaliland Food and Water Security Strategy*** (FWSS) of 2012 which emphasizes supporting the productive sectors (in this case agro-pastoralism) by broadening the economic base and creating employment.

73. The project is also aligned with all key country legal frameworks. It supports the new ***2012 Constitution*** which places a strong emphasis on environment, land rights and natural resources. Similarly, the project is aligned with Somaliland´s Constitution which emphasizes *"protection and safeguarding of the environment [and…] the care of natural resources*" as well as the Puntland´s Constitution which enshrines the restoration and protection of the environment. Furthermore, the project is fully aligned with Somalia´s '***Six Pillar Policy'*** which mandates i) enacting laws that preserve and protect the environment and ii) incorporating environmental education in the formal and informal education systems in the country.

74. The new ***Constitution*** devolves significant powers to the states. The project reinforces reinforcement of capacities at the state level with respect to IWRM planning and implementation. By decentralizing capacity building the project is also aligned with the ***Wadajir Framework*** (Nov 2015) that advocates capacity reinforcement at the lowest level of government that can maintain a sufficient coherence with country policies, strategies.

75. Another key national policy with which the proposed project is aligned is ***Somaliland's National Development Plan (NDP)*** (2017-2021) and ***Puntland's 5-year Development Plan*** (2014 –

[67] Federal Government of Somalia (FGS) National Development Plan (SNDP) – Towards Recovery, Democracy and Prosperity 2017 – 2019. October 2016

2018) by focusing on improving climate-informed water management. The Somalia and Somaliland NDPs and the 5-year Development Plan are timely opportunities for the proposed project to make meaningful steps in building climate resilience for rural populations, in collaboration with humanitarian and peace-building interventions (see New Way of Working below).

76. The project is also aligned with ***UNDP's Country Programme for Somalia (2018 -2020)*** which seeks to facilitate progress from its socioeconomic fragility by building resilience of the people to water variability. The project works with the public and private sector for effective water resource management to reduce climate vulnerabilities, with a particular accent on women and youth.

77. The DRM aspects of the LDCF-financed project are also aligned with ***Somalia's Guiding Framework for Disaster Management (2016-2018)*** by aiming to "substantially [increase] the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030." The LDCF2 project will be in alignment via Component 2 by improving climate monitoring and seasonal forecast preparation and via Component 3 by rejuvenating water reservoirs and canals in drought-prone areas.

78. The Project furthermore supports the ***Sustainable Development Goals (SDGs) 13 on climate action, 2 on food security and 6 on water access***. In January 2016, the Ministry of Planning and International Cooperation (MOPIC) held an introductory consultation meeting in Mogadishu to discuss the SDGs. The meeting, supported by UNDP was held at the Jazeera hotel, which was badly damaged in a terrorist attack in 2016, demonstrating Somalia's resilience and dedication to development. Somalia is focusing on its role with the SDGs, and what the government at all levels can do to the meet the goals while supporting its people in the most effective manner. Finally, the project supports Somalia in aligning with the ***New Way of Working***. This collaborative agreement, led by the UN Somalia Country Office and Humanitarian teams, aims to strengthen the humanitarian-development nexus with the goal of ending needs while reducing risks and vulnerability to climate change. This is particularly critical after the devastating impacts of the recent drought that caused acute food insecurity for over 3 million rural Somalis.[68] In the ***New Way of Thinking***, adaptation priorities required to be scaled up have been identified by national counterparts and community representatives. These priorities have been integrated into the list of adaptation measures enumerated in this document. The ***New Way of Working*** approach links national priorities to advance the SDGs and supports flexible and predictable multi-year programming that aligns funding cycles between donors, humanitarian and development actors to enable long-term adaptation programmes to take place coherently with other short-term programmes.

79. By ensuring national ownership by adhering to Somalia's plans and frameworks aforementioned, it is expected that the project will deliver the following socio-economic and environmental benefits.

Table 14: Beneficiaries – LDCF2- IWRM Project

Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels	150 government officials trained in IWRM so that they will have the capacity to manage water development projects. At least 30% of the ministry staff who will receive training will be women.
Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery	Train 20 – 30 mid-level technicians on IWRM for each state

[68] FSNAU and FEWSNET Technical Release 2 Feb 2017. Risk of Famine Increases in Somalia.

including support for vocational training for select students and CBOs (existing and new Water User Associations) from the target districts on 1) outreach to agro-pastoralists, 2) operation and maintenance of water resource infrastructure, and 3) IWRM.	Scholarship support for 9 university and 9 vocational students, including women Training to approximately 300 agro-pastoarlists in the 15 villages via the support of CBOs expected to benefit 1 million Somalis indirectly
Establishment of a Water Institute Somaliland and Water Quality laboratories in Puntland, Galmudug, Southwest, Hirshabelle and Jubaland states.	Fully equipped and trained WQ laboratory staff in laboratories to be installed in 5 states with 5 trained water technicians (25 in total)
Procurement and installation of 11 AWS, 10 manual rain gauges, 8 synoptic stations and 4 radar river level sensors including fencing, spare parts, secure data server and O&M for 4 years. See Annex R in Prodoc	Densification of the hydrological monitoring network by approximately 100% with trainings for 4 engineers and 4 technicians within the NHMS.
Establishment of a National and Federal Member States Hydro-Meteorological Service System (NHMS)	Development of 2 forecast products during project implementation Dissemination of warnings to 50,000 people
Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters with regionally and internationally available forecasting technologies[69]	Early warning training will be provided for 6 NHMS staff on the federal level Train two Trainers of Trainers by international and national water sector professionals
Development of a Groundwater development action plan specifying the proposed number of boreholes, their geographical locations and their cost estimations	Sustainable groundwater development plan produced.
Physical investment in water diversion infrastructure (to control runoff and soil erosion) and RWH and groundwater extraction technologies (e.g., Hafir dams, solar-powered boreholes and shallow wells)	Earth dam, sand dam, canal rehabilitation, borehole and berked instruction. See Section X. Total Budget Work Plan for more information. Over 296,000 people are expected to benefit from water mobilization and flood control measures. Significant short-term employment will also be generated during construction using such schemes as Cash for Work.

[69](e.g., Kenya's space-based climate surveillance system,[69] the freely available CFS forecasting tool by NOAA in addition to tools and regional trainings developed through IGAD, UNDP's Global Climate Risk Management Programme, RIMES and EWS-Africa)

Two River Basin Management Authorities are created and/or revived for the Juba and Shebelle river basins	2 RBMAs with approximately 10 people in each (30% women) (20 total) will be established along the Juba and Shabelle Rivers
On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides)	Capacities reinforced for three ToTs for agro-pastoral value chain exploitation nominated in each region of each state (45 total) to support fifteen (15) agro-pastoral Field Schools (APFS) (1 in each target village) and 600 people including 30% women. The village agro-pastoralists will be beneficiaries of agro-pastoral value chain exploitation, RWH and water conservation. Successful approaches from groups such as TrickleUp.org will be used so that gender empowerment and Gender Based Violence (GBV) prevention principals will be fully integrated.[70]
Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability	Afforestation along 200 hectares in each target area. CBO-led nursery development measures will benefit approximately 150 women (10 in each village)

A table of the exact beneficiary count, particularly for Component 3, water mobilization/diversion, fodder production and livestock value chain training is provided below:

[70] https://trickleup.org/graduation-approach/

Table 15: Detailed Calculation of Direct and Indirect Beneficiaries by activity and per state

Regions	Components and Activities	Direct Beneficiaries			Indirect Beneficiaries		
		Total	F	M	Total	F	M
	COMPONENT 1						
All states	1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Four training workshops will be conducted for 150 participants with at least 30% women participation	**150**	**50**	**100**			
All states	1.4 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs	**600**	**200**	**400**			
All states	1.5 Nine national students (at least 3 women), supported to attend IWRM higher degree programs. Nine (9) TVET students will also be supported (at least 3 women).	**18**	**6**	**12**			
Southern states	1.7 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water by upstream and downstream communities and to ensure maintenance of river-based infrastructure	**20**	**7**	**13**			

All states	1.8 Training at the district and village levels to provide awareness on IWRM, the IWRM Strategy and its enforcement as well as specific training for women on community water management.	**300**	**100**	**200**			
	Subtotal	**1088**	**363**	**725**			
	COMPONENT 2						
All states	2.1 Study on existing hydrological equipment with a recommendation on installation locations for new monitoring equipment building off of FAO's work						
All states	2.2 Procurement and installation of river gauges, flow meters and rain gauges to improve groundwater and surface water data collection in the ASALs in cooperation with IGAD with training to be provided by vendors over the first 2 years. Training for at least 4 engineers / 4 technicians within DGM to operate, maintain and repair all new weather stations. Training will focus on information collection, data treatment (including data quality checks) and operation and maintenance (O&M) tasks for weather equipment. Standard Operating Procedures (SOPs) will be put into place for 1) O&M and 2) data storage and collection.						
All states	2.2a Field consultations with village representatives during project implementation prior to equipment installation to verify flowmeters are in useful and secure locations relative to end-user needs + training of village and community representatives on the importance of the equipment for early	**8**	**3**	**5**			

	warning						
All states	2.3 Establishment of a National Hydro-Meteorological Service System (NHMS)						
All states	2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters with regionally and internationally available forecasting technologies using GIS and Remote Sensing tools and technologies.	**6**	**2**	**4**			
All states	2.5 Improvements to FRISC-DIGNIIN early warning system to enable it to have country coverage and tailored warnings	**50,000 agro-pastoralists to be alerted directly (50% women, 50% men)**			**100,000 agro-pastoralists to be alerted indirectly (50% women, 50% men)**		
		Direct Beneficiaries			**Indirect Beneficiaries**		
	COMPONENT 3	**Total**	**F(47.8%)**	**M(52.2%)**	**Total**	**F(47.8%)**	**M(52.2%)**
Baidoa	3.2.1 New borehole (Southwest state, Bay region, Baidoa district)	17,856	8,535	9,321	23,145	11,063	12,082
Luuq	3.2.2 Canal rehabilitation (Jubaland state, Gedo region, Luuq district) 3.2.3 Large scale Fodder production/irrigation scheme +warehouse (Jubaland state, Gedo region, Luuq district)	23,459	11,213	12,246	31,567	15,089	16,478
Baletweyn	3.2.4 Flood protection infrastructure (Hirshabelle state, Hiraan region, Beletwyne district)	17,652	8,438	9,214	21,467	10,261	11,206

	3.2.5 Large scale Fodder production/irrigation scheme +warehouse (Hirshabelle state, Hiraan region, Beletwyne district)						
Ba'ad wayn	3.2.6 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Galmudug state, Galgaduud region, Ba'ad wayn district)	9,765	4,668	5,097	12,956	6,193	6,763
	3.2.7 Rehabilitation and expansion of existing Earth Dam - (50m X 50m X 1.5m deep) to new dimension earth dam infrastructures (130m x 70m X 4m) (Galmudug state, Galgaduud region, dhusamareeb district)						
Guriel	3.2.8 Rangeland rehab, community training on adaptation technologies along with small scale fodder production (Galmudug state, Galgaduud region, Guriel district)	28,765	13,750	15,015	34,000	16,252	17,748
Waajid	3.2.9 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Southwest state, Bakool region, Waajid district)	8,953	4,280	4,673	12,985	6,207	6,778
Kobdhaxad	3.2.10 Rehabilitation of 1 Borehole (50 km out of town) and providing infrastructures with 14km long piping system to supply potable water to the village (Puntland, 'Bari, Kobdhaxad, Bosaso)	14,529	6,945	7,584	16,782	8,022	8,760
	3.2.12 Construction of 4 Barkads with Dimensions: 25m by 15m and 3m deep (Puntland, Gardo, Dangorayo, Bayla and Kobdhaxad)						
Gardo	3.2.11 1 Earth dam/ water pond – (4 m deep, 130m long and 70m wide with	19,320	9,235	10,085	26,000	12,428	13,572

	capacity of 142360 Cum) (Puntland, Gardo District)						
	3.2.17 Soil and water conservation structure gully erossions (Puntland, Gardo District)						
Dhahar	3.2.13 Rehabiliation of Dahar grazing land Soil and water conservation structures (USD 110,000) (Puntland, Sanag Region , Dhahar District	12,256	5,858	6,398	12,098	5,783	6,315
Bayla	3.2.14 Construction of surface Sand dam with wing walls and it's Auxillary works (Puntland , Bayla District)	12,809	6,123	6,686	2,198	1,051	1,147
Dangorayo	3.2.15 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Puntland , Dangorayo district)	25,567	12,221	13,346	27,690	13,236	14,454
	3.2.16 Soil and water conservation structure gully erossions (Puntland, Dangorao District)						
Libaaho	3.2.18 Fodder production (2 sites, 300 ha total), Prepare land (Puntland , Dangorayo /Libaaho)	10,460	5,000	5,460	15,341	7,333	8,008
Celbilcinle	3.2.19 One (1) Sand dam including retaining wall for river embankments, Shallow Well, Storage Tank - 25 CUM, Solar pump system (Somaliland, Todher, Celbilcinle)	23,416	11,193	12,223	32,576	15,571	17,005
	3.2.20 Earth Dam Rehabilitation – Construction of Silt trap Berked, Flood control retaining wall, Water point and Ground water tank in the village (Somaliland, Todher, Celbilcinle)						

Beer	3.2.21 Three (3) water reservoirs (Berkads) – 25m by15m and 3m deep (Somaliland, Togdher, Beer)	9,100	4,350	4,750	15,062	7,200	7,862
	3.2.22 Water distribution scheme for fodder (500 m canal) (Somaliland, Togdher, Beer)						
	3.2.23 Fodder production (2 sites, 300 ha total) (Somaliland, Togdher, Beer)						
	3.2.24 CBO support for seedling nursery development (Somaliland, Togdher, Beer)						
	3.2.25 Seeding and tree planting material, seed banks and fodder storage silos (25 m X 20m X 5m) (Somaliland, Togdher, Beer)						
	3.2.26 Seed harvesting machines (Somaliland, Togdher, Beer)						
Habariheshay	3.2.27 Construction of flood control structure (gabion for 200m long, 1m wide and 3m deep) (Somaliland, Sool, Habariheshay)	10,784	5,155	5,629	17,011	8,131	8,880
	3.2.28 Rehabilitation of 3 shallow wells (Somaliland, Sool, Habariheshay)						
	3.2.29 Rangeland rehabilitation (Somaliland, Sool, Habariheshay)						
	3.2.30 Training on seed production in nurseries and seed and fodder storage (Somaliland, Sool, Habariheshay)						

	3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay) and including procurement of warehouses for value chain storage	600	287	313			
	3.4 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability		150				
	Subtotal Component 3	245,291	117,399	128,042	300,878	143,820	157,058
	TOTAL ALL COMPONENTS	**296,393**	**167,767**	**178,776**	**350,878**	**193,820**	**207,058**

Sustainability

80. In order to achieve sustainability the project addresses Somalia's first priority identified in its NAPA (2013): the need to build the climate resilience of agro-pastoralists while simultaneously increasing investment into sustainable water management. The LDCF financed project addresses the top priority by initially reinforcing the foundation for adaptation activity implementation by creating an enabled and capacitated institutional environment for 150 Government officials (at least 30% women) to be trained on IWRM. GWP will play a key role in providing training.

81. IWRM will also be mainstreamed into existing university and vocational curricula. At least 9 students from all 6 states will be provided scholarships so that they will attend the programmes which build capacities in IWRM. The end result will be the generation of a pool of technical staff to serve the understaffed ministries that were recently established as late as 2016 when all 6 states were officially recognized.

82. The first component of the project will also facilitate the development of an IWRM strategy that will act as the central mechanism to coordinate water management activities and to standardize best practices. By providing IWRM, the country will have an iterative approach to consistently improving water resources management, including fee structures, so that water is recognized as an integral part of sustainable development and as a social and economic good.[71] This approach tries to prevent the development of isolated projects without comprehensive, integrated, adaptation actions which will continue to hinder the social and economic development of Somalia.

83. To support IWRM, Somalia's first water quality laboratories will be established. They will provide the key technical skills required to ensure good water quality throughout the country by establishing WQ labs where they do not exist, namely Puntland, Galmudug, Jubaland, Hirshabelle and Southwest States. Similarly, a groundwater study in Component 3 will be supported to show where groundwater exploitation is recommended in the context of increasing saline and contamination levels in the groundwater reserves.

84. The project will also establish Somalia's first National Hydro-Meteorological Service (NHMS)Building a strong NHMS will reduce Somalia's dependency of donor-funded data collection agencies such as FAO-SWALIM. Various departments will be provided training in order to ensure that knowledge of climate, groundwater and surface water sources is enhanced nationally across all states, supporting Somaliland's goal of decentralization. Capacity building and knowledge sharing strategies mandate that newly recruited technical personnel who receive training must remain within their ministries for at least 1 year as per their TORs. Furthermore, collaborating with the Kenya Meteorological Service and IGAD will give Somalia the capacity to tailor and disseminate seasonal forecasts and climate risk warnings suited to the needs of agro-pastoralists so that food and water security is more likely to be ensured.

85. Other ways in which Component 2 will encourage sustainability include:

- Staggered approach to equipment procurement and training;
- Station placement based on meetings with local representatives;
- Development of Standard Operating Procedures (SOPs) for equipment operation and maintenance and data storage and collection;
- Knowledge sharing with international and regional training centers (e.g., IGAD and the Kenya Met Service);
- Building capacity for local focal points and NGO/CSO representatives at the village level to better communicate and understand alerts;

[71] GWP 1 March 2017

- Collaboration between Ministries of Water, Agriculture, Livestock, Health to ensure forecast bulletin or alert information is provided in useful quantitative units (e.g., crop yield, area of flood plain, wind velocity) for the economic sectors (e.g., agricultural) and the rural populations who are most vulnerable;

86. In Component 3, water mobilization will drastically enhance the resilience of the regions so that they can have sustainable agro-pastoral practices. An integrated approach to risk management for water mobilization will be used by storing water and groundwater resources. Similarly, water diversion infrastructure and reforestation will serve to reduce the impacts of floods and the consequent need for humanitarian assistance. Reforestation efforts will be made in coordination and collaboration with the charcoal programmes (e.g., PROSCO) and any other Natural Resource Management / Sustainable Land-Use initiatives. Lessons learned from the Great Green Wall Initiative will be incorporated in the project.[72]

87. On-the-farm (in-the-pasture) training through an Agro-Pastoral Field School (APFS) approach will be an effective mechanism for transferring knowledge on the livestock value chain and adaptation technologies. As evidenced by LDCF1, the learning-by-doing training approach for agro-pastoralists and pastoralists will enable them to fully understand how to diversify their products. The APFS will focus on the long-term sustainability of agro-pastoral livelihood systems. The Agro-Pastoral Field Schools (APFS) will be able to demonstrate tangible improvements to productivity in the field with increased fodder production, water storage and water conservation. This will increase the chances of replicability by neighbouring communities. Furthermore, CBOs will become empowered to replicate project activity developments (e.g., rangeland rehabilitation) and to undertake climate-resilient livelihood diversification. After training, such organizations will support community members, most notably women and youth, to gain an asset base from the value chain of pastoral products (e.g., milks and cheeses) so that they can become more resistant to climate shocks. The APFS will also train the communities on establishing seed banks and storage.

88. LDCF funds will also empower communities to engage with local development activities (which will lead to local buy-in and sustainability of outcomes. Products along the livestock value chain and nurseries that provide a source of seedlings for the large reforestation areas will provide a source of employment for youth and women.

89. Based on the successes of the LDCF1 project, LDCF2 funds will be used to heavily involve CBOs in the implementation of the project to ensure that activities continue in the communities after project termination. Benefits of this approach are three-fold; first, the CBOs already have experience and have gained credibility in their communities. Second, capacity reinforcement will ensure that the CBOs can more effectively manage funds and have adequate technical knowledge on agro-pastoralism, pastoralism, reforestation and water point management. Third, the NGOs/CBOs will make the project sustainable in the long-term by organizing and preserving training materials and lessons learned which can easily be transferred for scaling-up to other local communities in Somalia.

90. Relative to gender empowerment, the project will support women to diversify their livelihoods with training on exploitation of milk and hide value chains. The project is explicitly designed to produce long-term resilience for women. The project will enable women to build an asset base that will make them more resilient to climate change.

91. Once the project is completed, the federal and member states have fiscal and management budgets to cover O&M. Government budgets will ensure the continuity of O&M payments in the future for the equipment and the infrastructure. As a general practice, large infrastructure will be maintained with government appointed companies through a Public Private Partnership while small infrastructure such as berkeds will be maintained by community Water User Associations (WUAs).

[72] https://www.smithsonianmag.com/science-nature/great-green-wall-stop-desertification-not-so-much-180960171/

(See Section III. Strategy for more details). During full proposal development, agreements will be signed with the Private companies and the WUAs on O&M responsibilities and tariff rates. Capacity building on budgeting and planning will be provided to the district governments, the private water companies and the WUAs to ensure they have the capacity plan and budget for O&M.

92. Furthermore, Component 4 of the project ensures that Gender mainstreaming, knowledge management and Monitoring and Evaluation (M&E) document best practices (such as the case of successful sand dams in the first LDCF financed project). In terms of results monitoring, government line ministries are responsible. UNDP will also undertake a Development Results Report to assess post-project impacts. The baseline analysis will be complimented by mid-term and final assessments documenting both the direct and indirect benefits of water provision and livelihood diversification, giving emphasis to the development of gender empowerment in decision-making and planning.

Scaling Up

93. The potential for replication of adaptation interventions is high due to several actions: Firstly, the IWRM strategy will guide water access initiatives strategically. Similarly, building national capacities for hydro-meteorological monitoring and alert dissemination rather than relying on donor agencies, will enable warnings to be much more easily produced in a timely manner. By tailoring warnings, tens of thousands of agro-pastoralists will receive targeted early warnings and contingency plans via mobile phone.

94. Furthermore, specific attention has been given to the limitations of local agencies to disseminate information. A national SOP for communication will be developed which will include an important mechanism to share lessons learned and will provide a feedback mechanism to improve warnings. The feedback mechanism can enable end-users to give direct comments and suggestions on the efficacy and utility of the warnings to designated focal points for alert generation and dissemination.

95. There are also various mechanisms of knowledge transfer so that the agencies become more self-sufficient and less reliant on outside agencies for data collection and forecasting. The learning-by-doing approach will be reinforced on local, regional and international levels. For example, links with international (Kenya Met Service) and with regional centers (ICPAC IGAD) will help build national forecasting expertise. Expertise can be easily transferred to new personnel because civil servants in Somalia will be mandated to remain in the Ministry. Also, as a security measure, Terms of Reference have been created to ensure that personnel who are hired to support this project must transfer knowledge within their respective agency after receiving specialized training.

96. Data will be accessible to all pertinent agencies such as the Ministry of Health who require weather data to make analyses on the spread of diseases with respect to weather variables such as temperature. Data sharing will promote the regular use of early warnings so that more agencies will realize its potential and utility.

97. Existing and new Agro-Pastoral Field Schools (APFS) and Water User Associations (WUAs) will demonstrate best water use practices for sustainable production that are suited to the Somali context. A field approach will provide an avenue to adapt traditional knowledge with new practices, which improves the chances of replicability due to the familiarity of the approach to other farmers. The APFS will closely monitor, measure and communicate the results of their activities. These will be shared with surrounding communities.

98. The project furthermore supports the SDGs in terms of aiming to reduce poverty reduction by enabling the rural populations (for which more than half are in poverty) to take preventive actions when weather or climate-induced risks are forecasted.

99. Women-based entrepreneurial groups will be trained to exploit milk and hide value chains. Often the entrepreneurs in Somali culture, women will be well-placed to develop diversified products

which they can sell to gain an asset base. LDCF funds will be used to study the value-chain for specific livestock products. The project will also train the women-based groups on using mobile phone market information to find the most appropriate market stalls/locations to sell their products. With these skills, the women will be able to demonstrate how to sell their products throughout the year and the incentive to make a profit. They will be able to up-scale efforts to expand business sales with other women throughout Somalia.

100. Finally, UNDP's Adaptation Learning Mechanism (ALM) will be used as a dissemination and sharing tool that is accessible by all and constantly updated will the most recent information from the project. The project management unit will be required to contribute to ALM on a regular basis noting case studies, successes and challenges.

V. PROJECT MANAGEMENT

Cost efficiency and effectiveness:

The outputs were chosen based on their ability to address the technical, operational and financial barriers provided in Annex K. Other alternatives considered and rejected are presented demonstrating that LDCF2 activities included in the project are the most cost efficient and effective.

Table 16: Cost-Efficiency and Effectiveness

OUTPUTS	Barrier Addressed	Alternatives Considered
1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for cross-sectoral policy makers and planners at national and state level	Lack of water governance frameworks and fragmented water resources management and planning; Unsustainable water management practices;	**Alternative 1:** Provide no support to ministries on IWRM: LDCF funds will be used to reinforce the capacities on the planning aspects of IWRM. However, if the ministries have no capacity to manage and monitor climate-informed water programmes, they will not be able to sustain and upscale water investments. Infrastructure will have shorter lifetimes due to impacts by climate change. **Alternative 2:** Focus only on capacity building for water ministries: climate change impacts on water resources are felt cross-sectorally (across Agriculture, Livestock, Health, Planning etc) and each has specific interests. By promoting ownership to address water management in a climate and integrated manner, ministries will gain incentive to find the best proactive measures in coordination. The project will also emphasize coordination with other sectors to avoid redundant activities and a waste of financial resources. Ministries will be informed on the most accurate climate information for planning at national and state levels by coordinating with existing early warning centres such as IGAD ICPAC and FAO SWALIM in the capacity development process.
1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy	Lack of water governance frameworks and fragmented water resources management and planning; Unsustainable water management practices;	**Alternative 1:** Relying on state level water policies / strategies to integrate IWRM: however, with this option, there would be no central mechanism to coordinate water management activities, ensuring a decentralized and standardized approach to water governance that concerns water extraction / access rights, water conservation, water quality and pro-poor water quality. Also, fee collection and standardized cost-recovery mechanisms would not be easily developed.[73] Furthermore, the current situation of having separate water policies for each state is redundant and only exacerbates the current patchwork of sectoral policies and does not promote

[73] Government of the Republic of Zambia, Ministry of Tourism, the Environment and Natural Resources, *National Climate Change Response Strategy*, December 2010.

OUTPUTS	Barrier Addressed	Alternatives Considered
		knowledge sharing (e.g., Somaliland has a water fee agreement template for rural water access that is not shared with other states) **Alternative 2**: No IWRM Strategy: An IWRM strategy will prohibit the current practice of over-exploiting water points and reducing the quality and quantity of surface and groundwater resources. Stakeholder consultations indicated that water management issues are the underlying cause of the community's vulnerability to climate change. If an IWRM policy is not developed and enforced, conflict over water will continue and activities will contribute to mal-adaptation (e.g. Charcoal Production).
1.3 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs (existing and new Water User Associations) from the target districts on 1) outreach to agro-pastoralists, 2) operation and maintenance of water resource infrastructure, and 3) IWRM	Unsustainable water management practices;	**Alternative 1:** Rely on existing academic programmes: Research institutions do not have any sustainable water management-focused modules. Consequently, there are no new graduates with relevant technical capacities to support the under-staffed ministries (Water, Agriculture, Environment, Health, Planning) promoting IWRM. **Alternative 2:** One-time training for graduate and technical staff to save financial resources: However, the technical and policy aspects of water management and governance are increasingly complex as the population increases and water resources become scarcer. Training must be adapted with time to integrate lessons learned on best practices and to continually produce new recruits for water-informed decision-making in NGOs, ministries and the private sector.
1.4 Establishment of Water Quality laboratories in Puntland, Hirshabelle, Jubaland, Galmudug and Southwest states	Limited climate monitoring and weak flood and drought warning capacities Unsustainable water management practices;	**Alternative 1:** Do nothing: Ministries have agreed that better groundwater and surface water knowledge is essential for sustainable economic development (NAPA 2014). The Water ministries in all states are lacking technical expertise in water harvesting, water diversion and groundwater extraction. Adaptive water planning requires in-depth, continuous analysis of the quantity and quality of water resources. **Alternative 2**: Rely on one institute for water quality testing: however, states such as Somaliland already have small water quality laboratories. Water contamination is an increasing problem and requires decentralized support to alert the population and find

OUTPUTS	Barrier Addressed	Alternatives Considered
		suitable technical ways of cleaning water sources. Water quality standards will still be on established on a national level while states and decentralized groups such as CBOs will be responsible for maintaining water quality .
1.5 Creation of information centres at the district and village levels that provide awareness on DRM, IWRM, the Water Policy and its enforcement as well as specific training for women on community water management	Unsustainable water management practices;	**Alternative 1:** Do nothing: Communities are not aware of water quality standards and the current Water Policies or Frameworks. Awareness-raising and training are required to ensure that water points / infrastructure are maintained properly. Also, with awareness-raising, households will better understand the costs behind water extraction / harnessing / delivery and will be more likely to contribute to paying for water access.
2.1 Procurement and installation of river gauges, flow meters and rain gauges to improve groundwater and surface water data collection in cooperation with IGAD	Limited climate monitoring and weak flood and drought warning capacities	**Alternative 1:** Rely on FAO SWALIM's network: however, there is limited understanding of water resources with the limited amount of water resources monitoring. Due to the lack of adequate hydrological information, many water resources development schemes cannot be designed optimally. **Alternative 2:** Invest in water services delivery rather than hardware: LDCF funds will be used to build national and state-level capacities for data collection, treatment and analysis along with the delivery of hardware. This is because better water resources monitoring and analysis will contribute to improved seasonal forecasts and early warnings.
2.2 Establishment of a National Hydro-Meteorological Service System (NHMS)	Limited climate monitoring and weak flood and drought warning capacities	**Alternative 1:** Rely on the existing NHMS in the Federal Somalia Water Resources department to monitor all water resources: The existing NHMS department is lacking technical and institutional capacity to collect, store and disseminate timely and accurate hydrological information to enable efficient and cost-effective management of water resources as well as improved seasonal forecasts and early warnings.
2.3 and 2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood	Limited climate monitoring and weak flood and drought warning capacities	**Alternative 1:** Limit NHMS training to the national level: through the LDCF financed project, the districts and CBOs will also gain expertise in supporting alert dissemination and contingency planning. Due to the links between DRM and CC, by developing accurate drought/flood forecasts and contingency plans, communities will more effectively build resilience to CC and natural risks.

OUTPUTS	Barrier Addressed	Alternatives Considered
forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters with regionally and internationally available forecasting technologies		**Alternative 2:** Rely on downscaled forecasts from other agencies such as NOAA: the LDCF1 project has established Climate Monitoring and EWS centres in Puntland, Somaliland and Mogadishu. Outside open-source forecasting products, such as NOAA's CFS forecasting tools are useful but not yet at a high enough resolution to provide targeted forecasts to the various climate regimes across Somalia (ASALs versus river basin areas). Also, FAO SWALIM's forecasting model, the FRISC/DIGNIIN alert system, gathers and sends flood and rainfall information. However, it fails to reach agro-pastoral communities directly. Rather information is provided by mobile phone, email and cluster reports to donor and civil society organizations and Ministry focal points. Furthermore, FAO-SWALIM and USAID FEWSNET is dependent on funding replenishment by donors. The funds are not renewed consistently. Relying on other forecast providers does not enable national ownership and capacity development within the ministries to sustain NHM monitoring and forecast development independently and in coordination with all states including the two newly formed states in 2016.
2.5 Link with GCF project to ensure flood and drought warnings are transmitted to agro-pastoralists	Limited climate monitoring and weak flood and drought warning capacities Unsustainable water management practices; Limited empowerment of local populations, including youth and regional governments to assist with water provision	**Alternative 1:** Act alone: The GCF project will be investing millions into monitoring hardware and are also planning on linking with the Red Cross Red Crescent for mass scale alert dissemination. It will be necessary to coordinate resources with these other initiatives to avoid duplication. Also, by not coordinating on alert dissemination the districts will continue to be ill-informed on drought/flood preparedness. Through the LDCF financed project, if warnings are effectively disseminated, the communities will become empowered to take actions to mitigate floods and cultivate crops in a more climate-resilient manner.
3.1 Development of a Groundwater development action plan specifying the proposed number of boreholes, their	Unsustainable water management practices;	**Alternative 1:** Rely on existing hydrogeological assessments: Most groundwater studies were conducted in 1986 before the civil war. Only one study in the Gedo region of Somaliland was conducted by FAO SWALIM in 2016. As a result,

OUTPUTS	Barrier Addressed	Alternatives Considered
geographical locations and their cost estimations		particularly in the south, insufficient knowledge of the hydro-geology and expected yield has prohibited borehole development and contributed to increasing risks of saltwater intrusion in the coastal areas and groundwater contamination throughout. **Alternative 2:** Conduct no technical studies informed by hydro-geotechnical experts (cost = 0 USD): It is possible that poor water source locations will be chosen with insufficient capacity and/or poor water quality due to a lack of data-driven guidance. Moreover, if water quality samples are not monitored, a baseline of water quality in the regions cannot be established to ensure water quality does not deteriorate.
3.2 Physical investment in a diversified source of water diversion infrastructure (to control runoff and soil erosion) and RWH and groundwater extraction technologies (e.g., Hafir dams, solar-powered boreholes and shallow wells)	Limited empowerment of local populations, including youth and regional governments to assist with water provision Unsustainable water management practices;	**Alternative 1:** Provide only boreholes (100,000 USD each); Based on Stakeholder consultations and validation workshops, boreholes in some locations can cause unplanned sedentarization of pastoralists which will perturb existing socio-economic patterns and cultural traditions. Boreholes have also adversely impacted water quality due to inappropriate siting and difficult operation and maintenance. The Ministries of Water do not have sufficient capacity to perform O&M as evidenced by the fact that 80% of boreholes in Somaliland were not functioning in 2014.[74] **Alternative 2:** Provide only Berkeds (5,000 USD each); although relatively inexpensive, berkeds are not always viable options due to their high evaporation rates. Also, berkeds are privately owned by people who want to sell water as an enterprise. **Alternative 3:** Provide only recharge basins (15,000 USD each); although relatively inexpensive, recharge basins are not always viable options due to their high evaporation rates. **Alternative 4:** A gravity-fed hydropower dam is estimated to cost at least 20 M USD. The high cost, local inexperience with the design and need for imported materials make this an infeasible option. Earth micro-dams are the preferred option due to their simple design and low-cost.
3.3 Development of River Basin Management Authorities (RBMAs) for the Juba and	Limited empowerment of local populations, including youth and regional	**Alternative 1:** Business as Usual: The rivers will continue to be flooded with frequent breaks in the levees without sufficient management. Surrounding regions will continue to have contaminated water

[74] Based on interviews with Water Ministries for the LDCF1 project in 2014.

OUTPUTS	Barrier Addressed	Alternatives Considered
Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water by upstream and downstream communities and to ensure maintenance of river-based infrastructure	governments to assist with water provision Unsustainable water management practices;	sources such as from inundated pit latrines into hand-dug wells. **Alternative 2: Allow communities to have organize their own management groups-** Localized groups risk not seeing the integrated, catchment-based picture, ensuring fair and sustainable access to water for upstream and downstream communities. They would also have less recognition and clout nationally and internationally to communicate and negotiate with RMBAs already established in upstream Ethiopia. Also, these smaller village-based groups might not have knowledge on truly assessing environmental impacts and skills on operating and managing complex infrastructure such as canals and weirs.
3.4 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides)	Unsustainable water management practices; Limited socio-economic development and diversification of livelihoods for Somalia's pastoralists	**Alternative 1:** Rely on pastoralism rather than develop agro-pastoralism; however, pastoral systems alone would not allow many of the community members, to diversify their livelihoods through improved farming practices. For instance, cultivating diversified fruits/plants provides alternative Income Generating Activities and the means to spread revenues across seasons, providing greater resilience to climate shocks. **Alternative 2:** Rely on NGOs to provide training: The Agro-Pastoral Field School approach is proven in Somalia such as in the LDCF1 project. This approach enables pastoralists and farmers to have the required tools to multiply the benefits of training, such as knowledge in soil and water conservation methods. They also provide showcases for successful practices. **Alternative 3:** One-time training to save financial resources: however, farming and pastoral inexperience and lack of continual mentorship will not enable the initiatives to succeed in the long-run. Agro-pastoralists require on-the-farm/pasture training by facilitators during critical seasons each year so that sustainable agro-pastoral capacities can be developed over time. Also, lessons-learned from significant initiatives in agro-pastoralism, pastoralism and reforestation must be continually integrated.
3.5 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability	Unsustainable water management practices; Limited socio-economic development and diversification of	**Alternative 1:** Rely on natural re-vegetation processes. However, the unsustainable use of natural resources and ecosystems limits their ability to curb the impacts of CC and deforestation. It is therefore essential to preserve and protect the existing vegetation, forests, etc so that they can provide the natural resource base necessary for agro-pastoral

OUTPUTS	Barrier Addressed	Alternatives Considered
	livelihoods for Somalia's pastoralists	livelihoods such as planting more drought-resilient forage for livestock.

Project management:

The project will be managed from the UNDP Somalia Country Office in Mogadishu based on the DIMs arrangement (See Section VIII). There will be a project office in each of the 6 states. The Ministries of Water and Environment will be providing the office space via in-kind support.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy[75] and the GEF policy on public involvement[76].

[75] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/
[76] See https://www.thegef.org/gef/policies_guidelines

VI. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): SDG 13 – Climate Action

This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: CPD Outcome 3: Somali women and men benefit from increased sustainable livelihood opportunities and improved natural resources management

Country Programme Outcome Indicators:
CPD Indicator 3b: Improved natural resource management

This project will be linked to the following output of the UNDP Strategic Plan:
Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.
Output 1.4: Scaled up action on climate change adaptation and mitigation cross sectors which is funded and implemented.
Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.

Applicable GEF Strategic Objective and Program:
Climate Change Adaptation Objective 2 **"**Increase adaptive capacity to respond to the impact of climate change, including variability, at local, national, regional and global level"

Applicable GEF Expected Outcomes:
Outcome 1.3: Climate-resilient technologies and practices adopted and scaled up
Outcome 2.4: Institutional and technical capacities and human skills strengthened to identify, prioritize, implement monitor and evaluate adaptation strategies and measures
Outcome 3.2: Policies, plans and associated processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures

Applicable GEF Outcome Indicators:
% of population covered by climate change risk reduction measures

	INDICATOR	BASELINE	MID-TERM TARGET[77]	END OF PROJECT TARGETS	SOURCE OF INFORMATION	RISKS AND ASSUMPTIONS
Project Objective[78] Reinforced technical and operational capacities at federal, state and local levels to manage water resources sustainably to build the climate	1a. Number of RBMAs (River Basin Management Authorities) established (UNDP 5.2.1) 1b. Number of coordination workshops at the national and regional	BASELINE 1a: There are no River Basin Management Authorities to support equitable and sustainable water provision for upstream and downstream users. 1b. There is also limited knowledge of IWRM at the national and state levels and no coordination of	TARGET 1a: One River Basin Management Authority is created and/or revived for the Juba and Shebelle river basins (at least 30% women participation) TARGET 1b: 2 Two (2) coordination	TARGET 1a: Two River Basin Management Authorities are created and/or revived for the Juba and Shebelle river basins (at least 30% women participation) TARGET 1b:	1a. Record of RBMA establishment by the Ministry of Energy and Water Resources. Accounting records and financing earmarked to support the RBMAs	ASSUMPTION: National and state policy-makers and planners will understand the risks of climate change on water resources in addition to the need of IWRM in policies and plans

[77] Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.
[78] Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR.

resilience of agro-pastoralists in Somalia	level building capacities on IWRM	IWRM planning at the national level with the state levels.	workshops building IWRM capacities at the national and regional levels (at least 30% women participation)	4 Four (4) coordination workshops building IWRM capacities at the national and regional levels (at least 30% women participation)	1b. Review of coordination meeting workshops on IWRM and financing earmarked for training	ASSUMPTION: Local communities are incentivized to implement climate resilience-building measures related to IWRM due to sufficient sensitization on climate change impacts on water resources. RISK: Security risks could affect project implementation, particularly clan-based conflicts over competing uses of natural resources.
	2. Number of direct project beneficiaries that have improved water management and agro-pastoral production capacities	BASELINE 2: None of the targeted agro-pastoralists have livelihoods resilient to climate shocks. Livelihoods need to be strengthened by providing communities the know-how to maintain and operate infrastructure such as during the dry season (e.g., earth dams and retention basins, boreholes, etc). They also need improved seed inputs for more productive agro-pastoralism practices.	TARGET 2: Approximately 148,000 agro-pastoralists across all states have enhanced livelihoods through access to water, diversified livelihoods and access to early warnings (50% women)	TARGET 2: 296,000[79] agro-pastoralists across all states have enhanced livelihoods through access to water, diversified livelihoods and access to early warnings (50% women)	2. Socio-economic baseline and final evaluation surveys on strengthened livelihoods	
	3. Number of policy makers and planners at national, state and district levels with awareness of climate induced impacts on water resources and Integrated Water Resource Management	BASELINE 3: No policy makers and planners at the national and district levels have knowledge on how to manage water in the context of climate change.	TARGET 3: 75 target policy makers and planners at the national and district levels have knowledge on how to manage water in the context of climate	TARGET 3: 150 target policy makers and planners at the national and district levels have knowledge on how to management water in the context of climate change (at	3. Socio-economic baseline and final evaluation surveys on IWRM awareness amongst target policy makers and planners at the	

[79] Approximately 307,000 people in each target community will benefit directly from water mobilization and diversions and another 50,000 agro-pastoralists will receive targeted early warnings. There will also be approximately 418,000 indirect beneficiaries and another 100,000 agro-pastoralists will receive targeted early warnings. Out of the beneficiaries, both direct and indirect, 47.8% and 52.2% will be female and male respectively. See Tables 12 and 13 of this PPG Project Document for more details.

	(IWRM) principles (AMAT 2.3.1, Ind 11)		change (at least 30% women participation)	least 30% women participation)	national and district levels	
Outcome 1: National water resource management policy establishing clear national and district responsibilities	1. A National IWRM Strategy is developed supporting a decentralized approach to water governance and that is gender-sensitive and integrates traditional, customary water resources management practices and governs water extraction / access rights, water conservation, water quality, and pro-poor water supply (AMAT 1.1.1 and UNDP 2.5.1, Ind 12)	BASELINE 1: Somalia's NAPA (2013) prioritised the development of a decentralized IWRM Strategy as its second priority in order to ensure water access is provided to vulnerable populations and sectors. Currently, pastoralists are marginalized relative to water access due to their lack of land tenure rights. There is no IWRM strategy or plan in any state. Somaliland and Puntland have their own Water Resources Policies that were recently endorsed by their state parliaments.	TARGET 1: A framework for a gender-sensitive National IWRM Strategy is developed and an update is made to one of the Water Resources Policies for either Somaliland or Puntland.	TARGET 1: A gender-sensitive National IWRM Strategy is developed that is gender-sensitive and accounts for marginalized populations such as nomadic pastoralists. Updates to the remaining Water Resources Policy for either Somaliland or Puntland are made. All state Water Resource Policies and the National IWRM Strategy are endorsed.	1. Review of the National IWRM Strategy and the WR policies including accounting records on financing earmarked in yearly state annual budgets to implement the Strategy and WR policies	ASSUMPTION: Relevant Ministries have an interest in fully integrating IWRM strategies into their long-term water resources planning. ASSUMPTION: The Government of Somalia has sufficient incentive to design funds earmarked to support IWRM curriculum development in the future. RISK: A low level of cooperation between executing institutions due to political divisions and the existence of 6 states makes the coordination of policy development challenging.
	2. Enhanced curricula and programmes at educational and vocational institutes on water resource management and reflective of Somalia's gender dynamics (Ind 10)	BASELINE 2: Under LDCF1 a national curriculum for university level education on climate change adaptation has been developed. A total of 30 faculty members (30% women) from Ahmoud University in Somaliland have been trained on the curriculum. In spite of efforts by LDCF1, skills to ensure water sector service delivery are also	TARGET 2: Development and application of water resources management curricula at 3 universities and 3 vocational institutes (TVETs)	TARGET 2: Development and application of water resources management curricula at 6 universities and 6 vocational institutes (TVETs)	2. Review of the curricula at targeted universities and the TVET programmes by an international expert	

		almost entirely lacking in Somalia. Somalis do not have the technical knowledge to support understaffed ministries (Ministries of Water, Livestock). [80] As recommended by the Somaliland National Development Plan (2017 – 2021), there is a need to work on the technical level (TVETs) to produce trained water sector professionals.				RISK: Water resource monitoring stations are destroyed by an unanticipated increase in the frequency of flood events
	3. Enhanced water quality (WQ) analysis equipment and trained technicians in 5 states (Puntland, Hirshabelle, Jubaland, Galmudug and Southwest states)	BASELINE 3: Water quality labs are very absent in Somalia. Somaliland's WQ lab was supported by AfDB and the WQ lab on the federal level was supported by other donors. In Puntland and the new Federal Member states, there are no water quality (WQ) monitoring capabilities. These regions lack the proper equipment for WQ analysis on surface water and groundwater sources. WQ labs are essential because surface water is the priority of the country for the coming 5 years. [81] The laboratories will be critical to detecting	TARGET 3: WQ laboratories in 1 Federal Member state of Somalia is established each with 5 trained water technicians (at least 30% of training recipients will be women)	TARGET 3: A WQ lab in 5 states of Somalia (Puntland, Galmudug, Southwest, Hirshabelle and Jubbaland) are properly equipped with 5 trained water technicians (25 in total) (at least 30% of training recipients will be women)	3. Water ministry budgets and training logs	

[80] JPLG, April 2012. Study on Sector Functional Assessments within Education, Health and WASH in Somaliland.
[81] Meeting between Ministry of Water and President Jan 2018

		and preventing water contamination.				
Outcome 2 Transfer of technologies for enhanced climate risk monitoring and reporting on water resources in drought and flood prone areas	1a. Procurement and installation of river gauges, flow meters and rain gauges to improve groundwater and surface water data collection in the ASALs and in the Juba and Shabelle river basins (AMAT, Ind 7 geographical area with access to improved climate information services) 1b. National Groundwater Development Action Plan that supports sustainable and cost-effective groundwater extraction	BASELINE 1a: The prolonged civil war in Somalia saw the collapse of the climate monitoring network, which had recorded data between 1963 and 1990. The data gap post 1991 makes accurate flood and drought forecasting challenging. For the past 5 years, the FAO SWALIM, IGAD ICPAC and USAID's FEWSNET initiatives have focused on improving regional forecasting for Somalia, making use of the rehabilitated network of monitoring stations in addition to stations abroad (Kenya, Djibouti). The network is still extremely sparse with no groundwater sensors (i.e., piezometers) in the south. BASELINE 1b: FAO prepared a hydrogeological survey and assessment for Somaliland and Puntland in Dec 2012 that shows the number and yields of drilled and dug wells. Discharges from the wells and the aquifer types are indicated. Nonetheless, there is	TARGET 1a: Densification of water resources monitoring by 50%. Procurement and installation of 6 AWS, 5 manual rain gauges, 4 synoptic stations, 2 radar river level sensors and 3 groundwater sensors to improve groundwater and surface water data collection TARGET 1b: Development of a Groundwater development action plan framework	TARGET 1a: Densification of water resources monitoring by 100%. Procurement and installation of 13 AWS, 10 manual rain gauges, 9 synoptic stations, 4 radar river level sensors and 7 groundwater sensors to improve groundwater and surface water data collection TARGET 1b: Development of a Groundwater development action plan specifying the proposed number of boreholes, their geographical locations and their cost estimations	1a. Installation log by the Ministry of Agriculture, Ministry of Energy and Water Resources, FAO-SWALIM 1b. Review of plan by hydro-geological expert	ASSUMPTION: FAO-SWALIM and IGAD will transfer their knowledge on climate risk information production to appropriate ministries / agencies RISK: There is insufficient technical and operational capacity within the DRM agencies to coordinate drought and flood preparedness RISK: The sparse monitoring network inhibits forecasting capabilities and the ability to develop detailed spatial mapping to allow for adequate adaptation and risk reduction planning

		insufficient knowledge of the hydro-geology and expected yield in the south of the country which has prohibited borehole development and contributed to increasing risks of saltwater intrusion in the coastal areas and groundwater contamination throughout.				
	2. Number of people/geographical area with access to improved climate-related early warning information (Ind 8)	BASELINE 2: Existing alerts are typically circulated by email and cluster reports, targeting donor and civil society organizations. FAO SWALIM has distributed an extreme weather alert to fisherman along the Puntland coast. However, Mobile phone alerts have been distributed to Ministry focal points. Agro-pastoral populations have not yet directly received the alerts. For example, although it relies on mobile phones to disseminate warnings, the FRISC/DIGNIIN alert system, which gathers and sends flood and rainfall information, fails to reach pastoral communities. [82] Due to their remoteness, 100% of the targeted agro-pastoralists are not	TARGET 2: Alerts for droughts or floods are used by 25,000 agro-pastoralists (50% of the alert recipients will be women)	TARGET 2: Alerts for droughts or floods are used by 50,000 agro-pastoralists (50% of the alert recipients will be women)	2. Alert logs by MoHADM (Federal level), HADMA (Puntland) and NADFOR (Somaliland) and review of post impact field reports	

[82] GCF Concept workshop conclusions 14 June 2017, Hergeisa, Somaliland.

		forewarned about and prepared for extreme events.				
	3. Establishment of a National Hydro-Meteorological Service (NHMS)	BASELINE 3: The existing NHMS department located within the Federal Ministry for Energy and Water Resources is lacking technical and institutional capacity to collect, store and disseminate timely and accurate hydrological information to enable efficient and cost-effective management of water resources. The situation is similar in Somaliland and Puntland.	TARGET 3: Framework to establish a nationally approved and capacitated National Hydro-Meteorological Service (NHMS) is developed (participation of at least 30% women)	TARGET 3: Establishment of a nationally approved and capacitated National Hydro-Meteorological Service (NHMS) (participation of at least 30% women)	3. Ministry of Energy and Water Resources budget and training logs. WMO recognition of Somalia's NHMS	
Outcome 3 Improved water management and livelihood diversification for agro-pastoralists	1. Number and type of physical livelihood assets constructed to reduce the impacts of floods and droughts (Ind 2)	BASELINE 1: There is little functioning and climate-proofed physical infrastructure available in the target regions to mobilize surface water and groundwater and to divert flood waters for agro-pastoralists. The rural populations are at extreme risk because they do not have sufficient water for drinking and irrigation. They are also subject to loss of livestock due to the fact that the most fertile areas are within or adjacent to wadis which are susceptible to flash flooding. There is a	TARGET 1: 1 new borehole and 1 rehabilitated borehole, 2 earth dams and 2 rehabilitated earth dam, 3 new berkeds, and 1 canal rehabilitation	TARGET 1: 1 new borehole and 1 rehabilitated borehole, 1 new sand dam, 4 earth dams and 2 rehabilitated earth dams, 3 rehabilitated shallow wells, 7 new berkeds, and 1 canal rehabilitation, 3 fodder production irrigation schemes and 1 set of flood protection infrastructure	1. Construction logs of the Ministries of Water, Agriculture, Livestock and the Environment	ASSUMPTION: Initial hydrogeological studies and technical assessments are accurate in their predictions of water capture and storage capacities. RISK: Water ministries have limited capacity to design, construct and perform maintenance on water

		shortage of technical knowledge and capacity to apply surface water mobilisation and groundwater extraction techniques in Somalia. The Water Departments have constructed numerous boreholes which have insufficient capacity and/or poor water quality and have been unable to capture wadis' periodic flows for the dry seasons. [83] Moreover, during the high rainy periods, runoff cannot be effectively stored for use during the dry season.				mobilization infrastructure RISK: Targeted farmers and pastoralists are sceptical and unwilling to use adaptation technologies / practices so as to diversify their livelihoods and/or income diversification strategies do not significantly increase household incomes RISK: The project could encounter delays due to the lack of nationally-available expertise and human resources
	2. Number of trainer of trainers (TOTs) with reinforced capacities to disseminate and sensitize communities on exploitation of the mild and hide value chains (disaggregated by gender) (AMAT 2.2.1.1, Ind 3, 9)	BASELINE 2: The agro-pastoral communities have no capacity to develop diversified pastoral practices, taking advantage of the value chain (e.g., milk, meat, cheeses, hides). There are no specialized trainers on the milk and hide value chains to maintain and transfer knowledge.	TARGET 2: Three ToTs trained on agro-pastoral value chain exploitation nominated in each village (22 training recipients initially, at least 30% women)	TARGET 2: Capacities reinforced for three ToTs for agro-pastoral value chain exploitation nominated in each village (45 training recipients in total, at least 30% women)	2. ToT training logs	
	3. Number of hectares of rangeland revegetated and managed sustainably under a conservation scheme (AMAT 2.3.1.1,	BASELINE 3: Due to poor natural resource management and significant tree removal for charcoal production, agro-pastoralists and pastoralists	TARGET 3: 100 ha reforested in each state	TARGET 3: 200 ha reforested in each state	3. Reforestation/ Afforestation records kept by the Ministries of Agriculture and the Environment	

[83] According to a survey conducted by the Ministry of Mining, Energy and Water Resources in 2012.

	UNDP SP Outcome 1, Indicator 5)	are losing their forests and forage reserves. Consequently, agro-pastoralists do not have sustainable livelihoods and the region is subject to significant erosion and climate change impacts.				

VII. MONITORING AND EVALUATION (M&E) PLAN

The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. *Supported by Component/Outcome Four: Knowledge Management and M&E, the project monitoring and evaluation plan will also facilitate learning and ensure knowledge is shared and widely disseminated to support the scaling up and replication of project results.*

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies[84].

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies.[85]

M&E Oversight and monitoring responsibilities:

Project Manager: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

The Project Manager will develop annual work plans based on the multi-year work plan included in Annex, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. ESMP, gender action plan, stakeholder engagement plan etc..) occur on a regular basis.

Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to

[84] See https://www.thegef.org/gef/policies_guidelines
[85] See https://www.thegef.org/gef/gef_agencies

highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

Project Implementing Partner: The Implementing Partner is responsible for providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.

UNDP Country Office: The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the *independent mid-term review* and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies on DIM implemented projects.[86]

Additional GEF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:
a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation;
b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
c) Review the results framework and finalize the indicators, means of verification and monitoring plan;

[86] See guidance here: https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx

d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;
e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; SESP, Environmental and Social Management Plan and other safeguard requirements; project grievance mechanisms; the gender strategy; the knowledge management strategy, and other relevant strategies;
f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
g) Plan and schedule Project Board meetings and finalize the first year annual work plan.

The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

GEF Focal Area Tracking Tools: The following GEF Tracking Tool(s) will be used to monitor global environmental benefits: *list the required GEF Tracking Tool(s), as agreed with the UNDP-GEF Regional Technical Advisor.* The baseline/CEO Endorsement GEF Focal Area Tracking Tool(s) – submitted as Annex to this project document – will be updated by the Project Manager/Team (not the evaluation consultants hired to undertake the *MTR* or the TE) *(indicate other project partner, if agreed)* and shared with *the mid-term review consultants* and terminal evaluation consultants before the required *review/*evaluation missions take place. The updated GEF Tracking Tool(s) will be submitted to the GEF along with the completed *Mid-term Review report* and Terminal Evaluation report.

Independent Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's

duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publically available in English on the UNDP ERC.

The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC). Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Table 17: GEF M&E Requirements and M&E Budget

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[87] (US$)		Time frame
		GEF grant	Co-financing	
Inception Workshop (travel costs include participation of 50 people from all 6 states with a DSA of USD 50 for 3 days)	UNDP Country Office	17,800	5,000	Within two months of project document signature
Inception Report	Project Manager Project Implementation Team (PIT)	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	10,000	Quarterly, annually
Risk management	Project Manager Country Office	None	None	Quarterly, annually
Revisiting baseline data and Monitoring of indicators in project results framework (includes travel costs of USD 1,000 per site, 18 sites and recruitment of local consultant)	Project Manager Project Implementation (PIT)	20,000		Annually before PIR
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
DIM Audit as per UNDP audit policies (recruitment of an independent auditing company)	UNDP Country Office	10,000 (Per years 1 and 2 5,000 each)	10,000 (Per years 3 and 4 5,000 each)	Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation (includes 5,000 for travel)	M&E / KM Specialist	20,000	5,000	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	M&E / KM Specialist	Included in project staff costs		On-going
Stakeholder Engagement Plan (7 meetings at USD 3000 per meeting and travel costs for 200 people, 2 days DSA @ USD 50)	Project Manager UNDP Country Office	36,000	5,000	On-going

[87] Excluding project team staff time and UNDP staff time and travel expenses.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[87] (US$)		Time frame
		GEF grant	Co-financing	
Gender Action Plan	Gender specialist	15,000	5,000	On-going
Addressing environmental and social grievances (EIA local consultant and travel costs to analyze 18 sites at USD 1,500 per site)	Project Manager UNDP Country Office	18,500	10,000	First 6 months intensively and then on-going
Project Board meetings (2 night DSA at USD 50 per day for 12 people, 4 times)	Project Board UNDP Country Office Project Manager	22,800	5,000	4 annual board meetings at USD 5750 each
Supervision missions	UNDP Country Office	None[88]	2,000	Annually
Oversight missions	UNDP-GEF team	None[88]		Troubleshooting as needed
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None		To be determined.
Mid-term GEF Tracking Tool to be updated by UNDP CO	M&E / KM Specialist	5,000	1,000	Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response (includes 2 local consultants at 3000 each and an international consultant for 10 days at 650 per day)	UNDP Country Office and Project team and UNDP-GEF team	35,000		Between 2nd and 3rd PIR.
Terminal GEF Tracking Tool to be updated by UNDP CO	M&E / KM Specialist	5,000	1,000	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response (includes 2 local consultants at 3000 each and an international consultant for 20 days at 650 per day)	UNDP Country Office and Project team and UNDP-GEF team	44,500		At least three months before operational closure

[88] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[87] (US$)		Time frame
		GEF grant	Co-financing	
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses (up to 5% of GEF grant =418,000)		249,600	59,000	

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

101. The execution modality for this project will be UNDP's Direct Implementation Modality (DIM), which is the principle implementation modality under the 2011-2015 Country Programme Document (CPD) (See Annex 9). The Implementing Partner (IP) for this project will be UNDP.

102. UNDP will be accountable for the disbursement of funds and the achievement of the project goals, according to the approved work plan. Working closely with the Government, the UNDP Country Office will be responsible for: (i) providing financial and audit services to the project, (ii) recruitment of project staff and contracting of consultants and service providers, (iii) overseeing financial expenditures against project budgets approved by the Project Steering Committee, (iv) appointment of independent financial auditors and evaluators; and (v) ensuring that all activities, including procurement and financial services, are carried out in strict compliance with UNDP-GEF/LDCF procedures. A UNDP staff member will be assigned with the responsibility for the day-to-day management and control over project finances (cost of which is not charged to the LDCF2). The Direct Implementation Modality (DIM) is UNDP's standard working practice in Somalia. As a result, the UNDP Country Office places great emphasis on the importance of Mid-Term Reviews and Terminal Evaluations and will ensure that they are thorough and completely independent. In the context of this specific UNDP-implemented, LDCF-financed project, the UNDP-GEF Staff (led by the Regional Technical Advisor) will provide an additional layer of oversight, and will participate in regular project team calls to monitor progress and oversee project implementation.

103. A schematic detailing the Management Arrangements, including the responsible decentralized agencies and support committees/organizations, is presented below. The roles and responsibilities of the parties involved in managing and implementing the project are described below.

Figure 13: Management Arrangements

104. **Project Board:** The Project Board (also called Project Steering Committee) is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including recommendations for UNDP/Implementing Partner approval of project plans and revisions, and addressing any project level grievances. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager.

105. Specific responsibilities of the Project Board include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project manager;
- Provide guidance on new project risks, and agree on possible countermeasures and management actions to address specific risks;
- Agree on project manager's tolerances as required;
- Review the project progress, and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Appraise the annual project implementation report, including the quality assessment rating report; make recommendations for the workplan;
- Provide ad hoc direction and advice for exceptional situations when the project manager's tolerances are exceeded; and
- Assess and decide to proceed on project changes through appropriate revisions.

106. The composition of the Project Board must include the following roles:

107. Executive: The Executive is an individual who represents ownership of the project who will chair the Project Board. This role can be held by a representative from the Government Cooperating Agency or UNDP. **The Executive is the UNDP Somalia Resident Representative.**

108. The Executive is ultimately responsible for the project, supported by the Senior Beneficiary and Senior Supplier. The Executive's role is to ensure that the project is focused throughout its life cycle on achieving its objectives and delivering outputs that will contribute to higher level outcomes. The executive has to ensure that the project gives value for money, ensuring cost-conscious approach to the project, balancing the demands of beneficiary and suppler.

109. Specific Responsibilities: (as part of the above responsibilities for the Project Board)

- Ensure that there is a coherent project organisation structure and logical set of plans;
- Set tolerances in the AWP and other plans as required for the Project Manager;
- Monitor and control the progress of the project at a strategic level;
- Ensure that risks are being tracked and mitigated as effectively as possible;
- Brief relevant stakeholders about project progress;
- Organise and chair Project Board meetings.

110. Senior Supplier: The Senior Supplier is an individual or group representing the interests of the parties concerned which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. The Senior Supplier role must have the authority to commit or acquire supplier resources required. If necessary, more than one person may be

required for this role. Typically, the implementing partner, UNDP and/or donor(s) would be represented under this role. **The Senior Suppler is the UNDP RTA.**

111. Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Make sure that progress towards the outputs remains consistent from the supplier perspective;
- Promote and maintain focus on the expected project output(s) from the point of view of supplier management;
- Ensure that the supplier resources required for the project are made available;
- Contribute supplier opinions on Project Board decisions on whether to implement recommendations on proposed changes;
- Arbitrate on, and ensure resolution of, any supplier priority or resource conflicts.

112. Senior Beneficiary: The Senior Beneficiary is an individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. The Senior Beneficiary role is held by a representative of the government or civil society. **The Senior Beneficiary is the GEF Focal Point.**

113. The Senior Beneficiary is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The Senior Beneficiary role monitors progress against targets and quality criteria. This role may require more than one person to cover all the beneficiary interests. For the sake of effectiveness, the role should not be split between too many people.

114. Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Prioritize and contribute beneficiaries' opinions on Project Board decisions on whether to implement recommendations on proposed changes;
- Specification of the Beneficiary's needs is accurate, complete and unambiguous;
- Implementation of activities at all stages is monitored to ensure that they will meet the beneficiary's needs and are progressing towards that target;
- Impact of potential changes is evaluated from the beneficiary point of view;
- Risks to the beneficiaries are frequently monitored.

115. The Project Board will consist of UNDP and the Global Environment Facility Focal Point. Project Board meetings will be attended by the Government Focal Points in each zone. Members of the Project Board are likely to include the Ministry of Energy and Water Resources, the Ministries of Water Resources (Somaliland and Puntland), Ministry of Planning and International Cooperation, the Somalia Disaster Management Agency, the Ministry of Livestock, Forest and Rangeland, the Office and the Prime Minister, the Ministry of Agriculture, the Ministry of Health, the Ministry of Women and Human Rights Development, District Representatives and women and NGO representatives. Additional representatives will be invited to attend the Project Board meetings as required. Focal points in the Ministries at the level of Director (and on the payroll of the government) will be responsible for coordinating project implementation and oversight of activities.

116. **Project Manager**: The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Project Board within the constraints laid down by the Board. The Project Manager is responsible for day-to-day management and decision-making for the project. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

The Implementing Partner appoints the Project Manager, who should be different from the Implementing Partner's representative in the Project Board.

117. Specific responsibilities include:

- Provide direction and guidance to project team(s)/ responsible party (ies);
- Liaise with the Project Board to assure the overall direction and integrity of the project;
- Identify and obtain any support and advice required for the management, planning and control of the project;
- Responsible for project administration;
- Plan the activities of the project and monitor progress against the project results framework and the approved annual workplan;
- Mobilize personnel, goods and services, training and micro-capital grants to initiative activities, including drafting terms of reference and work specifications, and overseeing all contractors' work;
- Monitor events as determined in the project monitoring schedule plan/timetable, and update the plan as required;
- Manage requests for the provision of financial resources by UNDP, through advance of funds, direct payments or reimbursement using the fund authorization and certificate of expenditures;
- Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports;
- Be responsible for preparing and submitting financial reports to UNDP on a quarterly basis;
- Manage and monitor the project risks initially identified and submit new risks to the project board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log;
- Capture lessons learned during project implementation;
- Prepare the annual workplan for the following year; and update the Atlas Project Management module if external access is made available.
- Prepare the GEF PIR and submit the final report to the Project Board;
- Based on the GEF PIR and the Project Board review, prepare the AWP for the following year.
- Ensure the mid-term review process is undertaken as per the UNDP guidance, and submit the final MTR report to the Project Board.
- Identify follow-on actions and submit them for consideration to the Project Board;
- Ensure the terminal evaluation process is undertaken as per the UNDP guidance, and submit the final TE report to the Project Board;

118. **Project Assurance**: UNDP provides a three – tier supervision, oversight and quality assurance role – funded by the GEF agency fee – involving UNDP staff in Country Offices and at regional and headquarters levels. Project Assurance must be totally independent of the Project Management function. The quality assurance role supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. This project oversight and quality assurance role is covered by the GEF Agency.

<u>Governance role for project target groups</u>:

119. LDCF funds will be used to pay the salaries for Project Implementation Team (PIT) which will consist of the Project Manager (recruited by UNDP), a Project Officer from each state (6 in total), a Financial and Administrative Assistant and a Monitoring and Evaluation / Knowledge Management specialist. A Technical Advisory Committee consisting of Ministry and donor representatives will be formed to support the PIT.

120. On the regional level in each zone, three regional committees will be formed. The Regional Committees will be co-chaired by the Government Focal Points (who will also participate in the Project Board meetings) and the Project Manager. Relevant Government Representatives, District Officers and NGO/CBO Representatives will also be included as members of the Regional Committees.

121. Various implementing entities (referred to as Responsible Parties) will be hired by UNDP. Only prequalified NGOs/CBOs will be provided Micro-Capital Grants (MCGs). Similarly, Letters of Agreement (LoA) will be established with the relevant Government ministries.

122. A Memorandum of Understanding and Terms of Reference (TOR) indicating the role of each executing agency will be developed under the guidance of the PIT during project implementation.

123. The Stakeholder Involvement Table, indicating the key inputs of all project partners during project implementation, was provided in Table 7.

IX. FINANCIAL PLANNING AND MANAGEMENT

124. The total cost of the project is USD 78,575,000. This is financed through a LDCF grant of *USD* 8,831,000 and USD 1,500,000 in cash co-financing to be provided by UNDP TRAC resources and USD 68,244,000 in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources and the cash co-financing transferred to UNDP bank account only.

125. Parallel co-financing: The actual realization of project co-financing will be monitored during the *mid-term review* and terminal evaluation process and will be reported to the GEF. The planned parallel co-financing will be used as follows:

Co-financing source	**Co-financing type**	**Co-financing amount (USD)**	**Planned Activities/Outputs**	**Risks**	**Risk Mitigation Measures**
Government of Somalia National Energy and Water Resources	In-Kind	8,000,000	Office space in all states, support to continue dissemination of training on IWRM	Wide-spread conflict so some target areas cannot be reached – security risks	Site selection excluded contested areas and areas at risk due to limited access related to security
UNDP (TRAC Resources)	Grant	1,500,000	Office space, M&E, gender expert	Lack of nationally-available expertise and human resources	Universities and TVETS will be used to train new recruits on IWRM
GWP	In-Kind	100,000	IWRM expert support for Component 1	Limited national capacities to produce forecasts	Regional forecasting products such as from IGAD's ICPAC will be used and collaboration with other agencies such as FAO-SWALIM will enhance the transfer of capacities
EU	Grant	60,144,000 (EU 51,700,000)	Support for FAO-SWALIM as an implementing agent with expertise on monitoring,	Regional crises force donors to prioritize the targeting of funds	The cofinancing agreements show that donor support will be maintained

			forecasting and agriculture	to other countries (e.g., Syria, Yemen)	throughout the duration of the GEF project. Synergies between the projects will be complimentary.

Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team to ensure accurate reporting to the GEF: a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more; b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

Refund to GEF: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP.[89] On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Transfer or disposal of assets: In consultation with the NIM Implementing Partner and other parties of the project, UNDP programme manager (UNDP Resident Representative) is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file[90].

[89] see https://info.undp.org/global/popp/ppm/Pages/Closing-a-Project.aspx

[90] See https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default.

Financial completion: The project will be financially closed when the following conditions have been met: a) The project is operationally completed or has been cancelled; b) The Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

X. TOTAL BUDGET AND WORK PLAN

Award ID:	00114166	Project ID(s):	00112311
Award Title:	IWRM: Somalia		
Business Unit:	SOM10		
Project Title:	**Support for Integrated Water Resources Management to Ensure Water Access and Disaster Reduction for Somalia's Agro-Pastoralists**		
PIMS no.	5464		
Implementing Partner (Executing Agency)	United Nations Development Programme, Somalia Country Office		

SOF (e.g. GEF) Outcome/Atlas Activity	**Responsible Party/ Implementing Agent**	**Fund ID**	**Donor Name**	**Atlas Budgetary Account Code**	**ATLAS Budget Description**	**Amount Year 1 (USD)**	**Amount Year 2 (USD)**	**Amount Year 3 (USD)**	**Amount Year 4 (USD)**	**Total (USD)**	**Note**
OUTCOME 1: Water resource management policies establishing clear national and district responsibilities 1)	**UNDP**	**62160**	**LDCF**	71200	International Consultants	53,000	73,000	20,000	0	146,000	A
				71300	Local consultants	30,000	30,000	14,000	6,000	80,000	B
				71400	Contractual Services - Indiv	37,500	37,500	37,500	37,500	150,000	C
				71600	Travel	42,000	42,000	6,000	6,000	96,000	D
				72200	Equipment & Furniture	54,000	19,000	29,000	29,000	131,000	E
				75700	Training, Workshops & Conferences	136,500	130,500	115,500	83,500	466,000	F
				72600	Grant	20,000	20,000	20,000	20,000	80,000	G
					Total Outcome 1	**373,000**	**352,000**	**242,000**	**182,000**	**1,149,000**	
OUTCOME 2:	**UNDP**	**62160**	**LDCF**	71200	International Consultants	46,000	20,000	20,000	0	86,000	H

Transfer of technologies for enhanced climate risk monitoring and reporting on water resources in drought and flood prone areas				71400	Contractual Services - Indiv	94,425	44,425	44,425	44,425	227,700	I
				71600	Travel	30,000	20,000	10,000	0	60,000	J
				72200	Equipment & Furniture	126,750	26,750	0	0	153,500	K
				72300	Materials & Goods	200,000	200,000	170,000	0	570,000	L
				75700	Training, Workshops & Conferences	144,000	80,000	40,000	0	264,000	M
					Total Outcome 2	**641,175**	**391,175**	**284,425**	**44,425**	**1,361,200**	
OUTCOME 3: Improved water management and livelihood diversification for pastoralists	**UNDP**	**62160**	**LDCF**	71300	Local consultants	0	24,000	66,000	24,000	114,000	N
				71400	Contractual Services - Individuals	268,375	293,175	293,175	238,875	1,093,600	O
				71600	Travel	0	20,000	20,000	5,000	45,000	P
				72100	Contractual Services Co.	0	1,780,300	1,871,800	0	3,652,100	Q
				72200	Equipment & Furniture	0	0	68,000	0	68,000	R
				72300	Materials & Goods	0	55,000	156,000	20,000	231,000	S
				75700	Training, Workshops & Conferences	0	93,700	93,700	93,700	281,100	T
					Total Outcome 3	**268,375**	**2,266,175**	**2,568,675**	**381,575**	**5,484,800**	
OUTCOME 4: Gender mainstreaming, knowledge management and M&E	**UNDP**	**62160**	**LDCF**	61300	Salary & Post Adj Cst-IP Staff	43,350	43,350	43,350	43,350	173,400	U
				71200	International Consultants	4,875	4,875	4,875	4,875	19,500	V

				71300	Local consultants	5,000	5,000	5,000	5,000	20,000	W
				71600	Travel	31,450	31,450	31,450	31,450	125,800	X
				72100	Contractual Services Co.	5,000	5,000	5,000	5,000	20,000	Y
				75700	Training, Workshops & Conferences	14,825	14,825	14,825	14,825	59,300	Z
					Total Outcome 4	**104,500**	**104,500**	**104,500**	**104,500**	**418,000**	
Project management unit	**UNDP**	**62160**	**LDCF**	61300	Salary & Post Adj Cst-IP Staff	94,250	94,250	94,250	94,250	377,000	AA
				71600	Travel	2,000	2,000	2,000	2,000	8,000	BB
				72200	Equipment & Furniture	2,500	2,500	2,500	2,500	10,000	CC
				74596	Services to Projects - GOE for CO	5,750	5,750	5,750	5,750	23,000	DD
					sub-total	**104,500**	**104,500**	**104,500**	**104,500**	**418,000**	
					Total Management	**104,500**	**104,500**	**104,500**	**104,500**	**418,000**	
PROJECT TOTAL						**1,491,550**	**3,218,350**	**3,304,100**	**817,000**	**8,831,000**	

Summary of Funds:[91]

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total
GEF	**1,491,550**	**3,218,350**	**3,304,100**	**817,000**	**8,831,000**
Ministry of Energy and Water Resources	2,000,000	2,000,000	2,000,000	2,000,000	8,000,000
UNDP TRAC funding	375,000	375,000	375,000	375,000	1,500,000
Global Water Partnership	25,000	25,000	25,000	25,000	100,000
EU	15,036,000	15,036,000	15,036,000	15,036,000	60,144,000
TOTAL	**18,927,550**	**20,654,350**	**20,740,100**	**18,253,000**	**78,575,000**

Budget Note	Description
A	1.1 - IWRM international expert to train state and national government representatives as well as the national IWRM expert on IWRM and setting equitable water tariffs. Salary is USD 650/day for an annual mission of 10 days with USD 3,500 for travel for year 1 and USD 650/day for an annual mission of 10 days with USD 3,500 for travel for year 2 **=20,000** 1.2 International IWRM expert to support development of a multi-sectorial IWRM strategy linked to national and state water policies. Salary is USD 650/day for annual missions of 30 days yr 1 and 27 days yr 2 with USD 2,500 for travel year 1 and 2,450 travel for year 2**= 42,000**; 1.3 - NHMS International Expert to support development and endorsement of a national Hydrometeorological policy and regulation for improved Meteorological service. Salary is USD 22,000 for 30 days over year 2 (USD 650/day plus USD 2,500 for travel) and USD 20,000 for 27 days over year 3 (USD 650/day and USD 2,450 travel) **=42,000;** 1.4 - International curriculum development expert on IWRM. Salary of USD 650/day for 26 days for both years 1 and 2 with USD 4,100 travel to universities and technical institutes**=42,000** **Total: 146,000**
B	1.1 - National IWRM expert to provide trainings to district officials IWRM. Salary is USD 4,000/mo for 3 months, years 1 and 2**= 24,000**; 1.6 - National WQ expert at USD 4,000/mo for 2 months = **8,000**; 1.7 - IWRM national expert to provide trainings to the RBMAs at USD 4,000/mo for 2 months in years 1, 2 and 3 = **24,000;** 1.8- National IWRM expert to provide trainings to CBOs on IWRM. Salary is USD 4,000/mo with USD 2,000 for travel for 1 month in years 1, 2, 3 and 4= **24,000** **Total: 80,000**
C	Technical services by Project Management Team, PM, Finance /Admin and M&E / KM. The KM/M&E specialist will be responsible for internal reporting and M&E of activities within Component 1. He will also track progress towards results and provide quarterly reports to the project's and annual reports to the GEF Secretariat. The gender expert will ensure the Component 1 activities are in adherence to the gender strategy by targeting at least 30% women recipients on government and local levels for IWRM trainings and that disaggregated indicator baselines and targets are measured properly. Component 1 also includes ensuring that 50% of the project beneficiaries will be women and that a gender sensitive

[91]*Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc...*

	IWRM strategy is developed. The Finance/Admin specialist will ensure that Component 1 activities are procuring and charging budgets properly, such as for the water quality laboratory equipment.**Total: 150,000**
D	1.1 - Travel costs for government representatives to come from all 6 states. Costs include DSA rate of USD 50/day for 2-day trainings for 150 government officials for 4 trainings over 2 years = **60,000**; 1.6 - Travel costs for the national WQ expert to visit sites over 2 years = **12,000**; 1.8 - Travel costs for national expert and local focal points to attend the annual IWRM meetings at 6,000 per year = **24,000** **Total: 96,000**
E	1.6 - Procurement and installation of WQ lab equipment in Puntland, Southwest, Jubaland and Shabelleland states **Total: 131,000**
F	1.1 - One training for 150 people on IWRM during each half-year over 2 years = 28,000 each, **56,000**; 1.2 – 2 large workshops yr 1 (USD 4,000 each) and 5 workshops yr 2 (USD 2,000 each) related to development of the IWRM strategy = **18,000**; 1.3 - 2 large workshops yr 1 (USD 4,000 each) and 5 workshops yr 2 (USD 2,000 each) related to development of the NHMS strategy = **18,000**; 1.4 – Five workshops held at universities in years 1 and 2 (each workshop costing 4,500 for approximately 100 students) and 10 workshops held at vocational institutes and universities in years 3 and 4 (approximately 4,350 each) on IWRM updated curriculum = **132,000**; 1.6 – 2 trainings on WQ testing procedures by national WQ expert at 5 new labs in year 1 (each 3,600) and 1 training on WQ at each of the 5 new labs in years 2, 3 and 4 (each 4,400) = **104,000**; 1.7 - Establishment of the River Basin Management Authorities (RBMAs) with 4 trainings per year in years 1, 2 and 3 (3,000 each) with 10,000 for south-south cooperation per year = **66,000**; 1.8 - Annual trainings on IWRM for Water Point Management Committees and DRM focal points with a focus of training for women by the national IWRM expert - Each training will take place at each site at a cost of approximately 1,500 USD each for years 1-4 = 18,000 per year = **72,000** **Total: 466,000**
G	Scholarship grants for 9 TVET and 9 university students supported across all states to attend IWRM degree programs for at least 30% women at 20,000 per year over all four years. Grants will have to follow the Micro-Capital Grants policy. **Total: 80,000**
H	2.3 - International NHMS expert. Salary is USD 650/day for 27 days with USD 2,450 travel year 1 = **20,000**; 2.4 - International NHMS forecasting expert at USD 650/day for 36 days year 1 (**26,000**) and 27 days years 2 and 3 (USD 650/day and USD 2,600 travel yr2 and USD 2,450 for travel years 2 and 3) (**20,000 each**) **Total: 86,000**
I	2.1 - Study on specific placement of hydro-met stations/equipment, including field consultations with villages to confirm secure locations = **50,000**; 2.6 - Technical services by Project Management Team, PM, Finance /Admin and M&E / KM including that the hydro-met monitoring equipment, equipment and furniture for the new NHMS and all equipment required to improve the FRISC-DIGNIIN forecasting system are procured properly. Also, the gender expert will ensure trainings for forecasting and the NHMS target at least 30% women and that at least 50% of the flood and drought alerts are provided to women via mobile phone.= **177,700** **Total: 227,700**
J	2.1 - Travel costs for hydro-met study including rental of car and gas at USD 10,000; 2.2 - Travel to sites to install equipment in 36 locations across Somalia in years 1, 2 and 3 (USD 10,000 per year) = 30,000; 2.2a - Travel costs for visiting sites and working with communities to establish NHMS focal points (USD 10,000 for years 1 and 2) **Total: 60,000**
K	2.3 - Office space and office supplies for the NHMS = **100,000**; 2.5 - Improvements to the FRISC-DIGNIIN system including mobile application improvements, communication equipment, transmission costs and O&M costs over first 2 years (**53,500**). See Annex R.

	Total: 153,500
L	2. - Procurement and installation of 13 AWS, 10 manual rain gauges, 9 synoptic stations and 4 radar river level sensors including fencing, spare parts, secure data server and O&M for 4 years (**170,000** each year 1, 2 and 3). See Annex R.; 2.4 - Purchase of licenses for regional forecasting models in years 1 and 2, **30,000** each **Total: 570,000**
M	2.2 - Trainings by equipment supplier annually on data collection, treatment, storage and O&M, costs included in procurement costs = **30,000**; 2.2a - NHMS representative to assign and train hydro-met equipment focal points for manual stations 20,000 years 1 and 2 = **40,000**; 2.3 - Trainings for the Ministry of Energy and Water Resources and key hydro-met personnel to transition into NHMS by the NHMS expert = **40,000**; 2.4 - Training for 6 forecasters with regionally and internationally recognized software and on GIS/remote sensing tools by the NHMS expert, 6 trainings per year (5,000 each = 30,000 per year) with 44,000 and 20,000 reserved for south-south cooperation at regional forecasting learning events = **154,000** **Total: 264,000**
N	3.2.3 - National fodder expert guidance at USD 4,000 per month for 3 months with USD 2,000 for travel in year 3 = **14,000**; 3.2.4 - National fodder expert guidance at USD 4,000 per month for 3 months with USD 2,000 for travel in year 3 = **14,000**; 3.2.8 - National rangeland rehabilitation expert guidance at USD 4,000 per month for 3 months with USD 2,000 for travel in year 3 = **14,000**; 3.3 - Livestock value chain expert at USD 4,000 per month for 6 months, repeated for years 2, 3 and 4 = **72,000** **Total: 114,000**
O	3.1 - Preparation of GW study using remote sensing and groundwater data in collaboration with FAO-SWALIM = **496,000**; 3.4 - Afforestation to combat desertification and enhance groundwater infiltration by an NGO or UN Agency using seedlings from one of the target village nurseries = **330,300**; 3.5 - Technical services by Project Management Team, PM, Finance /Admin and M&E / KM. Specifically, the gender expert will ensure that all agriculture and water infrastructure will benefit at least 50% women, trainer of trainers will target at least 30% women and that predominantly women will be the targets of livestock value chain training. The Finance / Admin specialist will ensure that all seed harvesting and groundwater testing equipment is procured and budgeted properly = **713,300** **Total: 1,093,600**
P	3.1 - Travel costs to go to the field and do the groundwater survey = **10,000**; 3.2.1 - Travel costs to southwest state = **20,000**; 3.3 - Travel costs for the livestock value chain expert at 5,000 per year for years 2, 3 and 4 = **15,000** **Total: 45,000**
Q	Drilling of 1 new borehole (**169,000**), rehabilitation of 1 borehole (**106,400)**, canal rehabilitation (**194,400**), 3 large scale fodder production/irrigation schemes and warehouses (**137,200 each**), installation of flood protection infrastructure (**340,200**), construction / rehabilitation of 6 earth dams (**233,300 on average each**), rangeland rehabilitation (**117,800**), construction of 7 berkeds (**approx. 39,000 each**), two soil and water conservation structures (**116,600 each**), construction of 1 sand dam (**122,500**), support to establish nurseries for seedling production by local women's groups (**52,500**), construction of gabion flood control structure (**85,500**), rehabilitation of 3 shallow wells (**146,200 total**). All water infrastructure civil works with 8% contingency included. **Total: 3,652,100**
R	3.2.26 - Seed harvesting machine (Somaliland, Togdher, Beer) **Total: 68,000**

S	3.1 - Procurement of 7 groundwater sensors, satellite transmission installation and O&M costs = **70,000**. See Annex R.; 3.2.25 - Seeding and tree planting material, seed banks and fodder storage silos (25 m X 20m X 5m) (Somaliland, Togdher, Beer) = **101,000;** 3.3 - Materials such as feedstock for the livestock, 20,000 years 2,3 and 4 = **60,000** Total: **231,000**
T	3.2.30 - Training on seed production in nurseries and seed and fodder storage (Somaliland, Sool, Habariheshay) by an NGO or UN Agency (to be decided during project implementation) in all 15 sites at approx. 3,500 per site = 52,700 in years 2, 3 and 4 **= 158,100**; 3.3 - Value chain training for the APFS near target villages including training on seed storage, fodder production and the milk and hide value chains at approximately 2,700 per training in years 2, 3 and 4 = 41,000 in years 2, 3 and 4 = **123,000** **Total: 281,100**
U	Staff time for Gender mainstreaming, knowledge management and M&E for the overall project in its reporting requirements to the Program Oversight and QA Unit. The UNDP CO has a clear firewall between those monitoring the project activities and project oversight. The KM / M&E expert, gender expert and Finance/Admin expert will be involved with day to day activities. The Program Oversight and QA Unit within the UNDP CO will analyze the reports periodically and reports progress to the GEF Secretariat. **Total: 173,400**
V	International experts to help with the mid-term evaluation and terminal evaluation, MTR 10 days for at 650 per day and LTR 20 days at 650 per day **Total: 19,500**
W	Local experts to help with the baseline monitoring, EIA, the mid-term evaluation and terminal evaluation, One local expert to help with the baseline monitoring at 5,000 USD for 1.5 months and two for the EIA at 3,000 per month each and one (1) MTR expert and two (2) LTR experts to conduct evaluations over the course of a month at USD 3,000 each. **Total: 20,000**
X	Travel costs for M&E include: Inception Workshop: 50 people with a DSA of USD 50 for 3 days = **7,500**; baseline monitoring USD 1,000 per site for 15 sites = **15,000**; travel costs for capturing lessons learned USD **5,000**; Stakeholder meetings at 200 people, 2 days DSA @ USD 50 = **20,000**; EIA travel costs for 15 sites at USD 1,500 per site = **22,500**; Project Board Meeting travel costs - 2 night DSA at USD 50 per day for 12 people, 4 times annually = **4,800**; and travel costs for the IC to travel to Somalia (3,000 for the MTR and Terminal Evaluation = **6,000**) and for both the IC and LC to visit the 15 sites at 1,500 per site = **22,500**, internal travel costs for both the MTR and Terminal evaluations = **45,000** **Total: 125,800**
Y	Independent company to conduct the DIM Audit as part of M&E **Total: 20,000**
Z	Meeting costs for the Inception meeting (**15,300**), 7 stakeholder engagement meetings (1 each state and 1 federal level) at 3,000 per meeting (**21,000**) **Total: 36,300** Note: annual (4) Project Board meetings at **5,750** each will be covered by UNDP TRAC cofinancing
AA	Staff Salaries for the Project Management Unit: Project Manager (USD 70,000 per year), the Finance/Admin Specialist (USD 9,000 per year) and the M&E / KM expert (USD 15,250 per year) **Total: 377,000**
BB	Travel costs for the PM Unit to all 6 states **Total: 8,000**
CC	Equipment and furniture for PM offices **Total: 10,000**

DD	Direct project services costs for the provision of administrative and professional financial, procurement and HR services to the project **Total: 23,000**

XI. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

Audit: This project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Somali Democratic Republic and UNDP, signed on 31 May 1977. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

This project will be implemented by UNDP ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

XII. RISK MANAGEMENT

UNDP (DIM)

UNDP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)

UNDP as the Implementing Partner will undertake all reasonable efforts to ensure that none of the [project funds][92] [UNDP funds received pursuant to the Project Document][93] are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

UNDP as the Implementing Partner will: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

UNDP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor and sub-recipient:

a. Consistent with the Article III of the SBAA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of each responsible party, subcontractor and sub-recipient and its personnel and property, and of UNDP's property in such responsible party's, subcontractor's and sub-recipient's custody, rests with such responsible party, subcontractor and sub-recipient. To this end, each responsible party, subcontractor and sub-recipient shall:

i. put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

ii. assume all risks and liabilities related to such responsible party's, subcontractor's and sub-recipient's security, and the full implementation of the security plan.

[92] To be used where UNDP is the Implementing Partner

[93] To be used where the UN, a UN fund/programme or a specialized agency is the Implementing Partner

b. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the responsible party's, subcontractor's and sub-recipient's obligations under this Project Document.

c. Each responsible party, subcontractor and sub-recipient will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, subcontractors and sub-recipients in implementing the project or programme or using the UNDP funds. It will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

d. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to each responsible party, subcontractor and sub-recipient: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. Each responsible party, subcontractor and sub-recipient agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.

e. In the event that an investigation is required, UNDP will conduct investigations relating to any aspect of UNDP programmes and projects. Each responsible party, subcontractor and sub-recipient will provide its full cooperation, including making available personnel, relevant documentation, and granting access to its (and its consultants', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with it to find a solution.

f. Each responsible party, subcontractor and sub-recipient will promptly inform UNDP as the Implementing Partner in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

Where it becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, each responsible party, subcontractor and sub-recipient will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). It will provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

g. UNDP will be entitled to a refund from the responsible party, subcontractor or sub-recipient of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the responsible party, subcontractor or sub-recipient under this or any other agreement.

Where such funds have not been refunded to UNDP, the responsible party, subcontractor or sub-recipient agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to such responsible party, subcontractor or sub-recipient for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

h. Each contract issued by the responsible party, subcontractor or sub-recipient in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from it shall cooperate with any and all investigations and post-payment audits.

i. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project or programme, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

j. Each responsible party, subcontractor and sub-recipient shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to its subcontractors and sub-recipients and that all the clauses under this section entitled "Risk Management Standard Clauses" are adequately reflected, *mutatis mutandis*, in all its sub-contracts or sub-agreements entered into further to this Project Document.

Annex A: Multi Year Work Plan

Annual repartition of activities			2018		2019				2020				2021				2022	
			Q3	Q4	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT 1 Outputs	**Indicator**	**Responsible Party**																
1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Four training workshops will be conducted for 150 participants with at least 30% women participation	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X								
1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy	12. National policies, plans developed and strengthened on IWRM	M. Energy and Water Resources	X	X	X	X	X	X	X	X								
1.3 Development and endorsement of a national Hydrometeorological policy and regulation for improved Meteorological service in Somalia	12. National policies, plans developed and strengthened on IWRM	M. Energy and Water Resources					X	X	X	X	X	X	X	X				
1.4 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

1.5 Nine national students (at least 3 women), supported to attend IWRM higher degree programs. Nine (9) TVET students will also be supported (at least 3 women).	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	Ministry of Education	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.6 Establishment of a Water Institute Somaliland and Water Quality laboratories in Puntland, Galmudug, Southwest and Jubbaland states.	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.7 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water by upstream and downstream communities and to ensure maintenance of river-based infrastructure	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources	X	X	X	X	X	X	X	X	X	X	X	X				
1.8 Training at the district and village levels to provide awareness on IWRM, the IWRM Strategy and its enforcement as well as specific training for women on community water management.	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

1.9 Technical Service by Project Team (spread over all Outputs)	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland and Ministry of Education	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
COMPONENT 2																		
2.1 Study on existing hydrological equipment with a recommendation on installation locations for new monitoring equipment building off of FAO's work	6. Technical assessment carried out	Ministry of Energy and Water Resources and FAO SWALIM	X	X	X	X												
2.2 Procurement and installation of river gauges, flow meters and rain gauges to improve groundwater and surface water data collection in the ASALs in cooperation with IGAD with training to be provided by vendors over the first 2 years. Training for at least 4 engineers / 4 technicians within DGM to operate, maintain and repair all new weather stations. Training will focus on information collection, data treatment (including data quality checks) and operation and maintenance (O&M) tasks for weather equipment. Standard Operating Procedures (SOPs) will be put into place for 1) O&M and 2) data storage and collection.	7. Number of people/geographical area with access to improved climate information services	Ministry of Energy and Water Resources	X	X	X	X	X	X	X	X	X	X	X	X				

2.3 Establishment of a National Hydro-Meteorological Service System (NHMS)	10. Capacities of national institutions to monitor and evaluate adaptation strategies (Early Warnings)	Ministry of Energy and Water Resources	X	X	X	X												
2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters with regionally and internationally available forecasting technologies using GIS and Remote Sensing tools and technologies.	10. Capacities of national institutions to monitor and evaluate adaptation strategies (Early Warnings), MoHADM, NADFOR, HADMA	Ministry of Energy and Water Resources and FAO SWALIM	X	X	X	X	X	X	X	X	X	X	X	X				
2.5 Improvements to FRISC-DIGNIIN early warning system to enable it to have country coverage and tailored warnings	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.6 Technical Service by Project Team (spread over all Outputs)	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
COMPONENT 3																		

3.1 Development of a Groundwater development action plan specifying the proposed number of boreholes, their geographical locations and their cost estimations	6. Technical assessment carried out	Ministry of Energy and Water Resources and FAO SWALIM					X	X	X	X	X	X	X	X				
3.2.1 New borehole (Southwest state, Bay region, Baidoa district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Energy and Water Resources					X	X	X	X	X	X	X	X				
3.2.2 Canal rehabilitation (Jubaland state, Gedo region, Luuq district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Energy and Water Resources					X	X	X	X								
3.2.3 Large scale Fodder production/irrigation scheme +warehouse (Jubaland state, Gedo region, Luuq district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Livestock									X	X	X	X				
3.2.4 Flood protection infrastructure (Hirshabelle state, Hiraan region, Beletwyne district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Energy and Water Resources									X	X	X	X				
3.2.5 Large scale Fodder production/irrigation scheme +warehouse (Hirshabelle state, Hiraan region, Beletwyne district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Livestock									X	X	X	X				
3.2.6 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Galmudug state, Galgaduud region, Ba'ad wayn district)	2. Type of water assets strengthened and/or better	Ministry of Energy and Water Resources					X	X	X	X								

	managed to withstand CC																	
3.2.7 Rehabilitation and expansion of existing Earth Dam - (50m X 50m X 1.5m deep) to new dimension earth dam infrastructures (130m x 70m X 4m) (Galmudug state, Galgaduud region, dhusamareeb district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Energy and Water Resources					X	X	X	X								
3.2.8 Rangeland rehab, community training on adaptation technologies along with small scale fodder production (Galmudug state, Galgaduud region, Guriel district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Livestock									X	X	X	X				
3.2.9 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Southwest state, Bakool region, Waajid district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Energy and Water Resources									X	X	X	X				
3.2.10 Rehabilitation of 1 Borehole (50 km out of town) and providing infrastructures with 14km long piping system to supply potable water to the village (Puntland, 'Bari, Kobdhaxad, Bosaso)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								
3.2.11 1 Earth dam/ water pond – (4 m deep, 130m long and 70m wide with capacity of 142360 Cum) (Puntland, Gardo District)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								

3.2.12 Construction of 4 Barkads with Dimensions: 25m by 15m and 3m deep (Puntland, Gardo, Dangorayo, Bayla and Kobdhaxad)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								
3.2.13 Rehabiliation of Dahar grazing land Soil and water conservation structures (USD 110,000) (Puntland, Sanag Region , Dhahar District	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN									X	X	X	X				
3.2.14 Construction of surface Sand dam with wing walls and it's Auxillary works (Puntland , Bayla District)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								
3.2.15 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Puntland , Dangorayo district)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN									X	X	X	X				
3.2.16 Soil and water conservation structure gully erossions (Puntland, Dangorao District)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								
3.2.17 Soil and water conservation structure gully erossions (Puntland, Gardo District)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Puntland, PSAWEN					X	X	X	X								

3.2.18 Fodder production (2 sites, 300 ha total), Prepare land (Puntland , Dangorayo /Libaaho)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Livestock, Forestry and Rangeland Management									X	X	X	X				
3.2.19 One (1) Sand dam including retaining wall for river embankments, Shallow Well, Storage Tank - 25 CUM, Solar pump system (Somaliland, Todher, Celbilcinle)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR					X	X	X	X								
3.2.20 Earth Dam Rehabilitation – Construction of Silt trap Berked, Flood control retaining wall, Water point and Ground water tank in the village (Somaliland, Todher, Celbilcinle)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR					X	X	X	X								
3.2.21 Three (3) water reservoirs (Berkads) – 25m by15m and 3m deep (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR									X	X	X	X				
3.2.22 Water distribution scheme for fodder (500 m canal) (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR									X	X	X	X				
3.2.23 Fodder production (2 sites, 300 ha total) (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Livestock									X	X	X	X				
3.2.24 CBO support for seedling nursery development (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better	Ministry of Agriculture									X	X	X	X				

	managed to withstand CC																	
3.2.25 Seeding and tree planting material, seed banks and fodder storage silos (25 m X 20m X 5m) (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Agriculture									X	X	X	X				
3.2.26 Seed harvesting machines (Somaliland, Togdher, Beer)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Agriculture									X	X	X	X				
3.2.27 Construction of flood control structure (gabion for 200m long, 1m wide and 3m deep) (Somaliland, Sool, Habariheshay)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR									X	X	X	X				
3.2.28 Rehabilitation of 3 shallow wells (Somaliland, Sool, Habariheshay)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Water Resources Somaliland, MMEWR									X	X	X	X				
3.2.29 Rangeland rehabilitation (Somaliland, Sool, Habariheshay)	2. Type of water assets strengthened and/or better managed to withstand CC	Ministry of Agriculture					X	X	X	X								

3.2.30 Training on seed production in nurseries and seed and fodder storage (Somaliland, Sool, Habariheshay)	2. Type of water assets strengthened and/or better managed to withstand CC 9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	Ministry of Agriculture					X	X	X	X	X	X	X	X	X	X	X	X
3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay) and including procurement of warehouses for value chain storage	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	Ministry of Agriculture					X	X	X	X	X	X	X	X	X	X	X	X
3.4 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability	2. Type of assets (Ha of land) strengthened and/or better managed to withstand CC	Ministry of Livestock, Forestry and Rangeland Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.5 Technical Service by Project Team (spread over all Outputs)	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland, Ministries of Agriculture, Livestock and Forestry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Component 4: M&E	9. Number of people trained to prioritize, implement, monitor and evaluate IWRM	M. Energy and Water Resources and Ministries of Water in Somaliland and Puntland, Ministries of Agriculture, Livestock and Forestry, UNDP and independent experts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Annex B: Procurement Plan

ITEM	ITEM DESCRIPTION	ESTIMATED COST (US $)	PROCUREMENT METHOD	ESTIMATED WORKING PERIOD			
Budget description	**Project Outcome/Atlas Activity**	**Total (USD)**					
Training, Workshops & Conferences	1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Four training workshops will be conducted for 150 participants with at least 30% women participation	56,000	Test & interview - Competitive Sourcing	Yr1	Yr2		
Travel	1.1 Travel costs for government representatives to come from all 6 states for training. Costs include DSA rate of USD 50/day for 2 day trainings for 150 government officials for 4 trainings	60,000	Desk Review - Competitive Sourcing	Yr1	Yr2		
Training, Workshops & Conferences	1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy	18,000	Test & interview - Competitive Sourcing	Yr1	Yr2		
Training, Workshops & Conferences	1.3 Development and endorsement of a national Hydrometeorological policy and regulation for improved Meteorological service in Somalia	18,000	Test & interview - Competitive Sourcing		Yr2	Yr3	
Training, Workshops & Conferences	1.4 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs	132,000	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Grants	1.5 Nine national students (at least 3 women), supported to attend IWRM higher degree programs. Nine (9) TVET students will also be supported (at least 3 women).	80,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Equipment & Furniture	1.6 Establishment of a Water Institute Somaliland and Water Quality laboratories in Puntland, Galmudug, Southwest and Jubbaland states.	131,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	1.6 Establishment of a Water Institute Somaliland and Water Quality laboratories in Puntland, Galmudug, Southwest and Jubbaland states.	104,000	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4

Travel	1.6 Establishment of a Water Institute Somaliland and Water Quality laboratories in Puntland, Galmudug, Southwest and Jubbaland states.	12,000	Rental review	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	1.7 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water by upstream and downstream communities and to ensure maintenance of river-based infrastructure	66,000	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	1.8 Training at the district and village levels to provide awareness on IWRM, the IWRM Strategy and its enforcement as well as specific training for women on community water management.	72,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Travel	1.8 Travel costs for national expert and local focal points to attend the annual IWRM meetings	24,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	1.9 Technical Service by Project Team (spread over all Outputs)	150,000	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Travel	2.1 Car rental and gas to conduct a study on existing hydrological equipment with a recommendation on installation locations for new monitoring equipment.	10,000	Rental review	Yr1			
Contractual Services - Indiv	2.1 Study on existing hydrological equipment with a recommendation on installation locations for new monitoring equipment building off of FAO	50,000	Desk Review - Competitive Sourcing	Yr1			
Materials & Goods	2.2 Procurement and installation of 13 AWS, 10 manual rain gauges, 9 synoptic stations and 4 radar river level sensors including fencing, spare parts, secure data server and O&M for 4 years. See Annex R in Prodoc	510,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	
Travel	2.2 Travel to sites to install equipment in 36 locations across Somalia	30,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	
Training, Workshops & Conferences	2.2 Training by equipment suppliers on data collection, storage and equipment O&M	30,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	
Training, Workshops & Conferences	2.2a Field consultations with village representatives during project implementation prior to equipment installation to verify flowmeters are in useful and secure locations relative to end-user needs and nomination and training of local NHMS/warning focal points	40,000	Desk Review - Competitive Sourcing	Yr1	Yr2		
Travel	2.2a Travel costs for 10 times to field for consultations for equipment placement. Costs include Rental Car and gas for field missions in all states	20,000	Desk Review - Competitive Sourcing	Yr1	Yr2		
Equipment & Furniture	2.3 Office and office supplies for the National Hydro-Meteorological Service in Somalia (NHMS)	100,000	Office rental and equipment procurement	Yr1			

Training, Workshops & Conferences	2.3 Establishment of a NHMS	40,000	Test & interview - Competitive Sourcing	Yr1			
Training, Workshops & Conferences	2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters with regionally and internationally available forecasting technologies using GIS and Remote Sensing tools and technologies.	154,000	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	
Materials & Goods	2.4 Purchase of forecasting software licences	60,000	Desk Review - Competitive Sourcing	Yr1	Yr2		
Materials & Goods	2.5 Improvements to FRISC-DIGNIIN early warning system to enable it to have country coverage and tailored warnings	53,500	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	2.6 Knowledge Management and Monitoring and Evaluation (spread over all Outputs)	177,700	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Equipment & Furniture	3.1 Procurement of 7 groundwater sensors, satellite transmission installation and O&M costs. See Annex R in Prodoc.	70,000	Desk Review - Competitive Sourcing		Yr2	Yr3	
Travel	3.1 Travel costs 10 times to the field to take groundwater level, yield, water quality measurements in southern states	10,000			Yr2	Yr3	
Contractual Services - Indiv	3.1 Development of a Groundwater development action plan specifying the proposed number of boreholes, their geographical locations and their cost estimations	49,600	Desk Review - Competitive Sourcing		Yr2	Yr3	
Contractual Services Co.	3.2.1 New borehole (Southwest state, Bay region, Baidoa district)	169,000	Desk Review - Competitive Sourcing		Yr2		
Travel	3.2.1 Travel and reporting costs for water mobilization/diversion team	20,000	Desk Review - Competitive Sourcing		Yr2	Yr3	
Contractual Services Co.	3.2.2 Canal rehabilitation (Jubaland state, Gedo region, Luuq district)	194,400	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.3 Large scale Fodder production/irrigation scheme +warehouse (Jubaland state, Gedo region, Luuq district)	88,600	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.4 Flood protection infrastructure (Hirshabelle state, Hiraan region, Beletwyne district)	340,200	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.5 Large scale Fodder production/irrigation scheme +warehouse (Hirshabelle state, Hiraan region, Beletwyne district)	137,200	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.6 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Galmudug state, Galgaduud region, Ba'ad wayn district)	233,300	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.7 Rehabilitation and expansion of existing Earth Dam - (50m X 50m X 1.5m deep) to new dimension earth dam infrastructures (130m x 70m X 4m) (Galmudug state, Galgaduud region, dhusamareeb district)	233,300	Desk Review - Competitive Sourcing		Yr2		

Contractual Services Co.	3.2.8 Rangeland rehab, community training on adaptation technologies along with small scale fodder production (Galmudug state, Galgaduud region, Guriel district)	117,800	Test & interview - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.9 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Southwest state, Bakool region, Waajid district)	233,300	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.10 Rehabilitation of 1 Borehole (50 km out of town) and providing infrastructures with 14km long piping system to supply potable water to the village (Puntland, 'Bari, Kobdhaxad, Bosaso)	106,400	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.11 1 Earth dam/ water pond – (4 m deep, 130m long and 70m wide with capacity of 142,360 Cum) (Puntland, Gardo District)	194,400	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.12 Construction of 4 Barkads with Dimensions: 25m by 15m and 3m deep (Puntland, Gardo, Dangorayo, Bayla and Kobdhaxad)	155,500	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.13 Rehabiliation of Dahar grazing land Soil and water conservation structures (Puntland, Sanag Region , Dhahar District	106,900	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.14 Construction of surface Sand dam with wing walls and it's Auxillary works (Puntland , Bayla District)	77,800	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.15 Construction of 1 Earth dam– (130m long, 70m wide and 4m deep) (Puntland , Dangorayo district)	194,400	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.16 Soil and water conservation structure to prevent gully erosion (Puntland, Dangorao District)	116,600	Local Advertisement		Yr2		
Contractual Services Co.	3.2.17 Soil and water conservation structure to prevent gully erosion (Puntland, Gardo District)	116,600	Local Advertisement		Yr2		
Contractual Services Co.	3.2.18 Fodder production (2 sites, 300 ha total) (Puntland , Dangorayo /Libaaho)	77,800	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.19 One (1) Sand dam – (Somaliland, Todher, Celbilcinle)	122,500	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.20 Earth Dam Rehabilitation – Construction of Silt trap Berked, Flood control retaining wall, Water point and Ground water tank (Somaliland, Todher, Celbilcinle)	70,200	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.21 Three (3) water reservoirs (Berkads) – 25m by15m and 3m deep (Somaliland, Togdher, Beer)	116,600	Desk Review - Competitive Sourcing		Yr2		
Contractual Services Co.	3.2.22 Water distribution scheme for fodder (500 m canal) (Somaliland, Togdher, Beer)	58,500	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.23 Fodder production (2 sites, 300 ha total) (Somaliland, Togdher, Beer)	54,000	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.24 CBO support for seedling nursery development (Somaliland, Togdher, Beer)	52,500	Local Advertisement			Yr3	
Materials & Goods	3.2.25 Seeding and tree planting material, seed banks and fodder storage silos (25 m X 20m X 5m) (Somaliland, Togdher, Beer)	101,000	Local Advertisement			Yr3	

Equipment & Furniture	3.2.26 Seed harvesting machines (Somaliland, Togdher, Beer)	68,000	Local Advertisement			Yr3	
Contractual Services Co.	3.2.27 Construction of flood control structure (gabion 200m long, 1m wide and 3m deep) (Somaliland, Sool, Habariheshay)	85,500	Desk Review - Competitive Sourcing			Yr3	
Contractual Services Co.	3.2.28 Rehabilitation of 3 shallow wells (Somaliland, Sool, Habariheshay)	155,500	Local Advertisement			Yr3	
Contractual Services Co.	3.2.29 Rangeland rehabilitation (Somaliland, Sool, Habariheshay)	43,200	Desk Review - Competitive Sourcing		Yr2		
Training, Workshops & Conferences	3.2.30 Training on seed production in nurseries and seed and fodder storage (Somaliland, Sool, Habariheshay) by an NGO or UN Agency (to be decided during project implementation)	158,100	Local Advertisement			Yr3	
Training, Workshops & Conferences	3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay)	123,000	Local Advertisement			Yr3	
Materials & Goods	3.3 Materials such as feedstock for the livestock	60,000					
Travel	3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay)	15,000	Desk Review - Competitive Sourcing			Yr3	
Contractual Services - Indiv	3.4 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availabilit	330,300	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	3.5 Technical Service by Project Team (spread over all Outputs)	713,700	Test & interview - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Services to Projects - Staff	4. Staff time for Gender mainstreaming, knowledge management and M&E	173,400	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Travel	4. Travel costs for M&E include: Inception Workshop: 50 people with a DSA of USD 50 for 3 days; baseline monitoring USD 1,000 per site; travel costs for capturing lessons learned USD 5,000; Stakeholder meetings at 200 people, 2 days DSA @ USD 50; Project Board Meeting travel costs - 2 night DSA at USD 50 per day for 12 people, 4 times annually; and travel costs for the IC and LC to visit the 15 sites for the MTR and Terminal Evaluation, USD 51,000	125,800	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Contractual Services Co.	4. Independent company to be recruited to conduct the DIM Audit as part of M&E	20,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Training, Workshops & Conferences	4. Inception meeting, 7 stakeholder engagement meetings, and annual (4) Project Board meetings	59,300	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Project Management							

Operating Expenses	Rental car costs	12,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Contractual Services - Project Manager	Staff time on management for Project Manager	290,400	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Contractual Services - Admin / Finance	Staff time for budgeting and administration tasks	38,400	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Contractual Services - M&E and KM	Staff time for Gender mainstreaming, knowledge management and M&E	61,200	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
Travel	Traveling to meeting costs to all 6 states	16,000	Desk Review - Competitive Sourcing	Yr1	Yr2	Yr3	Yr4
				Yr1	Yr2	Yr3	Yr4
EXPERTS			All below are Test & interview - Competitive Sourcing				
National Expert	1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Three training workshops will be conducted for 150 participants (in each region, including70 Federal Somalia, 40 Puntland, 40 Somaliland, 30% women)	24,000	IWRM National Expert, USD 4,000/mo, 3 mo for Yr 1, 3 mo for Yr 2	Yr1	Yr2		
International Expert	1.1 Capacity development and awareness-raising on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for policy makers and planners at national and state levels and increasing awareness of river management. Three training workshops will be conducted for 150 participants (in each region, including70 Federal Somalia, 40 Puntland, 40 Somaliland, 30% women)	20,000	IWRM International Expert, USD 10,000 years 1 and 2. Salary is USD 650/day for annual missions of 10 days with USD 3,500 for travel for year 1 and USD 650/day for annual missions of 10 days with USD 3,500 for travel for year 2.	Yr1	Yr2		
International Expert	1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy and training to the National IWRM Expert	42,000	IWRM International Expert, USD 22,000 for 30 days over year 2 (USD 650/day plus USD 2,500 for travel) and USD 20,000 for 27 days over year 3 (USD 650/day and USD 2,450 travel)	Yr1	Yr2		

International Expert	1.3 Development and endorsement of a national Hydrometeorological policy and regulation for improved Meteorological service in Somalia	42,000	NHMS International Expert, USD 22,000 for 30 days over year 2 (USD 650/day plus USD 2,500 for travel) and USD 20,000 for 27 days over year 3 (USD 650/day and USD 2,450 travel)		Yr2	Yr3	
International Expert	1.4 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs	42,000	IWRM Curriculum International Expert,USD 21,000 for 26 days over both years 1 and 2 (USD 650/day plus USD 4,100 for travel to universities and technical institutes	Yr1	Yr2		
National Expert	1.6 Establishment of a Water Institute Somaliland and Water Quality laboratories in each state.	8,000	WQ National Expert, USD 4,000/mo, 1 mo Yr 1 and 1 mo Yr 2	Yr1	Yr2		
National Expert	1.7 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers	24,000	IWRM expert, 4000/mo, 2 mo years 1, 2 and 3 each	Yr1	Yr2	Yr3	
National Expert	1.8 Training at the district and village levels that provide awareness on DRM, IWRM, the Water Policy and its enforcement as well as specific training for women on community water management.	24,000	IWRM National Expert, USD 4,000/mo, 1 mo for Yr 1, 1 mo for Yr 2, 1 mo Yr 3 and 1 mo Yr 4	Yr1	Yr2	Yr3	Yr4
International Expert	2.3 Establishment of a National Hydro-Meteorological Service System (NHMS)	20,000	USD 17,550 for 27 days for year 1 (USD 650/day and USD 2,450 travel)	Yr1	Yr2	Yr3	Yr4
International Expert	2.4 Training at least 6 forecasters with regionally and internationally available forecasting technologies using GIS and Remote Sensing tools and technologies. Training for at least 4 engineers / 4 technicians within DGM to operate, maintain and repair all new weather stations.	66,000	USD 24050 for 36 days for yr 1 (USD 650/day and USD 2,600 travel) and USD 18,200 for 27 days for each yr 2 and yr 3 (USD 650/day and USD 2,450 travel)	Yr1	Yr2	Yr3	
National Expert	3.2.3 Large scale Fodder production/irrigation scheme +warehouse (Jubaland state, Gedo region, Luuq district)	14,000	Fodder expert, USD 4,000/mo for 3 mo Yr 3 (with USD 2,000 for travel, reflected in travel budget)			Yr3	

National Expert	3.2.5 Large scale Fodder production/irrigation scheme +warehouse (Hirshabelle state, Hiraan region, Beletwyne district)	14,000	Fodder expert, USD 4,000/mo for 3 mo Yr 3 (with USD 2,000 for travel, reflected in travel budget)			Yr3	
National Expert	3.2.8 Rangeland rehab, community training on adaptation technologies along with small scale fodder production (Galmudug state, Galgaduud region, Guriel district)	14,000	Rangeland expert, USD 4,000/mo for 3 mo Yr 3 (with USD 2,000 for travel, reflected in travel budget)			Yr3	
National Expert	3.3 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay)	123,000	Livestock value chain expert, USD 4,000/mo, 6 mo Yr 3			Yr3	
M&E National Experts	4 Local experts to help with the baseline monitoring, EIA, the mid-term evaluation and terminal evaluation	20,000	One local expert to help with the baseline monitoring at 5,000 USD for 1.5 months and two for the EIA at 3,000 per month each and one (1) MTR expert and two (2) LTR experts to conduct evaluations over the course of a month at USD 3,000 each.	Yr1	Yr2	Yr3	Yr4
M&E International Expert	4 International experts to help with the mid-term evaluation and terminal evaluation	19,500	MTR 10 days for at 650 per day and LTR 20 days at 650 per day		Yr2		Yr4

Annex C: GEF Tracking Tool at baseline

See Excel-based GEF Adaptation Tracking Tool attached.

Annex D: Overview of Technical Consultancies

Consultant	Salary / Time Input*	Tasks, Inputs and Outputs
For Project Management / Monitoring & Evaluation		
Local / National contracting		
Project Manager	USD 305,300/yr, all 4 years	The Project Manager (PM), together with the CTA will be responsible for the overall management of the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. See the full TOR above for details.
Admin / Finance	USD 38,250/yr, all 4 years	• Set up and maintain project files and accounting systems whilst ensuring compatibility with Somalian and UNDP financial accounting procedures. • Prepare budget revisions of the project budgets and assist in the preparation of the annual work plans. • Process payments requests for settlement purposes including quarterly advances to the implementing partners upon joint review. • Update financial plans, prepare status reports, progress reports and other financial reports.

M&E and KM Expert	USD 61,350/yr, all 4 years	• Establish the overall results-based M&E/KM strategy in accordance with M&E/KM plans outlined in the project document. • Design a system for collecting information on project lessons to be used in annual progress meetings. • Develop data collection instruments, cognisant of the spatial data requirements advised by the Technical Advisory Committee • Guide and coordinate the review of the project Strategic Results Framework
International / Regional contracting		
IWRM Expert	For Activity 1.1: Salary is USD 650/day for an annual mission of 10 days with USD 3,500 for travel for year 1 and USD 650/day for an annual mission of 10 days with USD 3,500 for travel for year 2; For Activity 1.2: Salary is USD 650/day for annual missions of 30 days yr 1 and 27 days yr 2 with USD 2,500 for travel year 1 and 2,450 travel for year 2.	- Develop a gender-sensitive, equitable and pro-poor IWRM strategy; - Recommend how the existing water policies should be updated to link with the IWRM; - Introduce the IWRM Strategy to relevant national, state and district stakeholders; - Sensitize all levels of government and local districts on IWRM; - Train Trainer of Trainers (TOTs) on IWRM; - Prepare a basin-scale, multi-stakeholder plan for IWRM training, emphasizing women's involvement
NHMS Policy Expert	For Activity 1.3: Salary is USD 22,000 for 30 days over year 2 (USD 650/day plus USD 2,500 for travel) and USD 20,000 for 27 days over year 3 (USD 650/day and USD 2,450 travel)	- Develop a national Hydrometeorological policy and regulation for improved Meteorological services in Somalia

Water Resources Curriculum Expert	Salary of USD 650/day for 26 days for both years 1 and 2 with USD 4,100 travel to universities and technical institutes	- Develop an IWRM curriculum that defines gender-sensitive, equitable and pro-poor water supply specific to Somalia; - Incorporate into the curriculum how water supply infrastructure can be sustained by including best operation and maintenence practices in the context of Somalia; - Introducing all IWRM concepts to university professors and support the curriculum's integration into university and technical institute curricula
Expert to establish NHMS and train forecasters	To establish NHMS, salary is USD 650/day for 27 days with USD 2,450 travel year 1: To train forecasters NHMS forecasting expert salary is USD 650/day for 36 days year 1 and 27 days years 2 and 3 (USD 650/day and USD 2,600 travel yr2 and USD 2,450 for travel years 2 and 3)	- Support the establishment of a NHMS, its mandate via a national policy by using institutional knowledge and with coordination with FAO and their FRISC-DIGNIIN system; - Train forecasters on regionally/internationally tools, GIS, remote sensing tools
M&E and KM Expert	MTR expert to conduct the evaluation in 10 days at 650 per day and the LTR expert to conduct the evaluation over 20 days at 650 per day. Travel costs to duty station are provided at USD 3,000 and approximately USD 1,500 per site for evaluations.	International experts to help with the mid-term reivew (MTR) and long-term review (LTR)
Local / National contracting		
Water Quality Expert	4,000/mo, 1 mo Yr 1 and 1 mo Yr 2	- Train water quality labs on equipment and water quality testing procedures

IWRM Training - Government and CBOs	4,000/mo, 4.5 mo for Yr 1 and Yr 2 (3 mo for Activity 1.1 and 1.5 mo for Activity 1.8) and 1.5 mo Yr 3 and Yr 4 (Activity 1.8 only)	- Train water management groups on O&M for small and large infrastructure; - Sensitize all levels of the government and communities on how to protect water resources, emphasizing women's involvement; - Train River Basin Management groups in Shabelle and Juba river basins on canal maintenance and sustainable, equitable water distribution
Water Mobilisation Technical Expert	USD 4,000/mo, 6 mo Yr 2	- Support the design and construction/rehabilitation of boreholes, water catchments, earth dams, sand dams, shallow wells, berkeds, canal rehabilitation, fodder production irrigation schemes and flood protection infrastructure
Fodder Production Expert, Training	National rangeland rehabilitation expert: USD 4,000 per month for 3 months with USD 2,000 for travel in year 3 (Activity 3.2.8) and National fodder expert: USD 4,000 per month for 6 months with USD 4,000 for travel in year 3 (Activities 3.2.3 and 3.2.5)	- Analyze locally and regionally available drought-resistant varieties of fodder production; - Visit each fodder production site to recommend best fodder production and rangeland rehabiliation practices, - Provide costs and recommended designs for each sites

Livestock value chain expert	Salary at USD 4,000 per month for 6 months, repeated for years 2, 3 and 4. USD 5,000 per year for travel in years 2, 3 and 4.	- In-depth review livestock value chain, constraints, ; - On-the-ground review and Stakeholder consultation of fodder and livestock markets, post-harvest management capability; - Detail costs (e.g., storage) along the value chain, - Outline good practices, innovative techniques and recommendations for actionable items to improve the value chain
M&E and KM Expert	One local expert to help with the baseline monitoring at 5,000 USD for 1.5 months and two for the EIA at 3,000 per month each and one (1) MTR expert and two (2) LTR experts to conduct evaluations over the course of a month at USD 3,000 each. Travel costs to 15 sites for all of these local experts are approximately USD 1,500 per site.	National experts to help with the baseline study, the EIA and the mid-term review (MTR) and long-term review (LTR)

Annex E: Terms of Reference

A. Project Board

The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

The Project Board (PB) shall comprise national and sub-national representatives to guide and oversee the project. Focal points in the Ministries at the level of Director (and on the payroll of the government) will be responsible for coordinating project implementation and oversight of activities.

The PB will be housed within the UNDP Somalia Country Office and chaired by the Global Environment Facility Focal Point (GEF FP). Project Board meetings will be attended by the Government Focal Points in each state. Members of the Project Board are likely to include the Ministry of Energy and Water Resources, the Ministries of Water Resources (Somaliland and Puntland), Ministry of Planning and International Cooperation, the Somalia Disaster Management Agency MoHADM (Federal level), HADMA (Puntland) and NADFOR (Somaliland), the Ministry of Livestock, Forest and Rangeland, the Office and the Prime Minister, the Ministry of Agriculture, the Ministry of Health, the Ministry of Women and Human Rights Development, District Representatives and women and NGO representatives. Additional representatives will be invited to attend the Project Board meetings as required. Focal points in the Ministries at the level of Director (and on the payroll of the government) will be responsible for coordinating project implementation and oversight of activities.

The responsibilities of the PB will be to:

- Supervise and approve the annual work plans and short term expert requirements
- Supervise project activities through monitoring progress and approving annual reports
- Review and approve work plans, financial plans and reports
- Provide strategic advice to the implementing institutions to ensure the integration of project activities with national and sub-national sustainable development and climate resilience objectives.
- Ensure inter agency coordination and cross-sectorial dissemination of strategic findings
- Ensure full participation of stakeholders in project activities
- Assist with organization of project reviews and contracting consultancies under technical assistance
- Provide guidance to the Project Manager.

B. Project Manager

The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the PB. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project docu~~ment, to the required standard of quality and within the specified constraints of time and~~ cost. The PM is accountable to UNDP, the Implementing Partners (IP) and the Project Board for

the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds. He/she will also be responsible for coordinating budgets and work plans at the state level with the Technical Focal Points. The Project Manager will be assisted by a Technical Committee, a technical focal point from each state appointed by relevant ministries, an Administrative Assistant and a Monitoring and Evaluation / Knowledge Management Expert.

Responsibilities

- Ensuring effective partnerships working between the sub-national implementing Bureaus and the participating national agencies.
- Managing human and financial resources in consultation with the UNDP Programme Officer to achieve results in line with the outputs and activities outlined in the project document.
- Preparing detailed annual breakdowns of the work plan for all project objectives and preparation of quarterly work plans.
- Preparing quarterly status and financial reports for comments by the UNDP Programme Officer.
- Leading the preparation and implementation of annual results-based work plans and logical frameworks as endorsed by the management.
- Liaison with related and parallel activities dealing with IWRM, adaptation, early warning and with cooperating implementing Ministries and Bureaus.
- Monitoring project activities, including financial matters, preparing monthly and quarterly progress reports, and organising monthly and quarterly progress reviews.
- Supporting the UNDP Programme Officer to organise task team meetings and annual lesson learning conferences.
- Coordinating the distribution of responsibilities amongst team members and organising the monitoring and tracking systems.
- Reporting and providing feedback on project strategies, activities, progress, and barriers to PB.
- Organising annual task team meetings to share knowledge and experiences and lesson learned.
- Facilitating Project Board meetings and documenting meeting minutes.

C. Technical Focal Points (TFPs)

Relevant ministries will appoint a Technical Focal Point (TFP) from each state (Jubaland, Hirshabele, Galmudug, South West, Puntland States and Somaliland). S/he will be based in the UNDP Somalia state offices and will be responsible for the overall administration of the project, on behalf of their state. He/she will also support the PM with oversight, coordination of activities and maintaining a liaison with UNDP. The TFP's salary will be provided by in-kind government funds.

The TFPs will be responsible for the following in their respective state:

- Oversight and coordination of implementation of project activities.
- Assist in recruitment and supervision of technical and training expertise as required for implementation of the project.
- Developing and maintaining close linkages with relevant sectorial government agencies, UNDP, NGOs, civil society, international organisations and implementing partners of the project.
- Coordinating the establishment of its respective the State-level Committee.
- Coordinating its respective State-level Committee in carrying out their duties at an optimum level through ensuring efficient and effective resource utilization.
- Coordinating inputs into annual results-based work plans and logical frameworks as endorsed by the management.

- Coordinating inputs into all project reports as required (including Annual Project Reports, Inception Report, Quarterly Reports and the Terminal Report).
- Formalizing any NGO/CBO contractual agreements

D. Financial and Administrative Assistant

One Financial and Administrative assistant will report to PM and will contracted by the UNDP Somalia CO. His/her responsibilities will be to:

- Set up and maintain project files and accounting systems whilst ensuring compatibility with Somalian and UNDP financial accounting procedures.
- Prepare budget revisions of the project budgets and assist in the preparation of the annual work plans.
- Process payments requests for settlement purposes including quarterly advances to the implementing partners upon joint review.
- Update financial plans, prepare status reports, progress reports and other financial reports.
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.
- Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.
- Collect and maintain project related information data and establish document control procedures.
- Administer Project Board meetings.
- Administer project revision control.
- Compile, copy and distribute all project reports.
- Provide support in the use of Atlas for monitoring and reporting.

E. Monitoring and Evaluation (M&E) / Knowledge Management (KM) Expert

The M&E/KM Expert housed in the UNDP Somalia Country Office will report to the PM and will support the preparation of relevant M&E/KM systems required to monitor and assess quality of progress, to identify, collect, analyse, document and disseminate lessons learned through an annual project meeting, and support the preparation of project evidence for sharing (e.g., UNDP ALM). The M&E/KM Expert will prepare the data collection protocols to consistently collect data on project progress from project sites and its processing by the PM for national reporting purposes with assistance from the TFPs.

Responsibilities

- Establish the overall results-based M&E/KM strategy in accordance with M&E/KM plans outlined in the project document.
- Design a system for collecting information on project lessons to be used in annual progress meetings.
- Develop data collection instruments, cognisant of the spatial data requirements advised by the Technical Advisory Committee
- Guide and coordinate the review of the project Strategic Results Framework, including:
  a. Provide technical advice for the revision of performance indicators.
  b. Identify sources of data, collection methods, who collects data, how often, cost of collection and who analyses the data.
  c. Facilitate annual review of risks by PM.

- Prepare reporting formats and support PM to prepare the required reports. Guide project task teams in preparing their progress reports in accordance with the approved reporting formats. This includes quarterly progress reports, annual project reports, inception reports, and ad-hoc technical reports.
- Foster participatory planning and monitoring by advising the training institutions on content for participatory monitoring and evaluation of activities.
- Assist the PM to collate technical reports and other documents from the project and contribute to the ALM.

Qualifications Required
- Capacities in knowledge management and reporting
- Proven capacity in M&E/KM for the UN system (ALM, UNDP Evaluation Resource Centre)
- Knowledge of climate change adaptation is an asset

F. Technical Advisory Committee

A Technical Advisory Committee consisting of Ministry, donor and technical agency representatives will be formed to support the Project Implementation Team (PIT). They will be responsible for providing support on collaboration with other ministry and donor activities. They will discuss how to share resources when applicable and how to plan work timelines so that human resources are available for technical activities.

G. Gender Expert

A Gender Expert housed within the UNDP Somalia CO will be available during the duration of the project to strengthen gender considerations in climate change adaptation and in IWRM. Under the overall supervision and guidance of the Project Manager, the Gender Officer will have the responsibility for the implementation of the Gender Action Plan. The Gender Officer will work closely with the M&E Officer and the Enviro-Social Safeguards Officer on related aspects of project implementation, reporting, monitoring, evaluation and communication. Specific responsibilities will include:

- Monitor progress in implementation of the project Gender Action Plan ensuring that targets are fully met and the reporting requirements are fulfilled;
- Oversee/develop/coordinate implementation of all gender-related work;
- Review the Gender Action Plan annually, and update and revise corresponding management plans as necessary;
- Work with the M&E officer and Safeguards Officer to ensure reporting, monitoring and evaluation fully address the gender issues of the project;

S/he will be responsible for the following;

- Assisting with the training and workshops on managing water resources, ensuring that women have at least 30% representation;
- Highlighting potential water management schemes in Somalia that may have gender-specific impacts (focus on agriculture, infrastructure and rural development);
- Ensuring sectoral analyses of IWRM consider the gendered impacts of climate change;
- Assisting to develop a strategic approach, guidelines and methodologies for strengthening the integration of gender considerations in climate change adaptation by recommending gender mainstreaming for existing and planned policies, plans, laws and

regulatory frameworks, such as the planned National IWRM Strategy and the establishment of River Basin Management Authorities (RBMA);

- Ensuring that small grants for community-based IWRM measures include priorities identified by women;
- Ensuring that district RBMAs have appropriate gender representation;
- Assisting in the implementation of Component 3 by supporting women's livelihoods diversification with the introduction of value chain training aimed to reduce dependence on dwindling natural resources;
- Supporting the Monitoring and Evaluation (M&E) expert in the Project Implementation Team to find ways to segregate and aggregate gender specific data and information in the project M&E process;
- Assisting in organizing and implementing workshops to highlight gender considerations for sustainable adaptation and IWRM

H. Project Safeguards Officer (Due to project's SESP rating of moderate)

Under the overall supervision and guidance of the Project Manager, the Environmental and Social Safeguards Officer will have the responsibility for the implementation of the environmental and social management plan/framework. The Safeguards Officer will work closely with the M&E Officer on related aspects of project reporting, monitoring, evaluation and communication. Specific responsibilities will include:

- Monitor progress in development/implementation of the project ESMP/ESMF ensuring that UNDPs SES (SESP) is fully met and the reporting requirements are fulfilled;
- Oversee/develop/coordinate implementation of all safeguard related plans;
- Ensure social and environmental grievances are managed effectively and transparently;
- Review the SESP annually, and update and revise corresponding risk log; mitigation/management plans as necessary;
- Ensure full disclosure with concerned stakeholders;
- Ensure environmental and social risks are identified, avoided, mitigated and managed throughout project implementation;
- Work with the M&E officer to ensure reporting, monitoring and evaluation fully address the safeguard issues of the project;

The Project Safeguards Officer will be recruited and placed on a retainer contract with the following qualifications:

- A Bachelor's degree, preferably in the field of community development or natural resource / environmental management;
- A environmental and safeguards qualification (certificate, demonstrated experience);
- At least three years of relevant work experience of communications for project or programme implementation, ideally involving international donors;
- Previous experience with GEF-financed projects;
- Previous experience in developing and implementing environmental and social safeguard strategies for organizations or projects;
- Very good inter-personal skills;
- Proficiency in computer application and information technology;
- Excellent language skills in English (writing, speaking and reading) and in local languages.

I. IWRM Curriculum Expert (International, 3 mo)

An International Specialist with experience in Integrated Water Resources Management (IWRM) will be hired to develop water resources sub-modules to be integrated into existing degree programmes (environment, natural resources, public planning and administration, agriculture, etc) at universities and vocational institutes in all states. All existing curricula touch upon environmental issues without going into climate change's impact on water resources. The IWRM Curriculum Expert will be responsible for training University and TVET professors on the basics of IWRM and international best practices on water-related adaptation interventions as related to specific sectors. The faculty members will subsequently be responsible for teaching the materials and creating a pool of graduates with relevant technical expertise to serve the understaffed ministries.

Specific responsibilities for the IWRM Expert shall include

- Conduct an initial study to begin measuring and segregating the levels of knowledge of IWRM within Somalia and the type of adaptation practices related to the water sector in use;
- Design modules that enhance the knowledge and capacity of young academics and future professionals and vocational graduates to address water resources management issues across different disciplines:
- Develop sessions on the impacts of increasing temperature and more intense rainfall events on water resources;
- Support linkages with an international University to broaden exchange and to build sustainability mechanisms into the IWRM modules;
- Guide IWRM education and awareness programmes to publicize scholarships available and open government positions by collaborating with universities, TVETs and media programmes

Expertise Required:

- PhD holder majorly in a field
- Have a minimum of a doctorate in an environment discipline stressing Integrated Water Resource Management;
- An experience in developing climate change education and awareness programmes;
- Excellent oral and written communication in English is required;
- Have sound knowledge in climate change impacts and appropriate adaptation methods for water management across sectors;
- Have competence in working with universities and professors;
- Knowledge on Arid and Semi-Arid Lands (ASALs)
- Knowledge on River Basin Management

J. Water Production / Mobilisation Team (International Consulting Company Contract)

The International Water Production / Mobilisation Team will provide assistance with the design and construction of water infrastructure in all states. The team must have experience in designing large-scale infrastructure in Africa, particularly in Arid and Semi-arid Lands (ASALs) and within river basins. The team will be responsible for contributing and verifying the design of the following:

- Earth dams, Sand dams, Hafir dams
- Flood control walls with gabion
- Water diversions
- Rehabilitation of canals and boreholes
- Borehole construction

The team will be responsible for a preliminary study to confirm the hydro-geological technical siting of water mobilization works by giving the reasons for the socio-economic opportunities of these works. This preliminary study will be enriched by a study of erosion control, a detailed topographic survey and a detailed hydrological study of each watershed (evaluating means and frequency inputs, flow frequency, flood routing, sediment yield and lifetime of the work).

The team will have to:

1) Select the communities in the targeted districts and establish Community Based Organizations (CBOs) where the infrastructure schemes are to be implemented.
2) Conduct technical studies at the watershed and sub-watershed level in the targeted districts where the infrastructure schemes are to be implemented to inform water planning, infrastructure design and maintenance.
3) Conduct feasibility assessment, including environmental impact assessment, for proposed physical interventions.

In the feasibility assessment, the team must identify the main geotechnical characteristics including

• The stability of the site and its foundation,
• The infiltration rates of the site and its basin,
• The quantity and quality of earth and materials necessary to construct the water infrastructure (in conjunction with the contractor).

The team will also provide monthly updates on the below activities.

- Social mobilization report (including training reports)
- Water Infrastructure O&M Plans
- Feasibility studies for the target locations and detail design/BOQs for the envisaged interventions

From these studies, the team will be responsible for supporting and validating the design calculations such as on proper drainage mechanisms and flow retardation control measures. The team will be responsible for providing all detailed designs with cost calculations to the Project Manager.

Qualifications Required

- An advanced university degree in Civil Engineer;
- A minimum of ten years of varied experience in designing and constructing water mobilization infrastructure, with at least 5 years' experience in sub-Saharan Africa;
- Experience working in Arid and Semi-Arid lands;
- Excellent capacity to lead and support geotechnical and hydrological studies;
- Ability to manage personnel and work as a team by working closely with Water Ministries
- Experience with employment creation for construction tasks with schemes such as Cash for Work
- Excellent communication and writing skills in English (requirement)

K. Environmental and Social Impact Assessment Consultant Team (International 3 mo.)

The ESIA team will be responsible for conducting a detailed Environmental and Social Impact Assessment. S/he will use the UNDP ESSP as the basis for the study (See Annex F).

The tasks of this ESIA Consulting Team will be to:

• Review the existing ESIA guidelines for each state;
• Define and justify the project study areas using an internationally accepted Environmental Impact Assessment procedure;
• Describe and analyse the conditions of the physical, biological and human environment of the target sites. This analysis should understand the interrelationships between environmental and social components and the importance that society and local people attach to these components, in order to identify the environmental and social components of high value or special interest. The emphasis should be particularly on the analysis of water quality impacts from the use of agricultural and livestock inputs, agro-pastoral practices on surface water and groundwater and the environment, people's expectations and taking into account socioeconomic benchmarks of the project area;
• Present and analyse alternatives to the proposed project, including the "without project", identifying and comparing the alternatives on the basis of technical, economic, environmental and social criteria.
• For the selected alternative, identify and assess the significance of positive and negative, direct and indirect environmental and social potential impacts in the short and long term , temporary and permanent , on the basis of a rigorous method.
• Identify appropriate mitigation and improvement to prevent, minimize, mitigate or compensate for adverse impacts or enhance benefits environmental and social project, including the responsibilities and associated costs.
• Identify the risks of climate change on various components of project and propose appropriate adaptation measures to improve resilience climate of the project;
• Examine the potential cumulative impacts, taking into account other initiatives in the study area.
• Develop a program of environmental and social monitoring, including indicators, institutional responsibilities and associated costs.
• Identify institutional responsibilities and needs for capacity building, if necessary, to implement the recommendations of the environmental and social assessment.
• Conduct consultations with stakeholders to hear their views and concerns regarding the project. Such consultations shall be held during the preparation of the ESIA report to identify key issues and environmental and social impacts, and after the preparation of the preliminary report of the ESIA to gather input from stakeholders on mitigation and bonus offered.
• Prepare an Environmental and Social Management Plan (ESMP) in accordance with UNDP canvas. This management plan should be presented in a separate document ESIA report.
• Document Stakeholder validation of environmental and social safeguards.

Consultant Team Profile
The team of environmental assessment experts shall have

- A minimum of a Master's degree related to Environmental Assessment, Water and Forest, Agriculture / Agronomy, Planning, Environmental Science, International Development, hydrology and hydrogeology or related discipline; Social experts must have at least a Masters in sociology, socio -economics, water resources economics or related discipline;
- A minimum of 5 years of experience in environmental and social impact assessment of development projects;
- Strong familiarity with UNDP procedures for environmental and social assessment;
- Understanding of techniques to mobilize surface water and groundwater and to divert surface water.

L. IWRM Expert (International 6 mo.)

The International Integrated Water Resources Management Expert will be hired to coordinate the development of the IWRM strategy, to train government representatives on IWRM from

district up to national levels and to train Trainer of Trainers to conduct the training at the local level. S/he will be responsible for the following tasks:

- Prepare the enabling environment for IWRM by developing a gender-sensitive, equitable and pro-poor IWRM strategy linking to National and State Water Policies;
- Provide a roadmap for updating water policies to account for IWRM and to incorporate the IWRM strategy into broader social, economic and environmental goals;
- Provide awareness-raising on Integrated Water Resources Management (IWRM) as a means to ensure the equitable and efficient management and sustainable use of water for policy makers and planners from district to national levels;
- Support stakeholders to create a workplan for the iterative IWRM planning process so that updates can be continuously incorporated with appropriate feedback mechanisms;

Source: Opportunities for International Water Governance: the Guadiana Basin Experience - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/Stages-in-IWRM-planning-and-implementation-GWP-2007_fig1_282850311 [accessed 11 Jun, 2018]

- Inform district up to national stakeholders (see the Stakeholder Engagement Plan Annex G) on IWRM, incorporating information on climate induced impacts on water resources management, river basin management (for Juba and Shabelle states), ensuring at least 30% women representation
- Provide awareness and understanding of IWRM best practices for the Juba and Shabelle River Basin Management Associations (RBMAs) to be established
- Support state and national governments on how to establish equitable water tariffs that account for drought periods
- Sensitize all levels of the government on how to protect water resources in order to ensure its sustainable supply
- Prepare a basin-scale plan for IWRM training to guide Trainer of Trainers (TOTs)
- Train TOTs on awareness of IWRM with specific training for women on community water point Operation and Management (O&M)
- Provide examples of best practices on O&M for small and large infrastructure specific to Somalia

Qualifications Required

- An advanced university degree in hydrology or equivalent;
- A minimum of ten years of varied experience in designing IWRM strategies/plans;
- Ability to manage and train personnel;
- Excellent communication and writing skills in English (requirement)

M. IWRM Expert (National 12 mo.)

The National Integrated Water Resources Management Expert will be involved with local level capacity building on IWRM and will guide the TOTs trained by the aforementioned International IWRM Expert. S/he will be responsible for the following tasks as guided by the basin-scale plan for IWRM training prepared by the IWRM International Expert:

- Inform local CBOS and community groups (see the Stakeholder Engagement Plan Annex XX) on IWRM, climate induced impacts on water resources management, river basin management (for Juba and Shabelle states).
- Sensitize local groups on how to protect water resources in order to ensure it sustainable supply
- Provide specific training for women on community water point management and train water management groups on O&M for small and large infrastructure in coordination with CARE
- Ensure stakeholders, particularly women and the poor are given a voice in the planning process

Qualifications Required
- An advanced university degree in hydrology or equivalent;
- A minimum of five years of varied experience in designing IWRM strategies/plans;
- Experience working in Arid and Semi-Arid lands;
- Ability to train personnel and work as a team by working closely with Water Ministries;
- Excellent communication in Somali and writing skills in English (requirement)

N. Livestock Value Chain Expert (National 6 mo.)

The Livestock Value Chain Expert will be producing a local market value chain analysis and will provide training to community-based agro-pastoral groups on how to sustainably exploit their value chains (e.g., (milk, hide, etc). S/he will be responsible for the following tasks in two Phases:

Phase 1: Market analysis
- Conduct an in-depth review of what is known about the livestock value chain locally including gathering data and available information on current output markets (e.g., production, consumption, prices, imports and exports), constraints along the value chain and potential solutions.
- Conduct an on-the-ground review of the closest fodder feed markets using interviews and focus groups district levels
- Conduct stakeholder consultation in the regions of the targeted villages with a wide range of donors, NGOs, private sector, academics interested in the livestock value chain such as in key livestock markets such as Beletyne
- Basic information to be collected from the reviews and Stakeholder consultations include:
    - Background data on the local livestock value chain (e.g., production, consumption, volatility)

    - Costs (e.g., storage) along the value chain, constraints along the value chain (e.g., level of aggregation, market information systems, post-harvest management capability and capacity)
    - Outline good and poor practices that can be scaled-up or eliminated

- Detail the investment required for actions recommended and their potential impact (e.g., increase in agro-pastoral income)
- Outline innovative techniques such as using mobile phone alerts to notify nomadic pastoralists of market opportunities
- Detail clear, actionable recommendations on how markets for the value chain can be strengthened, including rationale for these recommendations in a final report
- Show how women will be included in the value-chain development

Phase 2: Training on the livestock value chain for agro-pastoral groups and women's groups

- With understanding of local livestock markets, train AgroPastoral Field Schools (APFS) and Women's Groups on how to exploit nearby value chain markets noting current demands and the volatility of demand per season, with integration of expected climate change impacts
- Trains the groups on how to obtain good quality feed from nurseries and fodder production sites that will use more drought-resilient forage varieties
- Train the groups that rangeland restoration is critical to having more sustainable sources of feed,
- Link with existing APFS and Women's groups to provide training on how to produce and store hide and milk products along the value chain (e.g., milk, butter, yogurts, cheeses)
- Train the groups on establishing mobile alerts to identify market opportunities
- Train the groups on how to get a diversified range of products to the local shops
- Conduct a final meeting with the key stakeholders to prepare a value chain exploitation guidebook in the Somali language
- Prepare a final report on optimal value chain training for APFS and Women's groups that includes feedback from various stakeholders

Qualifications Required

- An advanced degree in animal science or a related field relevant to livestock;
- A minimum of ten years of varied experience in livestock market chain analysis;
- Experience working in Arid and Semi-Arid lands;
- A minimum of five years of varied experience in providing training on exploiting the livestock value chain;
- Ability to manage personnel and work as a team by working closely with cooperatives;
- Excellent communication and writing skills in English (requirement)

O. National Hydro-Meteorological Services (NHMS) Expert (International 3 mo.)

The National Hydro-Meteorological Services Expert will be responsible for establishing the NHMS on the federal level and on training weather forecasters. The role will require significant interaction with the ministries and FAO SWALIM and the Red Cross on alert production and dissemination respectively. S/he will be responsible for the following tasks:

- Support the establishment of a NHMS, using current institutional knowledge such as within the Ministries of Water;

- Develop the capacities of the NHMS to build on the FRISC-DIGNIIN flood forecasting system to produce timely, drought/flood forecasts in coordination with FAO-SWALIM;
- Train 6 forecasters on regionally/internationally available forecasting tools and GIS and remote sensing tools;
- Work with FAO and the Red Cross on how to disseminate warnings and contingency plans via mobile phone and community focal point networks;
- Improve links for community-based warnings by assigning and engaging focal points on the local level. (The focal points will be responsible for providing feedback in order to improve the alert system) ;
- Provide training on how to tailor forecasts to agro-pastoralists, particularly nomadic pastoralists

Qualifications Required

- An advanced university degree in meterology, hydrology or equivalent;
- A minimum of ten years of experience on capacity building for NHMS;
- A minimum of five years of experience on training forecasters to produce targeted alerts and to disseminate the alerts;
- Experience working in Arid and Semi-Arid lands;
- Ability to train personnel and work as a team by working closely with existing Water Ministries, FAO-SWALIM and IGAD;
- Excellent communication and writing skills in English (requirement)

P. National Fodder Production Expert (XX mo.)

The fodder production expert will evaluate the best methods to improve fodder production at the targeted fodder production sites. The expert must perform a desk review aimed at collecting key background information on, climate, soil, agriculture and livelihood possibilities as well as the fodder market situation near the 17 targeted sites. The expert will go for a site visit to all 17 villages in order to conduct the study. The expert must work in tandem with the livestock value chain expert.

The expert must evaluate:

- Fodder/forage plants that are suitable for local conditions (soil, temperature and rainfall)
- Rainfall required and if not sufficient, propose canal-based or borehole-based irrigation systems to improve production sustainably
- Advise on locations for water sources?
- Estimate potential scale for fodder production and what measures are required to increase production scale of fodder
- Estimate direct and indirect agricultural production costs for fodder (required investment)
- Look at surrounding fodder market needs/demands based on current and historical data
- Work with the livestock value chain expert to outline roles for women and men in the fodder value chain.
- Propose what fodder products can be produced by local women
- Assess risks that may threaten the success of the production

Qualifications Required

- A minimum of ten years of experience in agriculture;

- A University degree (Master's or above) in agriculture or in a discipline relevant to this assignment;
- Experience working in Arid and Semi-Arid lands and in flood plains around rivers;
- Experience in the designing of technical feasibility studies, particularly those related to sustainable agriculture production;
- Works well with experts of related disciplines such as water resource engineers and value chain experts;
- Excellent communication skills in Somali and writing skills in English (requirement)

Q. National Water Quality Expert (2 mo.)

The expert/trainer will develop the sampling protocols for surface and groundwater quality sampling for the 5 water quality labs to be established in Puntland, Hirshabelle, Jubaland, Galmudug and Southwest states). The expert must support with the following tasks:

1) provide technical advise on the locations of the monitoring points;
2) list the physicochemical parameters to be monitored/analyzed at each monitoring point individually;
3) provide the preferred schedule (dates) for the sampling;
4) define the procedures for samples pretreatment, storage, and preservation;
5) show how to perform the analyses of all requested/agreed parameters in the water samples according to ISO standards;
6) present the protocols for the in situ determinations of certain parameters;
7) provide guidance on quality assurance practices for field procedures;
8) train the water quality personnel on how to use the sampling/testing instruments;
9) provide standard operating procedures for the water quality sampling machines
10) recommend formats for analysis reports and datasheets for reporting results;

Qualifications Required

- University degree in Chemistry, Biology, Water/Environmental sciences, or a similar field related to water resources management;
- At least 10 years of relevant professional experience in the field of water monitoring and water quality assessment;
- Good communication and team working skills;
- Practical experience in providing technical expertise for water monitoring -Physical-Chemical, Heavy Metals, Priority Substances - and reporting;
- Experience with water quality assessment including sampling, analyses and/or data interpretation;
- Experience in providing on the job training and capacity building activities;
- Excellent communication skills in Somali (preferable) or English and excellent writing skills in English (requirement)

Annex F: UNDP Social and Environmental Screening Procedure and plans as needed

Please see the signed Environmental and Social Screening Procedure (ESSP) attached. Risks highlighted in the ESSP have been noted in Section IV and in Annex I.

Annex G: Stakeholder Engagement Plan

Stakeholder Engagement Plan

UNDP SOCIAL AND ENVIRONMENTAL STANDARDS (SES)

The following Stakeholder Engagement Plan (SEP) adheres to UNDP's Social and Environmental Standards (SES. The SES demonstrate UNDP's commitment to mainstream social and environmental sustainability in its Programmes and Projects to support sustainable development. The SES require that all UNDP Programmes and Projects enhance positive social and environmental opportunities and benefits as well as ensure that adverse social and environmental risks and impacts are avoided, minimized, mitigated and managed.[94]

UNDP SES is comprised of several elements: the Overarching Policy and Principles, Project-Level Standards, and the Policy Delivery Process. An overview of key elements of the SES is presented in the figure below. As shown, stakeholder engagement is one of the key policy delivery requirements.[95]

Source: UNDP SES 2014

Under the delivery process of Stakeholder Engagement and Response Mechanisms, UNDP is committed to ensuring meaningful, effective and informed

[94] Approved in June 2014 by UNDP's Organizational Performance Group and effective 1 January 2015
[95] UNDP Social and Environmental Screening Procedure. UNDP. 2014

participation of stakeholders in the formulation and implementation of UNDP Programmes and Projects. [9]

Stakeholder engagement involves the following elements in varying degrees:[10]

- *stakeholder analysis and planning,*
- *disclosure and dissemination of information,*
- *consultation and meaningful participation,*
- *dispute resolution and grievance redress,*
- *ongoing reporting to affected communities and stakeholders, and*
- *inclusion of stakeholders in monitoring and evaluation*

It also provides that the process will be conducted in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner. Participation of affected communities in ensured in a meaningful, effective and informed consultation processes. The establishment of an effective Project-level grievance mechanism is also required.

UNDP also implements the delivery process for access to Information, to ensure that relevant information are disclosed to help affected communities and other stakeholders understand the opportunities, risks and impacts of the proposed activities. Information must be made available in a timely manner, in an accessible place, and in a form and language understandable to affected persons and other stakeholders, including the general public, so they can provide meaningful input Project design and implementation.[11]

SOMALI REGULATORY FRAMEWORK

Environmental policies and regulations are evolving, article 25 of provisional constitution states that:

Article 25.

Environment

(1) Every person has the right to an environment that is not harmful to their health and well-

being, and to be protected from pollution and harmful materials.

(2) Every person has the right to have a share of the natural resources of the country, whilst being protected from excessive and damaging exploitation of these natural resources.

Although, Somalia doesn't have EIA stakeholder process regulations, the project will adhere to traditional systems of dispute resolution using religious and clan leaders or elders. The project will legitimize their important roles in society under the IWRM strategy to support the development of sustainable water management systems.

In this SEP for Somalia, a stakeholder is defined as persons (natural or juridical) who affect or are affected by the project or undertaking such as but not limited to members of the local community, industry, local government units, national government agencies and non- government organizations and people's organizations[17].

In order to develop an effective SEP, it is necessary to identify exactly the various stakeholders – from project implementers to impacted communities. Stakeholder engagement should also be started at the earliest possible stage,

For this SEP, the following key stakeholder groups have been identified:

- *State actors (national/regional/district levels);*
- *Non-state actors (Non-Government Organizations, NGOs, Community-Based Organizations, CBOs);*
- *Impacted communities; and*
- *Vulnerable groups (women, elderly, youth, nomadic pastoralists and other mobile groups/informal settlers, people with disabilities).*

State Actors

The state actors identified for this SEP are further categorized into stakeholders at the national, state and district levels.

A key national actor is the Ministry of Energy and Water Resources. Also, the GEF focal point is housed in the Office of Environment at the Office of the Prime Minister.

As a water resource project, the other key state actors are MMEWR (Somaliland) and PSAWEN (Puntland). They will be tasked with implementing programs and ensuring mainstreaming of IWRM in state, local, and sectoral plans towards climate-resilient and sustainable development. MoHADM is the federal body responsible for Disaster Risk Management (DRM). HADMA (Puntland) and NADFOR (Somaliland) are the state-based DRM agencies responsible for ensuring the protection and welfare of the people during disasters or emergencies. The water ministries and DRM institutions of the newly established member states will also be engaged during the project implementation

National	Subnational	Local
Ministry of Energy and Water Resources (MEWR), Federal Republic of Somalia Office of Environment at the Office of the Prime Minister	Ministry of Mining, Energy and Water Resources (MMEWR), Somaliland environmental line ministries at state levels	Local Government: Governor and Councils

National	Subnational	Local
DRM Federal level: MoHADM	Puntland State Agency of Water, Energy and Natural Resources (PSAWEN) and Regional Water Authorities	Civil Society and Community Based Organizations
Ministries of Health	DRM Puntland: HADMA	Communities (traditional leaders, pastoralists, youth groups, CBOs)
Ministries of Livestock	DRM Somaliland NADFOR	District disaster committees
Ministries of Planning	Educational Institutions Ministry of Education, Somaliland, Galmudug, Puntland, Hir-Shabelle, South West, and Jubaland	Regional Education Committee, District Education Committee, women and youth groups, Teachers associations, parent associations, School committees, and Environmental Committees etc. National Universities
Ministries of Women		

Non-State Actors

The non-state actors include:

- *Non-governmental organizations/Community Based Organizations*
  - *CARE International*
  - *PENHA*
  - *ADESO*
  - *DRC (Danish Refugee Council)*
  - *ICRC (International Committee of the Red Cross)*
  - *IRC (International Rescue Committee)*
  - *ADRA (Adventist Relief Development Agency)*

- *Academic Institutions*

- *Somalia national university*
- *Hargeisa*
- *Puntland state university*
- *Benaadir State University*
- *Amoud University*
- *SIMAD Technical School, Mogadishu*
- *Mogadishu University*
- *Golis University, Hargeisa*
- *Hormud University, Mogadishu*
- *East Africa University, Somalia*

The impacted communities and vulnerable agro-pastoralists, including nomadic pastoralists can be represented by formal (or organized) groups as well as the communities itself:

List of communities

No.	Project Districts
1	Baidoa
2	Luuq
3	Baletweyn
4	Ba'ad wayn
5	Guriel
6	Waajid
7	Baidoa
8	Kobdhaxad
9	Gardo
10	Dhahar
11	Bayla
12	Bursallah
13	Dangorayo
14	Libaaho
15	Celbilcinle
16	Beer
17	Habariheshay

At the local level, the formal groups will include:

- *Traditional clan leaders/elders, and Religious leaders*
- *Cooperatives (Pastoral cooperatives formed with the support*

of ADESO)

- *Farmers associations*
- *Business organizations (local chamber of commerce)*
- *women and youth -based groups*
- *District Disaster Management Committees*
-

STAKEHOLDER ANALYSIS

Having identified stakeholders for the proposed project, an analysis of their respective importance and influence in relation to this project has been undertaken. The analysis will allow for the formulation of focused engagement strategies.

The interest and the corresponding importance and influence of the various stakeholders can be summarized as follows:

Stakeholder	Significance to Project	Expected Role
Ministry of Energy and Water Resources (MEWR), Federal Republic of Somalia Office of Environment at the Office of the Prime Minister	The GEF focal point is housed in the Office of Environment at the Office of the Prime Minister	The Ministry of Energy and Water (MEW) maps out Somalia´s water resources, energy infrastructure and facilities to ensure they are well-appropriated. In this project, MEW will be tasked with the water-related activities at the Federal Level such as the development of the IWRM strategy.
Ministry of Mining, Energy and Water Resources (MMEWR), Somaliland	Responsible for Water Resources Management in Somaliland	The MMEWR is responsible for water resources management, developing sector policy, implementing regulatory functions, coordinating sector activities and implementing an integrated water resources management plan. MMEWR will be tasked with supporting the development of the National IWRM policy and to update Somaliland´s existing Water Act and Water Policy to be aligned with the overall strategy. They will also be responsible for all water resource development activities funded by LDCF in Somaliland.

Stakeholder	Significance to Project	Expected Role
Puntland State Agency of Water, Energy and Natural Resources (PSAWEN) and Regional Water Authorities	Responsible for Water Resources Management in Puntland	The Puntland State Agency of Water, Energy and Natural Resources (PSAWEN) assumes regulatory responsibility for water resources in Puntland. Regional level Water Authorities play a critical role in the operation and maintenance of water infrastructure and are important Stakeholders for capacity building activities in Puntland. In the project, PSAWEN will be tasked with supporting the development of the National IWRM policy and to update Puntland´s existing Water Paper. With the Regional Water Authorities they will also be responsible for all water resource development activities.
Federal Ministry of Health, and Regional Member States Health Ministries (Somaliland, Puntland, Galmudug, Hir-Shabelle, South West, and Jubaland)	Responsible for health and safety of the population at national and sub-national level	The Ministries of Health in all zones will be tasked to ensure that project interventions such as well abstraction support good water quality.
Federal Ministry of Livestock, and Regional Member States	Livestock, Forest and Rangeland Management	The Ministries of Livestock in each state will be heavily implicated in any decision-making on the placement of water points and other water management

Stakeholder	Significance to Project	Expected Role
Livestock, Forest and Range Ministries (Somaliland, Puntland, Galmudug, Hir-Shabelle, South West, and Jubaland)		infrastructure for pastoralists.
Federal Ministry of Planning, and Regional Member States planning ministries (Somaliland, Puntland, Galmudug, Hir-Shabelle, South West, and Jubaland)	Responsible in coordination, priority ranking, and resource mobilisation	The Federal Ministry of Planning and International Cooperation, along with Ministries of Planning in Puntland and Somaliland will be responsible for mobilizing resources to support continual IWRM.
Federal Ministry of Women, and women and Human Right Ministries of the Regional Member States (Somaliland, Puntland, Galmudug, Hir-Shabelle, South West, and Jubaland)	Mainstreaming of gender and Human Rights	Women will be prioritized in the project due to their important role in collecting water in Somali society.
Disaster Management Agencies at	Lead in Disaster Preparedness, response, and Early warning alerts	The Somali Disaster Management Agency (MoHADM) at the federal

Stakeholder	Significance to Project	Expected Role
National and Sub-national levels		level will be provided technical support to produce drought and flood forecasts for agro-pastoralists in Component 2. Similar support will be provided to the National Environment and Research and Disaster Preparedness and Management Authority (NADFOR), Somaliland, and the Humanitarian Affairs and Disaster Management Agency (HADMA), Puntland.
Local Government: Governor and Councils	Projects liaison and coordination of intervention activities	Local government representatives will coordinate and implement projects at the district level and will help to channel communication between communities and the project. Community based warning water management structures such as Water User Associations will be trained at the local level.
UN Agencies	Partnership and Co-funding for tangible impacts to the most vuonerrable Pastoral communities and Ecosystems based services	Given their expertise FAO will support IWRM and the expansion of the climate / weather monitoring network in the ASALs.
Civil Society and Community Based Organizations	Advocacy, and local project implementers	LDCF funds will be used to develop criteria for award of sub-contracts to CBOs for the implementation of small water infrastructure construction, rehabilitation, forage production activities under Component 3.
Communities (traditional leaders, pastoralists, youth groups, CBOs)	Local project implementers/partners	Through the SEP, LDCF funds will be used to legitimize traditional leaders involved in water-management, these leaders will play a key part in

Stakeholder	Significance to Project	Expected Role
		resource conflict prevention and peace-building.
Educational Institutions	Scientific/technical support services Climate information Hazard information	Universities, colleges and research institutes will be engaged for collaboration and knowledge generation to advocate for the inclusion of IWRM into their curricula.
Private sector	Sustainable investment and project partnership to minimise climate risks	The private sector, particularly related to the livestock industry and water supply will play an important in O&M for large water infrastructure through PPP structures and in creating opportunities for employment through value-chain improvements.
Media	Education and sensitisation campaigns/awareness services	Partnering with various media outlets will assist in Awareness Raising on IWRM, which is included in Component 1.

STAKEHOLDER ENGAGEMENT PROGRAM

The stakeholder engagement strategies, under this SEP, shall strive to achieve the desired characteristics of a meaningful, effective and informed consultation process:

- *Free of external manipulation, interference, coercion, and intimidation*
- *Gender and age-inclusive and responsive*
- *Culturally appropriate and tailored to the language preferences and decision- making processes of each identified stakeholder group, including disadvantaged or marginalized groups*
- *Based on prior and timely disclosure of accessible, understandable, relevant and adequate information, including draft documents and plans*
- *Initiated early in the project design process, continued iteratively throughout the project life cycle, and adjusted as risks and impacts arise*
- *Addresses social and environmental risks and adverse impacts, and the proposed measures and actions to address these*
- *Seeks to empower stakeholders, particularly marginalized groups (e.g., nomadic pastoralists), and enable the incorporation of all relevant views of affected people and other stakeholders into decision-making processes, such as Project goals and design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues*
- *Documented and reported in accessible form to participants, in particular the measures taken to avoid or minimize risks to and adverse impacts on the Project stakeholders*

STAKEHOLDER ENGAGEMENT PROCESSES

The stakeholder engagement processes (especially the Field Stakeholder Consultations during project preparation phase) have used / will continue to utilize two general approaches for engagement:

- *Formal meetings. Intended for state actors and organized/formal groups, the formal meetings will make use of: plenary presentation of the project design, including basic elements of ESS, grievance redress mechanisms, gender action plan; group discussions; and open fora. A full documentation of these meetings, including photo-documentation and audio-recording, will be undertaken. A Project brief will be prepared and distributed during these formal meetings.*
- *Public meetings. Intended for non-state actors, the activity will make use of laymanized Project Brief and presentation material.*

Proceedings shall be recorded and documented.

For each stakeholder group, guide questions will be prepared to ensure that insights from each stakeholder group will be secured and used as inputs to enhance the project design.

The spectrum of key activities for stakeholder engagement at various phases can be summarized as follows:

Project Phase	Project Stage	Key Activities
Project Preparation Phase	Screening Scoping	Inception/scoping meetings with key national government agencies Scoping/Screening field visits
	Project formulation Social and Environmental Screening template	Stakeholder orientation on safeguards Stakeholder consultations □ National level □ Sub-national level □ Local/community level Presentation of draft SESP template and draft ESMF
Project Implementation	Project approval Inception, detailed work planning and mobilization	Stakeholder consultations (in the context of public participation) □ National level □ Sub-national level □ Local/communit
	Project implementation Monitoring and evaluation	Community consultation/disclosure (prior to actual project implementation) Continuing community consultation/feedback (during the course of project implementation)

During project formulation, in the course of stakeholder engagement, the following key considerations were integrated into the conduct of various activities:

- *Engagement of stakeholders at the national and sub-national levels were undertaken separately to obtain the appropriate depth of discussions and consultations at each level.*
- *Engagement of local state actors (e.g., provincial and local governments) were conducted in separate groups to allow for relatively free discussions of their respective concerns and inputs.*
- *Activities were designed to serve as information dissemination as well as to solicit inputs to and/or validate the project design. The events also serve as opportunity for orientation on safeguards.*

FIELD STAKEHOLDER CONSULTATIONS

The proposed project will bring Integrated Water Resources Management to approximately 357,000 Somali agro-pastoralists within the 17 most water-scarce, climate vulnerable provinces in the Federal Member States. These areas are extremely vulnerable to flood-induced erosion and water shortages during drought periods.

To rationalize the stakeholder consultation process as part of the project preparation phase, site visits were made to over 45 villages in all states. These targeted villages have been chosen based on the following criteria:

No.	Site Selection Criteria
1	Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure)
2	Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)
3	Need for water mobilization / diversion (5 strong - 0 weak)
4	Need to combat desertification / erosion / land degradation (5 strong - 0 weak)

5	Number of expected socio-enviro-economic benefits (5 many – 0 few)
6	Likelihood of gender equality and/or gender empowerment (5 high – 0 low)
7	Active women's associations present (5 many - 0 none)
8	Active NGOs/CBOs present (5 many - 0 none)
9	Unemployment / Need for livelihood diversification (5 high - 0 low)
10	Poverty / Poor HDI (5 high - 0 low)
11	Need to build local DRR capacities (5 strong - 0 weak)
12	Capacity to implement adaptation measures and will of community to engage with project development / implementation (5 high - 0 low)
13	Capacity to adapt and likelihood of uptake for adaptation measures (5 high - 0 low)
14	Previous feasibility studies conducted (5 many – 0 none)
15	Previous work/projects/programmes on flood/drought adaptation measures done in region, NOT this specific location (e.g., Local Economic Development Projects in the region) (5 much - 0 none)
16	Level of synergy with other existing or planned projects (5 high - 0 low)
17	Availability of data and statistics for proper monitoring and evaluation of project impacts (5 high - 0 low)
	TOTAL
18	Site in uncontested zone (Y – yes, N – no)
19	Site highlighted in NAPA and/or Economic Recovery Plan (Y – yes, N – no)
20	Area supporting pastoralists, agriculture and/or livelihood diversification (Y, N)

EXTERNAL COMMUNICATION

Consistent with GCF guidance, the SEP provides for a continuing process of engagement with stakeholders, including people potentially affected by the proposed project. Stakeholder engagement mechanisms will be incorporated at various stages of project planning and implementation including provisions for project-specific grievance mechanisms.

Grievance Redress Mechanism

As part of the governance mechanism in Somalia, a complaint mechanism already exists at the local level using clan and religious leaders. The mechanism and procedures are relatively well-established and well-defined especially at the municipality and city level.

A project-specific grievance redress mechanism (GRM) will be established to complement the mechanisms that is currently available. It will be designed to handle both compliance issues as well as serve as dispute resolution mechanism.

Under the mechanism, any project-affected person will be able to lodge complaints (verbally or in writing) regarding any aspect of the project implementation. The redress mechanism will be established in such a way to resolve grievances and complaints in a timely and satisfactory manner.

In areas where nomadic pastoralists may be present, a separate mechanism will be established as may be necessary – noting that nomadic pastoralists may have traditional grievance resolution processes and systems, which under their traditional clan law will take precedence over the GRM as described in this document.

The redress mechanism will be organized at the local level (i.e., LGU) as may be appropriate to each project activities. The Grievance Redress Committee (GRC) will be composed of representatives from the project implementation unit, CBOs, and traditional clan leaders.

The redress mechanism (especially for safeguards issues) will be discussed in more detail in the ESMF.

Public Disclosure

A key element of the external communication would be the access to an information system which will consists of a mechanism to address the issue, either upon request or proactively through a website or equivalent system.

Under this SEP, public access to information will be undertaken (at the minimum) through the following means:

- *Posting on UNDP website – upon finalization of the project proposal*

- *Posting on MoEWR website – upon finalization of the project proposal*

Public Consultation

Public consultation is another important element of the external communication system. It reduces the potential or risk of conflicts and delays in project implementation.

Under this SEP, various public consultations were carried out during the early stages of the project preparation process and will be continued throughout the project implementation. See Annex N on Site Selection.

Prior to actual project implementation stage, the focus of public consultation will be information dissemination on implementation details about the project (including its objectives, components), covered area (or area where the project will be implemented), implementation plan and potential impacts (and other safeguards concerns). These may be undertaken through individual or group meetings and briefings with the various sector representatives in the project impact areas. Target sectors include officials of the local government, NGOs/CBOs and beneficiary villages and nomadic populations. Briefings will also be conducted with nomadic water point users that may be affected by the planned project activities.

During the implementation stage, public consultation will focus on implementation status or updates, including the results of monitoring. Issues or complaints that may surface during this period will also be discussed in coordination meetings that will be regularly conducted.

During the project terminal (or completion) phase, key messages will focus on the sustainability strategies and measures that will require the cooperation of all stakeholders. This may include passage and/or implementation of relevant ordinances such as designation of protected or management areas among others.

Monitoring

The state implementation focal points will prepare and submit periodic (quarterly) safeguards monitoring reports to PMU. This is in addition to any monitoring reports required by UNDP.

The following monitoring activities will be carried out during project implementation:

- *Monitoring reports (e.g., environmental monitoring reports) and all communications relative to safeguards such as environmental monitoring including results of water sampling and analysis;*

- *Public consultations and meetings, including attendance sheets and minutes of consultations or meetings;*
- *Complaints and grievances including actions taken and resolutions to these;*
- *An environmental and social safeguards analysis will be conducted for all activities detailing any adverse environmental and social impacts;*
- *Safeguards mission/s (if necessary) to review safeguard performance especially at the local level and/or for activities with potentially significant adverse social or environmental impacts;*
- *Periodic monitoring reports submitted by Project Implementation Unit (PIU) to ensure that adverse impacts and risks are mitigated as planned and as agreed with UNDP/GEF;*
- *Working with relevant stakeholders to rectify to the extent possible any failures to comply with their safeguard commitments and exercise remedies to re- establish compliance as appropriate; and*
- *Preparing a project completion report that assesses attainment of desired objectives and outcomes of the safeguard plans taking into consideration the baseline conditions and monitoring results.*

Key stakeholders identified include the Women's Organizations, Ministries of Women's Affairs, and female government officials and representatives will continue to be involved and consulted in order to ensure women are properly engaged and are active participants in the planning, implementation and monitoring of the project. The Project Gender Officer who will cconduct the baseline study will ensure that gender disaggregated data is collected and an M&E framework that reflects the gendered dimensions of climate change is developed.

During implementation, the communication and consultation process will be divided into three main phases:

Phase 1 – Developing a strategy and action plan:
This is the mobilization phase in the first year of the project. The details of the activities and implementation structures will be designed, partnerships for action will be forged and stakeholder engagement will focus around these design processes. The Environmental Impact Assessment and the Technical Studies will take place simultaneously during this phase. These two types of studies will focus on identifying any negative impacts of the proposed infrastructure projects along with mitigation measures. The technical studies will look at the feasibility of the projects, and will include cost-benefit analysis. Local authorities and communities will be consulted by both the EIA and Feasibility Study teams. Moreover, meetings will be conducted at the district level to gather local level data on climate impacts, trends in natural resource management, and other important baseline information. During these meetings, religious leaders, traditional elders, cultural groups and women's groups will be important stakeholders.

Phase 2 – Consultation through implementation:

This is the main implementation phase where investments will be made on the ground in the target areas and stakeholder consultation about engagement will focus on output-oriented actions. During this phase, community stakeholders will be deeply involved through cash, labour and in-kind distributions. The target for these contributions will be 20% of the total project costs where possible. The community will also participate in the implementation phase by facilitating access to the project areas for the project staff and consultants, and also helping to bring together a broad spectrum of the community to participate in any capacity building and awareness raising activities organized under the project.

Phase 3 – Project completion and scale up promotion:
The third and final phase represents the completion of the project. The plans for scale-up and long-term sustainability of the LDCF investments will be developed. Consultation will focus on learning, bringing experience together and looking at processes for continued post-project impact.

Specifically, in Phase 1, Technical Studies will begin from the project's inception. The studies are planned to take place during the first 2 quarters of the project, in which technicians will collect data from the field and gather indigenous knowledge. After the first quarter, suitable sites for retention basins, micro-dams and diversion structures will be identified. Based on the sites identified, an Environmental Impact Assessment will be conducted at the beginning of the 3rd quarter to validate the appropriateness of the sites and to provide mitigation plans for any expected environmental and social impacts. The local populations in the target districts, as well as surrounding populations, will be consulted to obtain data to conduct the EIA. Ultimate locations for construction works will be determined throughout the third and fourth quarters based on conclusions from the technical studies, EIA, and consensus among the local populations and the technical Ministries.

At the beginning of the project, over-arching criteria to determine training beneficiaries will be well-defined. A specific beneficiary selection group composed of community heads and representatives from the technical ministries (Ministry on the Environment, Ministry of Planning and the disaster management authorities) will be created to conduct the field consultations to see how local customs should be used to determine beneficiary selection criteria.

The gender-disaggregated survey, to be conducted by the Project's Gender Officer, will also take place during Phase 1. The survey will be used to obtain baseline data, such as for adaptation technology preferences.

In Phase 2, public consultations will become more of an ongoing exchange of information where there will be two main purposes:

- To gather information from beneficiaries and stakeholders about the impact and effectiveness of the planned water mobilisation (micro-dam, reservoir, cistern, well and shallow well placement) ensuring the distance to fetch water is dramatically reduced for women in addition to training strategies (Training of Trainers or lead farmers on-the-farm, demonstration plots); and
- To provide interested government and donor stakeholders and the general public with information about the progress and impact of the project as it is implemented.

Phase 3 will be a process of ensuring completion, hand-over and long-term sustainability of the LDCF investment. Consultation will focus on bringing experience together, sharing key lessons learned (through the UNDP ALM and other forums) and looking at processes for promoting scale-up of this project in order to build the resilience of more rural mountain rain-fed farmers and pastoralists.

Overall, the types of consultation mechanisms to be used include:

- Discussion with local government authorities and local leaders on their roles in sustaining the project activities
- Meetings with NGOs/CSOs to confirm their roles in project implementation in the future;
- Discussions with the trained participants of the FFS to determine the lessons learned and development of case studies
- An external evaluation of the project that will highlight the successes, challenges and lessons learned for dissemination to NGOs, donors and government stakeholders.
- Exposure visits for neighbouring districts to the project districts to visually observe and meet with communities that have implemented soil and water conservation principles and are employing adaptation technologies

Annex H: Gender Analysis and Action Plan

Gender Context in Somalia

It has been estimated that approximately 92% of Somalian women take part in agriculture in rural areas versus 85% for men.[96] Somalia maintains an informal economy largely based on livestock which represents the family's wealth and has traditionally been the property of men. Husbandry accounts for about 40% of GDP and more than 50% of export earnings. Women continue to manage the sale and exchange of livestock products such as milk and ghee, and spend their earnings on household needs.

Women experience higher unemployment than men (74% for women and 61% for men). The unemployment rate is 45.5% overall (57.7% in urban areas and 42.8% in non-urban areas) – the main sectors are agriculture – including fishing, forestry mining (65%), industry – including construction and utilities (11%) and services (24%). The unemployment rate for youth aged 14 to 29 is 67%, one of the highest in the world. Few women are active in the areas of the economy where high profits are seen through exports and imports; in livestock export and in the fishing industries, women are hardly represented. The proportion of youth who were neither working nor in school is more pronounced among young women at 27 percent than young men at 15 percent. Higher unemployment rates for women are linked to low literacy rates, among the lowest in the world.[97] The illiteracy level remains high in Somalia today with only 26% of women who can read and write compared to 36% for men. [98]Access to education is hardest for girls whose mothers are the family breadwinners.[99] The national enrolment rate for women stands at 24.5%.[100]

According to the 2018-2020 UN Somalia Gender Strategy, women and girls make up 53% of affected populations and continue to be vulnerable to gender-based violence (GBV). [101] The situation is further exacerbated by the ongoing conflict in parts of the country and by displacement. Of the reported GBV cases, 96% of survivors are women and girls whilst 76% are IDPs. Somalia's maternal mortality rates remain the highest in the world, at 1,600 per 100,000 live births. Female Genital Mutilation or FGM, still persists in Somalia where its prevalence remains high at 98 percent, especially affecting girls between 4 to 11 years of age. In its most severe form infibulation is reported to be practiced in 80% of cases. Support for FGM from community members is a key barrier to its eradication - in a study of 1,744 women between the ages of 15 and 49 in North East and North West Somalia, 90% reported that they supported the custom.[102]

The participation and role of women in politics and decision-making spheres remains limited, perpetuating narrow gender-based roles and inequalities. Despite achieving 24%, due to highly patriarchal and clan-based political structures, women remain considerably underrepresented in political processes and

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[96] http://datatopics.worldbank.org/gender/country/somalia - accessed July 2018 (modeled ILO estimate for 2016)
[97] Gardner, J. EC Somalia Unit / NORAD: Gender Profile for Somalia Jan 2007.
[98] UNDP Gender in Somalia Brief II. 2014
[99] Gardner, J. EC Somalia Unit / NORAD: Gender Profile for Somalia Jan 2007.
[100] https://borgenproject.org/facts-about-education-in-somalia/
[101]2018 Humanitarian Needs Overview, UNOCHA, Available from:https://reliefweb.int/sites/reliefweb.int/files/resources/20172911_somalia_humanitarian_needs_overview_2018.pdf
[102] UNDP Gender in Somalia Brief II. 2014

public offices, including legislative and administrative bodies across the country.[103] However, there has been no change in the constitution to accord women the 30% quota despite advocacy by women's groups for inclusion in all political institutions.[104]

Across the country, traditional or customary law continues to override the state judiciary (often because they respond much more quickly and are more accessible than formal legal mechanisms.) Women and girls continue to be considered legal minors (in customary law). The position of women with regards to land and property ownership remains weakened by both conflict and the ensuing reconstruction process and breakdowns in social stability and law and order, and has compromised traditional and customary laws for women, their social support systems and their access to land and property. Land grabbing by male relatives following the death of a husband/ father is a problem in Somalia, and widows rarely inherit land under customary norms and are often deprived of access to their husband's land if they have no children.

Overall, the Gender Inequality Index for Somalia is 0.776 (with a maximum of 1 denoting complete inequality), placing Somalia at the fourth highest position globally.[105] War and state collapse has stripped women of the considerable legal and political gains made during the years after Independence. Since 1991 the re-emergence of customary law, the extended use of *shari'a* law and resort to clan-based forms of political representation has meant some women have been excluded from political and judicial structures that have emerged in different parts of the country. (The gendered nature of the clan system guarantees the loyalty of its male members but not its female members.[106])

Despite the meager outlook some positive changes are taking place. Women are the main drivers for the Somali private sector. This sector is dominated by micro, small and medium enterprises. Programs, such as the first GEF-financed project, are trying to increase women's access to credit, technology and information. In a historic achievement during the 2016 electoral process, Somali women secured 25% representation in the 10th Federal Parliament: 24% (63/262) MPs in the Lower House and 25% (13/52) Senators in the Upper House. This marked a 71% increase from the previous 13% representation following the 2012 'selection'. [107] The achievement was due to sustained advocacy by women's rights advocates because currently, there is no legal or policy provision for the quota for women in parliament[108]. Somalia is fortunately taking steps to ultimately update the constitution to accord women a 30% quota in all political institutions.[109] Furthermore, the political situation in Somalia has changed significantly following the emergence of the Federal government. The review of the provisional constitution is on course with significant effort to ensure gender is effectively integrated. This is a great opportunity to promote gender equality. Efforts have been put to ensure inclusive political dialogue, effective reconciliation and social protection in the ongoing state formation processes. Gender mainstreaming within the National Development Plan (NDP 2017-2019) requires key strategic areas to be implemented in a way that promotes social justice and gender equality with active participation of women (and other marginalized groups) and to respond directly to the acute challenges contributing

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[103] Representation in regional parliaments vary from 3% in Puntland (lowest) to 21% in Southwest (highest) (Source: UNDP V&A 2018)
[104] UNDP Gender in Somalia Brief II. 2014
[105] United Nations Development Programme (2012). Somalia Human Development Report 2012: Empowering Youth for Peace and Development, p.xviii.
[106] Gardner, J. EC Somalia Unit / NORAD: Gender Profile for Somalia Jan 2007.
[107] Representation in regional parliaments vary from 3% in Puntland (lowest) to 21% in Southwest (highest) (Source: UNDP V&A 2018)
[108] UNDP Gender Progress Report 2016, available from:
file:///C:/Users/judith.otieno/Downloads/UNDP-SO-Gender-Equality-Progress-Progress-2016%20(2).pdf
[109] UNDP Gender in Somalia Brief II. 2014

to sustained gender disparities across multiple sectors. The Ministry for Women and Human Rights Development of the Federal Government of Somalia developed a draft national gender policy in 2013. And currently the ministry is finalizing the document through a consultative process. The sexual offences bill has been enacted at Federal level. At state level, gender policy, sexual offences act and FGM policy is operationalized in Puntland and Somaliland. A strong women civil society has emerged across Somalia championing women's right and structural reforms towards gender equality.

Gender and Climate Change

While the majority of the Somalia population is vulnerable to climate change, women and youth have been identified as the most vulnerable groups.[110] Rural populations are also particularly vulnerable to climate change impacts, as compared to urban populations. Furthermore, pastoralists, who constitute a large proportion of the country's population, are more vulnerable as opposed to other groups including agricultural farmers because they are highly dependent upon rain-fed rangeland grazing for their livestock and tend to have very few fixed assets. Internally displaced peoples (IDPs) are also vulnerable because climate hazards, especially droughts, are the main cause of their migration from their initial settlements. This exerts pressure on the natural resource base in the areas where they settle. Their situation is worsened by the fact that they have limited means of survival, having sold most of their assets or lost them in conflict, making them even more susceptible to climate risks. (REF UNDP Vulnerability Study 2018) Somalia experiences major rapid and slow onset climate-induced shocks on a 2 to 5-year cycle, with flooding, cyclones and particularly drought. The climate impacts have caused massive displacement and crisis for basic supplies. Climate extremes have increased women and youth's vulnerability to exclusionary politics, exposure to radicalisation and perpetrating acts of violence, including violent extremism.[111]

Women in rural areas are identified as one of the most vulnerable groups in Somalia. This is as a result of the combined effect of sexual division of labor, unequal access to both material and non-material resources and women's diminished participation in decision-making in both political and private domains. This has increased their vulnerability to the impacts of climate change. For instance, in crisis situations women are the ones who have to find ways of feeding their families and are therefore affected in different ways. Women are responsible for fetching drinking water if it is within 5-8 kilometres but if the water source is far, men take over the responsibility. Droughts either lead to women having to walk much farther or transfer this responsibility to men. Women also suffer the most from food insecurity due to drought/floods as they often feed their children before themselves leading to malnutrition. The situation is worse for lactating mothers who suffer due to lack of protein intake when livestock are lost due to drought/flood. During migration to urban areas or IDP camps, women face physical insecurity during movement and within the IDP camps. Infections are often passed on from children to their mothers, particularly during drought when women are weak due to lack of food. Rural women make small amounts of money from selling milk, and they make decisions on how to use that small income. This income is lost when livestock is lost to drought/flood. Due to deaths from continuing conflict and disasters, the number of women-headed households has increased. Clan-based systems are used to cope with most issues surrounding natural resources and natural disasters. The clan elders meet when there is a problem, but also have regular meetings. Women do not participate in these meetings, and are only involved in making logistical arrangements such as food and accommodation. However, some women are indirectly involved by advising their husbands on topics that are discussed in the meetings.

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[110] UNDP Somalia V&A Analysis 2018
[111] UNSF page 16

Climate change is and/or will magnify existing patterns of inequality, including gender inequality, thus pushing more women towards greater risks, even to the extent of survival. Adequate and effective gender responsive approaches to adaptation and mitigation measures are needed to reduce these risks. Women, in every society have traditional knowledge, experiences and in-built skills/ expertise, and play an important role in supporting households and communities to mitigate and adapt to climate change. For centuries, women have passed on their skills in water management and have passed on their skills to sustain their families during times of hardship.[112]

Youth and Climate Change

Seventy-three per-cent of the population in Somalia is below the age of 30. Many young people are trapped in an environment of violence, fear, unemployment and poverty (UNDP, 2012). This not only erodes their hopes for human development but also makes them more likely to become part of conflict. Climate change has resulted in increased conflicts over limiting resources. This has had a particularly severe impact on youth, many of whom are unemployed. Fortunately, it has been noted that Somali youth have a strong awareness of environmental issues and great stakeholders in long-term sustainability as agents of change.[113]

Studies have shown an inverse relationship between the level of education and adaptive capacity (Lutz, 2010; Wamsler et al., 2012; Williams et al., 2015). This is particularly critical for Somalia, where there is a limited availability of schools. The problem is further complicated by the high dropout rates during times of climate crises of children enrolled in schools.

There is also a rise in youth unemployment as a result of the adverse impacts of droughts and floods on the economy. Unemployed youth are drawn into crime, drugs and other delinquent behaviour. Migration to urban areas that is partly driven by climate change, often leads to children becoming beggars or street-children to survive (IMF, 2017).

Gender Policies and Women's Participation in Politics

Gender policies are in place at the Federal level (2013) and Somaliland (2011) with a draft in Puntland. Under the New Deal, gender was represented as a cross-cutting issue, however, with weak operationalization mechanisms[114].

UN Gender Support

[112] CAP-NET , GWA 2014. Why Gender Matters in IWRM: A tutorial for water managers.
[113] UNDP 2012. Somalia Human Development Report 2012: Empowering Youth for Peace and Development
[114] There was "no dedicated 'gender markers' to measure real progress", weak monitoring or evaluation and no gender disaggregated data. Overseas Development Institute (ODI) 2016, Independent Review of Somali New Deal Compact

In response, UN agencies and donors have been supporting Somalia to mainstream gender. The UN Strategic Assessment observed that the UN needed to augment its efforts and approach for the institutionalization of gender mainstreaming and women's empowerment in its work in Somalia[115]. Somalia is yet to ratify CEDAW, Maputo Protocol, amongst other international human rights instruments. The normative framework on gender equality and women's empowerment remain underdeveloped and enforcement is weak as traditional or customary law (Xeer) continues to override the state judiciary.

In response to the needs for stronger gender policy integration, the main objectives of the draft UN Gender Strategy (2018 – 2020) are proposed to be:

- Strengthen gender equality and women's empowerment results through the implementation of the United Nations' political, development and humanitarian work in Somalia;
- Attain a gender equal and empowering environment for all UN staff in Somalia; and
- Demonstrate strong leadership for gender equality and women's empowerment.

IWRM and Gender

A 2012 WHO study showed that every $1 invested in water supply and sanitation brings $4.30 dollar in benefits at the global level.[116] Such benefits can be even better distributed and assured, if gender is taken into account. For example, many poor women use a fraction of supplied water in small-scale productive activities that give them new income sources. In agriculture, gender sensitive irrigation can help improve food security and income-generation. **In response, the core of the proposed project is to establish an enabling environment for Integrated Water Resources Management (IWRM).**

Gender mainstreaming is an integral part of IWRM. Within IWRM women are central to the provision, management and safeguarding of water. The IWRM approach moves beyond the basic task of providing or managing water and water-related events by considering the social context within which these services are delivered and used. It is a process which aims to "maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment".[117] In order to maximise the economic and social welfare aspects in an equitable manner, it is important to adopt a gender approach. In many cases, gender discrimination can limit women's and men's chances to access vital water resources, by restricting their independence. It can reduce their access to productive resources and their chances to capitalize on opportunities that may be offered (e.g. education, entrepreneurship, etc.).

[115] "The institutionalization of gender mainstreaming and women's empowerment is yet to become a truly non-negotiable agenda and fully integrated in the work of the United Nations (UN) in Somalia". UNSA, 2017.
[116] CAP-NET , GWA 2014. Why Gender Matters in IWRM: A tutorial for water managers.
[117] CAP-NET , GWA 2014. Why Gender Matters in IWRM: A tutorial for water managers.

Four pillars of IWRM[118]

IWRM in the context of gender in the proposed project focuses on the pillars of IWRM in the following manner.

Social equity: A fair share of water benefits and responsibilities must be transmitted to women and men, poor and rich, young and old. This means fair opportunities for access, use, and control of water resources, as well as equitable acceptance of responsibility for the negative water impacts, so as to avoid placing higher burdens on the poor or disadvantaged members of society.

Economic efficiency: Water is vital for economic and social development and is indispensable to sustain and increase urban and rural livelihood activities. Given increasing water scarcity, the choice as to how each drop should be allocated and managed becomes central to maximizing social and economic benefits and ensuring sustainability. IWRM includes promoting sectoral and cross-sectoral actions for cleaner production, water reuse and recycling, recognizing that freshwater is a limited resource, and investment in water projects must be viable. Economic efficiency also refers to financial sustainability to build, operate and maintain the diverse projects and facilities required to improve water access and assure water quality and quantity over the long-term through cost recovery and payment systems.

Integration of Gender in the Project

The proposed project upholds IWRM principles by integrating gender throughout its activities and M&E strategy. The project focuses on improving the livelihoods of approximately 760,000 agro-pastoralists. The female population constitutes half of the population in the target regions of all 6 states where the key production sector is agriculture: crop farming and livestock breeding.

[118] idem

The table below summarizes how gender has been mainstreamed in the project activities.

Integration of Gender in Project Development and Implementation

OUTPUTS	Gender Integration
1.1 Capacity development and awareness-raising on the federal, state and local levels on climate induced impacts on water resources and Integrated Water Resource Management (IWRM) principles for cross-sectoral policy makers and planners with at least 30% women representation/participation.	Of the 150 government officials to be trained on IWRM, 30% will be women
1.2 Development and endorsement of a national, multi-sectorial IWRM strategy, linked to the National Water Policy based on South-south lessons learned	The IWRM strategy will be gender-sensitive and will take into account the societal roles and responsibilities of women with water provision. This will ensure women are active in decision-making on water management.
1.3 Enhanced curricula and programmes at educational and vocational institutes on water resource management and technical delivery including support for vocational training for select students and CBOs 1.4 Nine national students (at least 3 women), supported to attend IWRM higher degree programs. A scholarship requirement for all recipients will be that they work within Somalia for the first 2 years after graduating. Nine (9) TVET students will also be supported (at least 3 women).	IWRM updates to curricula will lead to scholarships for 3 women from universities to study IWRM. Also, 3 women will be trained from TVETs on the practical aspects of water management.

OUTPUTS	Gender Integration
1.5 Establishment of Water Quality laboratories in Puntland, Galmudug, Southwest, Hirshabelle and Jubbaland states.	Women will be trained to have employment with water quality testing and monitoring. Women are often the most susceptible to water-borne diseases, so a role for women in ensuring good water quality is essential for sustainable management.
1.6 Training at the district and village levels that provide awareness on IWRM, new gender-sensitive adaptation technologies as well as specific training for women on community water management.	Women will receive local training specific to community water management, rainwater harvesting and flood management.
2.3 Establishment of a National Hydro-Meteorological Service System (NHMS)	Women as 30% of the work force will be hired to take part in the newly established NHMS.
2.4 Capacity development for the National Hydrological and Meteorological Services (NHMS) at national and district levels to support timely drought/flood forecasting and contingency planning dissemination for agro-pastoralists by training at least 6 forecasters (at least 2 women)	Trainings on forecasting will be provided to 30% women. (Two out of the 6 forecasters will be women.)
2.5 Improvements to FRISC-DIGNIIN early warning system to enable it to have country coverage and tailored warnings	Women will be 50% of the alert recipients.
3.2 Physical investment in a diversified source of water diversion infrastructure (to control runoff and soil erosion) and RWH and groundwater extraction technologies (e.g., Hafir dams, solar-powered boreholes and shallow wells)	Water infrastructure locations have been decided based on village consultations where women were encouraged to participate. The locations are based on the most convenient, practical set-ups for women to improve their livelihoods and reduce their time to fetch water.

OUTPUTS	Gender Integration
3.5 Development of River Basin Management Authorities (RBMAs) for the Juba and Shabelle Rivers, officially recognized by the IWRM strategy to ensure fair access to water by upstream and downstream communities and to ensure maintenance of river-based infrastructure	Women will be involved in the RBMAs and will be sensitive to women's role in flood-based, canal-driven irrigation methods for cultivation.
3.6 On-the-farm/pasture training for agro-pastoralists on how to enhance the local value chain of farming and livestock products (e.g., jams, meat, cheeses, hides) in coordination with PENHA (Somaliland, Sool, Habariheshay) and including procurement of warehouses for value chain storage	With increased knowledge of how to exploit value chains, women will be able to diversify their livelihoods through improved farming practices. For instance, cultivating diversified fruits/plants, supporting preservation techniques, and providing alternative Income Generating Activities and the means to spread revenues across seasons, providing greater resilience to climate shocks. 30% of ToTs to be trained in agro-pastoral value chain exploitation for each village will be women (30% of 51 total). Mentoring programmes such as trickleup.org will be used.
3.7 Afforestation programs and nurseries support to combat desertification and enhance groundwater and fodder availability	Women will have employment in the nurseries and with hydroponic fodder production which can be done in their backyards or in their nomadic settlements for pastoral communities.

As evidenced in the table above, this project emphasizes a gender approach by empowering women and vulnerable groups to have enhanced water and land management capacities with tested and innovative practices that will benefit the whole community. Women will become empowered to manage water resources, plan their distribution and ensure their good water quality. This will be accomplished by:

- Sharing benefits from access to water more equally;
- Maximizing social and economic benefits from sustainable use of water;
- Making use and quality of water more effectively and sustainably;
- In the contexts of climate or economic crises, the principles of IWRM enable more effective use of financial instruments and national policies to protect the most vulnerable groups from suffering disproportionately.

Specifically, in Component 1, the IWRM Strategy will ensure consistent good quality water supply, increased efficiency in water delivery, and a positive impact on the health of water users. The gender-sensitive and pro-poor IWRM strategy will dictate that private companies who generally maintain large water infrastructure (e.g., borehole) must set fair tariffs during drought with the support of the Ministries of Water to not exploit the most vulnerable populations during times of drought. The IWRM Strategy will take into account women's role in water resources management & their dependency on the rural economy.

The project will also provide rural communities (men and women) with knowledge and understanding of IWRM, economic implications of water resource mis-use practices in a longer term, and access to information and knowledge on how it can be improved. The project will build the technical and financial capacities of rural population to practice more sustainable agro-pastoral and water management practices. An awareness campaign will be carried out by the project aiming to improve public understanding of the contribution of water to community well-being, including income, by designing communications strategies and information campaigns in a way that addresses the needs of both women and men. Also, the project will support capacity-building and knowledge transfer on water management and planning, engagement in decision making procedures through community-based consultations and practical solutions adapted to specific conditions within the villages. This will include organizing training workshops designed to improve the efficiency of water use and improved professional skills and capacities to maintain and operate water infrastructure in sustainable and effective ways. Furthermore, women will be trained / working in the rural areas as extension workers and involved in IWRM either as part of the Water User Associations or around the Juba and Shabelle Rivers, as part of the River Basin Management Authorities (RBMAs).

The choice of water infrastructure locations has been based on community consultations and 2 gender-focused criteria:

- Likelihood of gender equality and/or gender empowerment
- Active women's associations present

The project will also fully integrate the most vulnerable populations to exploit their value chains. The bulk of literature has suggested that these groups are often placed at an unfair disadvantage or completely excluded from value-chain development. [119] The participation of women and other marginal groups in livestock value-chain activities is constrained by a number of factors including unequal sharing of unpaid work, limited opportunity to develop capabilities (e.g. literacy skills, education), GBV, mobility constrained by cultural practices and social norms, differential poor access to and control over productive resources, and limited access to markets.

[119] ILRI 2017. Mapping Livestock Value Chains in the IGAD region.

Generally, sheep and goats are raised by women and act as an important alternative to cattle in pastoral areas because of their resilience to droughts, faster reproduction rates and easier sales for loss mitigation during severe droughts (Lebbie, 2004). A significant number of small ruminants are marketed domestically, generating employment for the local population especially women. Local pastoral groups depend either directly or indirectly on value chain activities for sustenance (milk and meat), crop production (animal traction and manure), asset building and income generation (FAO, 2012; Neely *et al*., 2009). However, agro-pastoral groups, particularly women, lack the technical and operational capacities to exploit the value chains. As indicated in the activities table above, the project will provide extensive training on the value chain. The training will provide more diversified livelihood options, particularly to poor rural women and access to innovative technologies and practices for land and water management. The capacity building will provide them an asset base from producing and selling milk, hide and vegetable products. The incomes generated will be used for family consumption, sustaining the levels of flood supplies, health services and access to education.

Similarly, this project also builds off of women's inherent creativity in finding solutions with their gender-based knowledge. This can include better choices of species to reforest, identification of vulnerable water sources and more effective water (including river-based) management schemes. This can also include knowing where to plant trees to prevent less flood-induced runoff. Activities such as hydroponic fodder production and nursery development will takes place in backyards and are geared and targeted towards enabling women to gain an asset base. Having a diversified source of income will enable women to build more resilience to climate shocks.

Finally, by improving the existing drought and flood alert system (DIGNIIN), over half of the beneficiaries of the tailored alerts will be women. Component 2 of this project will also establish an NHMS that has sufficient capacity and integrated system of data collection and analysis to create targeted contingency planning and alert information that can be tailored to women's needs. The alerts will be provided by mobile phone in the Somali language and will inform all target rural populations on contingency plans during floods, dry periods and droughts. For example, alerts will be provided to women when gardens should be managed efficiently during expected dry periods. Also, the communities will be informed when water points become dry or on when easy to build flood diversion works should be constructed by communities.

Implication of Gender M&E in the Project

The Ministry of Women Human Rights and Development (MoWHRD), who acts as the government lead for the Working Group on Human Rights and Gender will work with a project Gender Expert to ensure that gender will be mainstreamed in project Monitoring and Evaluation (M&E).

A gender expert will enhance the capacities within the Federal Ministry of Women, and Women and Human Right Ministries of the Regional Member States to collect data and carry out a gender analysis and baseline disaggregated surveys. This will ensure gender disaggregated data is collected for proper monitoring and evaluation. The gender expert will ensure the M&E framework reflects the gendered dimensions of water use and climate change and the use of gender specific and gender sensitive indicators. The gender expert will support the Ministry of Women in the following manner:

- At the project inception phase the gender expert will support the project team to understand how the project logframe and indicators ensure gender mainstreaming in all project outputs with targets for achieving key **impact** indicators. The gender expert will review and ensure adequate gender-disaggregation of any relevant indicators.
- The gender expert will conduct a baseline gender analysis using sex-disaggregated data. Household surveys at the household level will identify the different roles**, also informed by power relations**, that men and women play in water management. The surveys will be conducted in the beginning of the project to feed the research and defining the baseline for the project gender indicators and in the end of the project to measure the impact of the project activities in relation to the targeted gender specific objectives stated above.
- The project team and technical staff will include appropriate gender balance, to the extent feasible, taking into consideration necessary technical qualifications. The staff will learn to understand the importance of gender differential issues in the set context and will learn to design interventions accordingly.
- The gender expert will ensure that project capacity development activities endeavor to have gender balance among participants to the greatest extent feasible.

Below are gender-disaggregated indicators within the project's Results Framework that have been designed to ensure mainstreaming of gender.

Indicator	**Baseline**	**Midterm Target**	**Final Target**	**Assumptions**
Number of RBMAs (River Basin Management Authorities) established	RBMAs along the Juba and Shabelle Rivers do not exist	One River Basin Management Authority is created and/or revived for the Juba and Shebelle river basins (at least 30% women participation)	Two River Basin Management Authorities are created and/or revived for the Juba and Shebelle river basins (at least 30% women participation)	National and state policy-makers and planners will understand the risks of climate change on water resources in addition to the need of IWRM in policies and plans

Indicator	Baseline	Midterm Target	Final Target	Assumptions
Number of coordination workshops at the national and regional level building capacities on IWRM	There is also limited knowledge of IWRM at the national and state levels and no coordination of IWRM planning at the national level with the state levels.	Four (4) coordination workshops building IWRM capacities at the national and regional levels (at least 30% women participation)	Nine (9) coordination workshops building IWRM capacities at the national and regional levels (at least 30% women participation)	National and state policy-makers and planners will understand the risks of climate change on water resources in addition to the need of IWRM in policies and plans
Number of direct project beneficiaries that have improved water management and agro-pastoral production capacities	None of the targeted agro-pastoralists have livelihoods resilient to climate shocks. Livelihoods need to be strengthened by providing communities the know-how to maintain and operate infrastructure such as during the dry season	Approximately 178,000 agro-pastoralists across all states have enhanced livelihoods through access to water, diversified livelihoods and access to early warnings (50% women)	357,000 [120] agro-pastoralists across all states have enhanced livelihoods through access to water, diversified livelihoods and access to early warnings (50% women)	Local communities are incentivized to implement climate resilience-building measures related to IWRM due to sufficient sensitization on climate change impacts on water resources.
A National IWRM Strategy is developed supporting a decentralized approach to water governance and that is gender-sensitive and integrates traditional, customary water resources management practices and governs water extraction / access rights, water conservation, water quality, and pro-poor water supply	There is no IWRM strategy or plan in any state. Somaliland and Puntland have their own Water Resources Policies that were recently endorsed by their state parliaments.	A framework for a gender-sensitive National IWRM Strategy is developed.	A gender-sensitive National IWRM Strategy is developed that is gender-sensitive and accounts for marginalized populations such as nomadic pastoralists.	Relevant Ministries have an interest in fully integrating the IWRM strategy into their long-term water resources planning.

[120] Approximately 307,000 people in each target community will benefit directly from water mobilization and diversions and another 50,000 agro-pastoralists will receive targeted early warnings. There will also be approximately 418,000 indirect beneficiaries and another 100,000 agro-pastoralists will receive targeted early warnings. Out of the beneficiaries, both direct and indirect, 47.8% and 52.2% will be female and male respectively. See Tables 12 and 13 of this PPG Project Document for more details.

Indicator	Baseline	Midterm Target	Final Target	Assumptions
Enhanced water quality (WQ) analysis equipment and trained technicians in 5 states (Puntland, Hirshabelle, Jubaland, Galmudug and Southwest states)	In Puntland and the new Federal Member states, there are no water quality (WQ) monitoring capabilities.	WQ laboratories in 1 Federal Member state of Somalia is established each with 5 trained water technicians (at least 30% of training recipients will be women)	A WQ lab in 5 states of Somalia (Puntland, Galmudug, Southwest, Hirshabelle and Jubbaland) are properly equipped with 5 trained water technicians (25 in total) (at least 30% of training recipients will be women)	The Government of Somalia has sufficient incentive to design funds earmarked to support IWRM curriculum development in the future.
Number of people/geographical area with access to improved climate-related early warning information	The FRISC/DIGNIIN alert system, which gathers and sends flood and rainfall information, fails to reach pastoral communities. [121] Due to their remoteness, 100% of the targeted agro-pastoralists are not forewarned about and prepared for extreme events.	Alerts for droughts or floods are used by 25,000 agro-pastoralists (50% of the alert recipients will be women)	Alerts for droughts or floods are used by 50,000 agro-pastoralists (50% of the alert recipients will be women)	The monitoring network is being sufficiently densified to enhance forecasting capabilities and the ability to develop detailed spatial mapping to allow for adequate adaptation and risk reduction planning
Establishment of a National Hydro-Meteorological Service (NHMS)	The existing NHMS department located within the Federal Ministry for Energy and Water Resources is lacking technical and institutional capacity to collect, store and disseminate timely and accurate hydrological information	Framework to establish a nationally approved and capacitated National Hydro-Meteorological Service (NHMS) is developed (participation of at least 30% women)	Establishment of a nationally approved and capacitated National Hydro-Meteorological Service (NHMS) (participation of at least 30% women)	FAO-SWALIM and IGAD will transfer their knowledge on climate risk information production to appropriate ministries / agencies

[121] GCF Concept workshop conclusions 14 June 2017, Hergeisa, Somaliland.

Indicator	Baseline	Midterm Target	Final Target	Assumptions
Number of trainer of trainers (TOTs) with reinforced capacities to disseminate and sensitize communities on exploitation of the mild and hide value chains (disaggregated by gender)	The agro-pastoral communities have no capacity to develop diversified pastoral practices, taking advantage of the value chain (e.g., milk, meat, cheeses, hides). There are no specialized trainers on the milk and hide value chains to maintain and transfer knowledge.	Three ToTs trained on agro-pastoral value chain exploitation nominated in each village (25 training recipients initially, at least 30% women)	Capacities reinforced for three ToTs for agro-pastoral value chain exploitation nominated in each village (51 training recipients in total, at least 30% women)	Targeted farmers and pastoralists will be willing to use adaptation technologies / practices so as to diversify their livelihoods and/or income sources

Furthermore, the Stakeholder Engagement Plan (SEP) (Annex G of the Project Document) also includes a gender- responsive, culturally sensitive strategy to integrate women and youth in planning and in the implementation of activities. The plan ensures the needs and interests of rural women have been taken into account and are catered to.

In summary, the project will strive to integrate gender by:

- Considering specific roles and needs of women and men and those most vulnerable in water management and in having contingency plans for water management at times of climate extremes
- Building capacities on the national, state and local levels to enhance the livelihoods of the most vulnerable, women, and youth. Capacity building will ensure that water service providers and governments account for sustainable services for all.
- Ensuring sustainable use of water by promoting innovative gender-responsive solutions based on improved capacity, knowledge, new self-employment opportunities, and access to planning and decision-making. These solutions will produce changes in status and role of women and men and to some extent transform gender relations to make them more equal. For example, improved access of women to water management will have an empowering impact on their status and consideration of their role in community affairs. Livestock value chain exploitation will improve women's and youth's economic situation and consequently their role and status in decision-making.
- Increasing women's participation in development of environmentally sound, cost-effective practices and methods of sustainable water resource management and their wide spread use by men and women. In this context the project will consider the roles played by women and men in finding alternatives when water resources are deficient.

Annex I: UNDP Risk Log

#	Description of the risk	Date identified	Countermeasures / Management response	Type (Risk category) Environmental Financial Operational Organizational Political Regulatory Strategic Other	Probability & Impact (1-5, low to high)	Owner	Sub-mitted updated by	Last Update	Status
1	Low level of cooperation between executing institutions due to political divisions and the existence of distinct states in Somalia	2018	Management arrangements will be clear with the Ministry of Energy and Water Resources responsible for the Project Implementation Team. Each state will have a Project Officer who will be in charge of activity implementation on a day to day basis. Programme outcomes will be maximized by having six clear State Committees (led by a State Project Officer) which will include relevant government representatives, district officers and NGO/CBO representatives for each state. Furthermore, to unify water management responses, one federal IWRM policy will be generated.	Operational, Political	P=3 I=4				
2	Security risks	October 2017	The target areas will be well chosen based on the criteria of having a stable security situation. To ensure security, the project will work through local NGOs/CBOs, who have experience in project implementation. Similar to the NAPA and LDCF1 preparation, project implementation will ensure that customary dispute resolution mechanisms are used to resolve any conflicts. Based on the successes of the LDCF1 project, project implementation will	Operational	P = 4 I = 4				

#	Description of the risk	Date identified	Countermeasures / Management response	Type (Risk category) Environmental Financial Operational Organizational Political Regulatory Strategic Other	Probability & Impact (1-5, low to high)	Owner	Sub-mitted updated by	Last Update	Status
			also ensure an inclusive, participatory approach involving all key stakeholders including women and youth, thereby adhering to IWRM by emphasizing stakeholder participation.						
3	Limited climate monitoring inhibits forecasting capabilities	2015	Since national forecasting capacities are absent in Somalia, regional forecasting products will be exploited. The drought and flood forecasts will be targeted to agro-pastoralists through collaborations with FAO-SWALIM and the Kenya Met Service	Operational	P = 3 I = 3				
4	Lack of nationally-available expertise and human resources	2016	Universities will be supported to introduce IWRM into existing degree programmes so that students can be trained in the most up-to-date relevant water management practices relative to their respective discipline. The issue of the unavailability of requisite human resources will also be mitigated by recruitment of foremost national experts and subsequently international experts (with preference given to those of Somali origin) who will work closely with in-country counterparts.	Operational	P = 2 I = 2				
5	Increase in the frequency of flood events and	2013	Since national forecasting capacities are absent in Somalia, regional forecasting	Operational	P = 4 I = 4				

#	Description of the risk	Date identified	Countermeasures / Management response	Type (Risk category) Environmental Financial Operational Organizational Political Regulatory Strategic Other	Probability & Impact (1-5, low to high)	Owner	Sub-mitted updated by	Last Update	Status
	continued drought		products will be exploited. The drought and flood forecasts will be targeted to agro-pastoralists through collaborations with FAO-SWALIM and the Kenya Met Service.						
6	Targeted agro-pastoralists are sceptical and unwilling to exploit livestock products	2015	In Component 3, LDCF funds will be used to provide a gradual transition that allows time for adaptation with on-the-pasture, on-the-farm field demonstration sites. These sites will provide extensive training on how to exploit the value chain of livestock goods such as production of milk, yogurts and cheeses for both men and women. An idea is also to promote women-based groups to have sustainable businesses focused on the production and sale of value chain products. Such an approach will build on the entrepreneurial spirit of Somali women, use existing women-based groups and provide women with alternate livelihoods and sources of income. South-south exchanges such as with PENHA will also be promoted.	Operational, Strategic	P = 3 I = 3				
7	Insufficient technical and operational capacity on all levels	2016	In Component 1 an IWRM policy will be developed to guide water management activities. It will act as the overarching strategy to achieve programming coherency. LDCF funds will also be used to provide significant	Operational, Financial	P = 2 I = 3				

#	Description of the risk	Date identified	Countermeasures / Management response	Type (Risk category) Environmental Financial Operational Organizational Political Regulatory Strategic Other	Probability & Impact (1-5, low to high)	Owner	Sub-mitted updated by	Last Update	Status
			training for the ministries, district governments and local communities on IWRM and for the communities on RWH, seawater harvesting, flood management and water conservation. Significant vocational and university training will also be provided on IWRM to enable the government ministries and technical agencies to have a pool of qualified and competent recruits. Early warning and forecast production will also be supported by building national NHMS capacities, enabling national experts in hydrology, hydro-geology and meteorology to have sufficient skills to create or build on regional forecast products.						

Annex J: Cofinancing Letters

Annex K: Results of the capacity assessment of the project implementing partner and HACT micro assessment

This is not applicable because this is DIM project.

Annex L: Rural Water Supply Community Based Management

Basic concepts from the Rural Water Supply Community-Based Management Manual (Ministry of Water Resources and Care International, Somaliland), Dec. 2015.

Water resources are treated as public owned asset for the benefit of Somaliland citizens as per the Constitution of Somaliland. The Ministry of Water resources of Somaliland is the regulatory body which formulates policy guidelines in respect of Rural Water Supply Sector and provides technical assistance to the regions and districts in the planning, Implementation, operation and cost the recovery of water supply and sanitation facilities

Compensation of Rural Water:-

- water sources always locate in rural areas and it is evident that water supply is mostly transmitted to the urban centers without giving consideration to the communities located near the water sources despite their need for water, in certain places the nomadic people break the transmission pipes to get water for their families and livestock, this happened near Berbera and the best solution was the construction of 4 public kiosks in between the 26 kms transmission pipelines , that can be some kind of compensation which is applicable in the other areas, some private service providers also participate in the community development projects.
- All water providers in water points shall supply adequate water to the nearby communities as compensation
- All transmission main supply shall provide water adequate water to the nearby communities as compensation
- All water providers are obliged to contribute water recharge mechanisms to increase to recharge of the aquifer
- All water providers should contribute to the development of the communities of the aquifer areas.
- Water providers should submit annually their contributions to the community development to include it in the district plan.

Rural Water Management policy

Community based rural water supply management concept (east Africa)

- Water management unit manages the water sources in the villages/settlements
- The water management unit consists of head of village, water source operator and one member from the community member if necessary.
- There are village water committees selected by the community elders and village authority,
- The district authority and district/region water officers approve the selected management unit (Water supply authorization form) see annex3
- The district water officer will sign water supply agreement with the water management unit (head of village). See annex 1
- The supply agreement period is two years.
- The water management unit members are nominated by:

a) Technician/operator by the district water office in consultation with village committee.
b) Head of village by ministry of interior
c) Member from water users/manager selected by village committee.

- Water management unit are responsible all water supply assets in the village.

- Water management unit are responsible to provide adequate, safe and affordable water supply to their communities.
- The water management unit are responsible of the operation maintenance, security and miner repairing.
- The water management unit are responsible to propose water tariffs under the approval district water office.
- Water management unit are accountable to the district water office
- All agreements and documents should be kept in Village and the district water office.

Functionality and cost recovery category

- **Water yard:** is permanent water sources that supplies nomadic community and their livestock mostly locates grazing areas and strategically used during dry seasons and drought and consists of animal troughs, rural kiosks, stand pipes and water tank. This kind of water source are mostly seasonal.
- **Mini water system :** is permanent water sources which locate away from the village and supplies water to livestock and rural community and the village inhabitants consists of animal troughs, rural kiosks, village kiosks , stand pipes, water tank and some of them has house connections.(quite large villages)
- **Village water points:** is permanent water sources that locates near the village and supplies water to the village community and consists of animal troughs, rural kiosks, village kiosks , stand pipes, water tank and some of them has house connections.

Cost recovery category

- **Water yard:** this category will generate revenue when in use. the collected revenue should be used as indicated in item 8.7, However when is not in use the cost shall be minimized and operator shall remain the ministry of water will subsidize the salary of the operator for the safety and sustainability. See water supply agreement (annex 1)
- **Mini water system:** this category will generate revenue. The collected revenue should be used as indicated in item 8.7. This category can have side business as subsidiary such as lighting, mobile charging, public toilets and kiosk shop. See water supply agreement (annex 1)
- **Village water points:** this category does not generate revenue therefore, this category is recommended to have side business that generated revenue to subsidize the operation and maintenance of water point. The revenue generated should managed as indicating in item 8.7. See water supply agreement (annex 1)

Selection of the suitable source and technical option of water abstraction.

- Water sources selection depends on geomorphology of the earth formations
- Shallow wells, springs, boreholes are the most abundant water sources in the coastal areas.
- Shallow wells, Barkads and springs are the most abundant water sources in the Mountainous areas.
- Barkads, Balays , boreholes and Shallow wells, are the most abundant water sources in the Haud Plateau.
- Barkads, Shallow wells and open Karsic wells are the most abundant water sources in the Plain areas.
- Abstraction equipment varies from place to place
- There are the traditional abstraction methods in the small water sources
- Mechanical abstraction equipment are used in many place such as irrigation of water farms , water tankers and some water points using centrifugal pumps .
- Electrical equipment are used in the strategic boreholes and town water supply systems

- Using renewable energy mainly solar system are widely used for the abstraction of many water points, mini water systems and some shallow boreholes.

Possible cost recovery mechanisms for each technical option

Community rural water management will be cost recovery if the collected revenue is planned well such as:-

Fuel Motorized water systems: the revenue generated from this kind of system should be managed as following:-

- 30% of the funds used for running the system
- 40% of the funds used for staff payments
- 20% of the funds saved for the emergency and development
- 6% of the funds for village authority
- 3% of the funds for district water office(ministry)
- 1% community development

Renewable energy water systems:- the revenue generated from this kind of system should be managed as following:-

- 50% of the funds used for staff payments
- 30% of the funds saved for the emergency and development
- 13% of the funds for village authority
- 6% of the funds for district water office
- 1% community development

Structure of Water Management Unit

Head of village

- Represent the committee and community.
- Represent the public event and open meetings.
- Chair all meetings and ensure that these meetings run effectively.
- ~~If the head of village is not available, the community representatives will fill the position.~~
- Ensures that the committee respect adhere on the byelaws

- Approve the temporary staff if needed.
- Support the Operator.
- Lead reconciliations and solving problems

Water user representative/manager:-

- Water user representative person is always much related to the community water users and update them on the situation of the water sources
- Support the operator in his daily works
- Organize meetings and events
- Coordinate management unit and the water users on tariff payment, water sources protection and other community related issues.
- Water user can take part in the community mobilization towards protection of the water sources and proper use of protected water sources
- Water user fully participate fund rising during improvement of water sources or breakdown of the equipment.
- Water user also member of the water committees

VIII.1.1 Operator/ Manager

In small settlements and villages where operator and manager are the same the roles and responsibilities are as following:

- Responsible for supply safe .adequate and affordable water supply to the communities in his village and all other day to day works as defined in the water supply agreement.
- Responsible for the safety of the water sources and equipment, infrastructures and other assets.
- Operate the water abstraction equipment in a sustainable manner day to day works.
- Responsible of the procurement of genuine supplies and spare parts.
- Responsible for collection of revenue and keep it in safe location.
- Responsible on collection of financial and technical data and keep it Recording.
- Compile and record log book of the generators, submersible pump and all other technical interventions.
- Compile and record meter reading, water production and sales on daily basis.
- Coordinate with the other members, district water office and other stakeholders.
- Responsible for the environmental protection and best practice of hygiene and sanitation related issues near the well field and infrastructure compound.

Annex M: Technical designs

Design of Sand dam

Criteria of Selection for a Sand Dam:

NO	Checklist of siting criteria	Technically Feasible	Optimal Location
1	Is the river seasonal?	**Y**	
2	Is the site further than 4 km from the valley head?	**Y**	
3	Do excavations and probing tests indicate the bedrock or impermeable layer within 5metres of the existing streambed?	**Y**	
4	Is the sediment predominantly sand with little or no silt or clay and with a porosity of at least 30%	**Y**	
5	Is the river gradient upstream of the proposed site less than 5%?	**Y**	
6	Is there evidence of rock spurs or natural dykes running across the river or rock outcrops on banks?	**Y**	
7	Are there existing scoop holes in the riverbed, especially those that are used throughout dry season?	**Y**	
8	Are the upstream banks free from major gulleys or low spots, which could allow the river to divert once a sand dam is built?	**Y**	
9	Is the site accessible and close to users' homes? Does the site suit the intended use such as upstream tree nurseries or vegetable gardens?		**Y**
10	Is the site on a rock spur or dyke and/or in a gorge or a point where the river narrows?		**Y**
11	Are sufficient construction materials (rocks, sand and water) easily available?		**Y**
12	Are users making an informed request for a dam and are they prepared to contribute and work with project?		**Y**

Sand Dam Design:

Annex N: Site Selection

126. Consultation workshops were conducted in Somaliland, Puntland, Galmudug, Hir-shabelle, Jubaland and Southwest states as well as with federal level stakeholders.

127. During Federal level stakeholder consultation, the Theory of Change, site selection and beneficiary quantification were analyzed in each of the 6 states. The federal level consultations acknowledged the most vulnerable districts in the country according to the criteria below as well as adaptation measures taken to date, if any. This gave an overall picture of the country.

128. During site selection and beneficiary quantification, participants assessed each region and its respected districts separately. Each region confirmed the criteria and ranked their districts based on the 11 criteria below. The districts were selected by ranking 2, 3, or 4 districts in each region with the highest overall score.

129. Sool and Sanag regions, and Buhodle district in Togdher region are contested areas by Puntland state and Somaliland. Both states treat the two regions and Buhodle district as it is in their territory and each state insisted to make the selection of the sites and also beneficiary estimations for these regions. In this regard, the average number of beneficiaries was calculated from the two states estimations and common districts designated as vulernable were selected. Please note that Mudug region also is divided into the Puntland state and Galmudug state as north and south Mudug. This classification is used by FSNAU and all other official reports.

Table 18: Site Selection Criteria

No.	Site Selection Criteria	Site: 1	2	3	4	5	6	7	8	9
1	Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure)									
2	Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)									
3	Need for water mobilization / diversion (5 strong - 0 weak)									
4	Need to combat desertification / erosion / land degradation (5 strong - 0 weak)									
5	Number of expected socio-enviro-economic benefits (5 many – 0 few)									
6	Likelihood of gender equality and/or gender empowerment (5 high – 0 low)									
7	Active women's associations present (5 many - 0 none)									
8	Active NGOs/CBOs present (5 many - 0 none)									
9	Unemployment / Need for livelihood diversification (5 high - 0 low)									
10	Poverty / Poor HDI (5 high - 0 low)									
11	Need to build local DRR capacities (5 strong - 0 weak)									
12	Capacity to implement adaptation measures and will of community to engage with project development / implementation (5 high - 0 low)									
13	Capacity to adapt and likelihood of uptake for adaptation measures (5 high - 0 low)									
14	Previous feasibility studies conducted (5 many – 0 none)									
15	Previous work/projects/programmes on flood/drought adaptation measures done in region, NOT this specific location (e.g., Local Economic Development Projects in the region) (5 much - 0 none)									
16	Level of synergy with other existing or planned projects (5 high - 0 low)									
17	Availability of data and statistics for proper monitoring and evaluation of project impacts (5 high - 0 low)									
	TOTAL									
18	Site in uncontested zone (Y – yes, N – no)									
19	Site highlighted in NAPA and/or Economic Recovery Plan (Y – yes, N – no)									
20	Area supporting pastoralists, agriculture and/or livelihood diversification (Y, N)									

SOMALILAND Site Selection Process

The below table shows the regions in Somaliland, their districts and villages. Contested districts or those under control were noted.

s/n	**States**	**District**	**Total score from the criteria**	**Districts Rank**		**Specific project villages**	**Beneficiary number**	**Accessibility**	**Contested**
1	**Somaliland**								
1	**Waqooyi Galbeed**								
		Hargeisa	48	1	Selected	Salaxley	15,000	yes	
		Berbera	35	2	Selected	Hagal	6,700	Yes	
		Gabiley	29	3					
2	**Awdal**								
		Seylac	32	1	Selected	Asha Ado	12,000	yes	
		Borama	30	2	Borama		10,000	yes	
		Lughaya	26	3			10,120	yes	
		Baki	21	4				yes	
3	**Togdher**								
		Burao	39	1			8,000	yes	
		Odweine	35	2	Selected	Gudubi	22,000	yes	
		Buhodle	32	3	Selected	Widh-widh	12,300	Yes**	Highly Contested
4	**Sanaag**								
		El-afwein	42	1	Selected	Darayo-weyn	12,000	Yes	
		Eynaba	39	2	Selected	War-idad	11,000		
					Selected	Habariheshay	8,990		
		Erigavo	38	3				yes	

		Dhahar	38	4				Yes*	Contested
		Badhan	37	5				Yes*	Contested
		Lasqorey	36	6				Yes*	Contested
5	**Sool**								
		Las Anod	42	1	Selected	Bo'ame	16,000	Yes**	Contested
						Yagori	9,000		
		Taleex	36	2				Yes	
		Hudun	36	3	Selected	Bohol	11,500	Yes	
	Total						**164,610**		

*Contested area but can be accessible by an international organization although the two states' arms stay both for example some major town are ruled by Somaliland where villages people support Puntland

** Highly contested area, fighting between militiamen, between states and clans can happen at any time.

PUNTLAND STATE Site Selection Process

		Bari						**Nugal**				**S. Mudug**		
No.	**Site Selection Criteria**	***Bosaso***	***Qandala***	***Alula***	***Iskushubaan***	***Qardho***	***B/beila***	***Garowe***	***Burtinle***	***Eyl***	***Dangora***	***G/dogab***	***Galkayo***	***Jariban***
1	Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure)	2	4	4	3	4	4	3	5	4	5	5	3	5
2	Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)	5	4	5	3	5	4	5	3	5	4	1	3	3
3	Number of expected socio-enviro-economic benefits (5 many – 0 few)	2	2	2	3	4	3	3	4	3	5	5	3	5
4	Need for water mobilization / diversion (5 strong - 0 weak)	5	4	5	3	5	4	3	5	3	5	4	3	4

5	Active women's associations present (5 many - 0 none)	4	2	1	1	3	2	4	2	2	3	3	4	3
6	Active NGOs/CBOs present (5 many - 0 none)	4	1	0	2	3	2	5	3	2	2	2	4	3
7	Unemployment / Poverty / Need for livelihood diversification (5 high - 0 low)	3	2	3	3	3	3	2	4	2	5	5	3	5
8	Capacity to adapt and likelihood of uptake for pastoral-based adaptation measures (5 high - 0 low) such as using mobile-phone based climate risk advisories	4	3	3	2	4	3	4	5	3	3	3	4	3
9	Previous feasibility studies conducted (5 many – 0 none)	3	1	1	2	3	3	3	3	3	3	3	4	3
10	Level of duplication with other existing or planned projects (5 none - 0 much)	2	1	1	1	2	1	4	5	1	5	4	2	4
11	Level of synergy with other existing or planned projects (5 high - 0 low)	5	3	4	2	5	5	2	2	2	2	3	4	3
	TOTAL	39	27	29	25	41	34	38	41	30	42	38	37	41

The below table shows number of regions in Puntland , their districts and villages. Contested districts or those under control were noted.

s/n	States	District	Total score from the criteria	Districts Rank	Selected districts	Specific project villages	Beneficiary number	Accessibility	Contested
2	**Puntland state**								
6	**Bari**								
		Qardho	41	1	Selected	Shaxda	9,000	yes	
						Libax xar	8,500	yes	
		Bosaso	39	2	Selected	Kobdhexeed	8630	yes	
						Carma	2100	yes	
		Bandar beila	34	6	Selected		39,70	Yes	
		Alula	29	3					
		Qandalla	27	4					
		Iskudhuban	25	5					
7	**Nugal**								
		Dangoroyo	42	1	Selected	budunbuto	13,006	yes	

						Usgure	5000	yes	
		Burtinle	41	2	Selected	Jalam	5000	yes	
						Bali dacar	6000	yes	
		Garowe	38	3			9600	yes	
		eyl	30	4					
	North Mudug	Jariban	41	1		Balibusle	15000	yes	
		Goldogob	38	2		Buursaalax	7500	yes	
		Galkayo	37	3		Balibusle	7000	Yes	
	Total						**100,306**		

GALMUDUG Site Selection Process

Galmudug State site selection and quantification process

		Mudug			**Galguduud**						
No.	**Site Selection Criteria**	***Hobyo***	***Galkayo***	***H/dhere***	***Dh/mareh***	***baanbale***	***EL bur***	***El-dher***	***Galharer***	***abudwaq***	***adado***
1	Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure)	5	3	3	4	4	5	4	3	5	5
2	Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)	3	2	1	1	2	0	4	1	4	1
3	Number of expected socio-enviro-economic benefits (5 many – 0 few)	4	3	4	4	4	4	4	4	5	5
4	Need for water mobilization / diversion (5 strong - 0 weak)	5	3	2	2	3	5	4	3	4	5
5	Active women’s associations present (5 many - 0 none)	1	5	0	5	2	2	4	0	3	3
6	Active NGOs/CBOs present (5 many - 0 none)	1	5	0	4	4	4	5	0	5	5

7	Unemployment / Poverty / Need for livelihood diversification (5 high - 0 low)	4	2	5	3	4	4	5	5	4	5
8	Capacity to adapt and likelihood of uptake for pastoral-based adaptation measures (5 high - 0 low) such as using mobile-phone based climate risk advisories	3	4	5	5	4	3	2	3	3	4
9	Previous feasibility studies conducted (5 many – 0 none)	5	3	1	1	3	4	2	1	5	4
10	Level of duplication with other existing or planned projects (5 none - 0 much)	5	1	5	1	4	5	4	5	4	4
11	Level of synergy with other existing or planned projects (5 high - 0 low)	5	3	4	4	2	2	3	1	4	5
	Total Score	**41**	**34**	**30**	**34**	**36**	**38**	**41**	**26**	**46**	**46**

The below table shows number of regions in Galmudug state, their districts and villages. Contested districts or those under control were noted.

s/n	States	District	Total score from the criteria	Districts Rank	Selected districts	Specific project villages	Beneficiary number	Accessibility	Contested
3	**Galmudug State**								
1	**South mudug**	Hobyo	41	1	Selected		4,100	yes	
		Galkayo	34	2	Selected	Bandiiradley	3000	yes	
						Wargalo	3500	yes	
		Harar-dhere	30	3		El-hur	2200	No	Alshabab
						Bacad weyne	2600	yes	
2	**Galguduud**								
		Adado	46	1	selected	Docolley	4000	yes	
		Abudwaq	46	1	Selected	Dhabat	7500	yes	
		El-dher	41	2	Selected	Caws weyne	6000	No	alshabab
						Galcad	4000	No	
		El-bur	38	3				No	alshabab
		Balambal	36	4				Yes*	Contested

		Dhusamare	34	5		Guricel	4000	Yes	Ahlusuna
		Gal-hareri	26	6				No	alshabab

*Contested area but can be accessible by an international organization.

HIRSHABELLE Site Selection Process

Hirshabelle State site selection and quantification process

	Middle Shabelle					**Hiran**				
Site Selection Criteria	**Jowhar**	**adan yabal**	**warsheekh**	**Balcad**	**Cadale**	**Baladweyn**	**mataban**	**mahas**	**Buulo**	**Jalalaqsi**
Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure	5	5	4	1	3	2	5	4	1	3
Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)	5	4	4	4	0	5	1	3	3	0
Need for water mobilization / diversion (5 strong - 0 weak)	1	2	3	1	3	4	5	3	3	1
Number of expected socio-enviro-economic benefits (5 many – 0 few)	5	4	3	3	2	0	4	3	1	4
Active women's associations present (5 many - 0 none)	3	3	4	0	0	4	3	2	2	1
Active NGOs/CBOs present (5 many - 0 none)	4	4	3	2	2	4	3	4	3	2
Unemployment / Need for livelihood diversification (5 high - 0 low)	3	3	4	4	5	3	4	3	2	1
Capacity to adapt and likelihood of uptake for adaptation measures (5 high - 0 low)	4	4	3	2	2	3	3	4	2	1
Previous feasibility studies conducted (5 many – 0 none)	3	3	3	2	1	2	3	3	1	1
level of dulication with other existing or planned project (5 none -0 much)	3	2	2	0	1	0	3	3	0	0
Level of synergy with other existing or planned projects (5 high - 0 low)	3	3	3	1	1	0	3	2	0	0
Total	**39**	**37**	**36**	**20**	**20**	**27**	**37**	**34**	**18**	**14**

The below table shows number of regions in Hirshabelle state, , their districts and villages. Contested districts or those under control were noted.

s/n	States	District	Total score from the criteria	Districts Rank	Selected districts	Specific project villages	Beneficiary number	Accessibility	Contested
4	**Hir-shabelle state**								
10	**Middle Shabelle**							Hir-shabelle state governs only major town where all villages are not accessible and controlled most of them by Alshabab	
		Jawhar	39	1	Selected		16,000		
		Adan tabal	37	2	Selected		13,500		
		War-sheekh	36	2					
		Bal'ad	20	3					
		Adale	20	4					
12	**Hiran**								
		Beletuene	37	1	Selected		10,500		
		Bulaburde	34	2	Selected		10,000		
		Mataban	27	3	Selected		10,000		
		Maxaas	20	4					
		Jalalaqsi	15	5					
							60,000		

HIRSHABELLE STATE

Hirshabelle State Site Selection And Quantification Process

	Lower Shabelle	**Bay**	**Bakol**

Site Selection Criteria	**Shalaan-bood**	**wala weyn**	**sabalale**	**kurtwarey**	**Baraawe**	**Qoryoole**	**Afgooye**	**q/dhere**	**bardale**	**Baydhabo**	**Buurhakab**	**Diinsoor**	**Xudur**	**rab dhure**	**wajid**	**Tiyeeglow**	**Ceelberde**
Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure	4	1	5	1	3	5	1	5	5	4	4	5	5	4	4	3	3
Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)	0	4	1	4	0	4	4	1	0	0	1	0	0	1	1	0	0
Need for water mobilization / diversion (5 strong - 0 weak)	2	3	2	1	3	3	1	3	2	3	4	2	2	4	4	2	2
Number of expected socio-enviro-economic benefits (5 many – 0 few)	2	3	5	4	3	5	4	4	4	3	1	4	5	4	3	4	4
Active women’s associations present (5 many - 0 none)	0	2	2	3	2	2	3	3	1	3	2	1	2	3	3	1	1
Active NGOs/CBOs present (5 many - 0 none)	2	2	2	5	3	1	5	2	2	4	2	2	2	4	4	3	2
Unemployment / Need for livelihood diversification (5 high - 0 low)	3	3	5	3	3	5	3	2	2	3	1	2	2	4	4	3	1
Capacity to adapt and likelihood of uptake for adaptation measures (5 high - 0 low)	2	3	4	4	2	4	4	2	1	2	0	1	1	3	3	2	1
Previous feasibility studies conducted (5 many – 0 none)	1	3	3	3	1	3	3	3	0	1	1	0	1	2	2	3	3
level of dulication with other existing or planned project (5 none -0 much)	0	2	5	3	1	1	3	1	1	2	0	1	2	3	3	3	2
Level of synergy with other existing or planned projects (5 high - 0 low)	0	3	3	3	2	4	3	2	2	0	0	0	1	4	2	3	3
Total	**16**	**29**	**37**	**34**	**23**	**37**	**34**	**28**	**20**	**25**	**16**	**18**	**23**	**36**	**33**	**27**	**22**

The below table shows number of regions in Hirshabelle state, their districts and villages. Contested districts or those under control were noted.

s/n	States	District	Total score from the criteria	Districts Rank	Selected districts	Specific project villages	Beneficiary number	Accessibility	Contested
5	**South western state**								
11	**Lower shabelle**							Hir-shabelle state governs only major town where all villages are not accessible and controlled most of them by Alshabab	
		Qoryoley	37	1	Selected		09,430		
		Sbalaale	37	1	Selected		10,300		
		Kurtuwarey	34	2	Selected		04,970		
		Wala weyn	29	3					
		Barawe	23	4					
		Shalanbood	16	5					
14	**Bay**	Beydhabo	25	1	Selected				
		Q/dhere	20	1	Selected		12,000		
		Bardale	20	2			6900		
		Burhakabo	16	5					
		Dinsor	18	3					
				4					
15	**Bakol**								
		Rabdhure	29	1	Selected		9000		
		Wajid	28	2			9000		
		Tiyeglow	24	3			2,000		
		El-berde	19	4					
	Total						**85,600**		

JUBALAND Site Selection Process

Site selection criteria	Gedo						Lower Juba					Middle Juba		
	dollo	El-waq	Luq	Garbahaarey	Baardheere	Beledxaawo	badhadhe	hagar	Kismaayo	Afmadow	Jamaame	Buaale	Saakow	Jilib
Vulnerability to drought (sensitivity measured by number of consecutive dry months) (5 significant climate exposure - 0 not much climate exposure	4	5	5	3	3	4	1	3	1	3	2	1	1	1
Vulnerability to flooding / intense precipitation events (5 significant climate exposure - 0 not much climate exposure)	2	0	0	0	2	0	4	0	1	1	1	3	3	3
Need for water mobilization / diversion (5 strong - 0 weak)	4	2	2	2	3	4	1	3	4	2	2	3	3	3
Number of expected socio-enviro-economic benefits (5 many – 0 few)	3	4	5	4	3	3	3	2	0	2	1	0	0	0
Active women's associations present (5 many - 0 none)	3	1	2	2	2	2	0	0	3	2	2	3	2	1
Active NGOs/CBOs present (5 many - 0 none)	2	2	2	2	2	3	2	2	4	2	1	2	2	1
Unemployment / Need for livelihood diversification (5 high - 0 low)	4	2	2	2	3	3	4	5	4	2	2	3	3	3
Capacity to adapt and likelihood of uptake for adaptation measures (5 high - 0 low)	3	1	1	2	2	2	2	2	3	1	1	2	1	1
Previous feasibility studies conducted (5 many – 0 none)	3	0	1	1	1	1	2	1	2	1	1	1	1	1
Level of dulication with other existing or planned project (5 none -0 much)	2	1	2	0	0	1	0	1	2	0	0	1	1	1
Level of synergy with other existing or planned projects (5 high - 0 low)	0	0	1	0	0	0	1	1	0	0	0	0	0	0
Total	30	18	23	18	21	23	20	20	24	16	13	19	15	13

The below table shows number of regions in Jubaland state, their districts and villages. Contested districts or those under control were noted.

6	**Jubaland state**											
16	**Gedo**							Hir-shabelle state governs only major town where all villages are not accessible and controlled most of them by Alshabab				
		Dollo	30	1	Selected		75,00					
		Luq	23	2	Selected		4,500					
		B/hawa	23	3	Selected		8,020					
		Bardhere	21	3								
		Garbaharey	18	4								
		El-waq	18									
17	**Lower juba**											
		Kismayo	24	1	Selected		11,830					
		Hagar	20	2			9,500					
		Badhadhe	20	3			6,600	No	Alshabab			
		Afmadow	16	4				No	Alshabab			
		Jamame	13	5				No	Alshabab			
13	**Middle Juba**							No	Alshabab			
		Bu'ale	19	1	Selected		13,500	No	Alshabab			
		Sakow	17	2	Selected		5, 840	No	Alshabab			
		Jilib	15	3			5,000	No	Alshabab			
							76,990					

Selected Site Analyses (based on detailed socio-environmental and engineering analysis conducted during December 2017 and January 2018)

Somaliland sites:

Region	Togdher
District	Celbilcinle
Population	18,000
Expected No. Beneficiaries	12,000 direct who will benefit from water sources 24,000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 9 months per year, dry periods extending in recent years Higher average temperatures Reduced soil fertility and plant diversity in the grazing areas due to Higher average erosion (wind and soil erosion) Reducing ground water (shallow wells dried already)
Effect of climate change on livelihoods	Limited water access, they collect community water reservoirs (berkads) and one new Dam around the village Limited fodder production, only 3 months during rainy periods. Wind erosion
Min Monthly Rainfall (mm)	265 mm/annum.
Water infrastructure recommended	A) 1 Sand dams – (Dam/Sand Dam, retaining wall for river embankments, Shallow Well, Animal Troughs, Standpipes/kiosk , Storage Tank - 25 CUM, Solar pump system, Pipes and fittings, Construction of ancilliary works) B) Earth Dam Rehabilitations – (Construction of Silt trap Berked, Flood control retaining wall, Water point and Ground water tank in the village)
Activities and approx. costs required to implement water infrastructure	1A – (Approx. USD 125,793) 1B – (USD 65,000)
O&M repair costs	1A) - USD 6500 2A) - USD 4500
Expected lifetime of infrastructure	1A) - 20-30 years 2A) - 50-60 years
Fodder production recommended	No fodder production recommended. The area has a good grazing land under rehabilitation by SDF
Expected environmental impacts	Improved access to drinking water during dry season
Expected social impacts	SDF constructing grazing reserve finished in late 2017, SDF making rehabilitation on open grazing land through cash for work system and constructed an earth Dam

Other donors or NGOs present	Red Cross provides unconditional cash grants to the communities in the villages,

Region	Togdher
District	Beer
Population	15,000
Expected No. Beneficiaries	15,000 direct who will benefit from water sources 22,000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 6 months per year, dry periods extending in recent years Higher average temperatures Reduced soil fertility and plant diversity in the grazing areas due to Higher average erosion (wind and soil erosion) Reducing ground water, shallow wells and hand dug wells dried up
Effect of climate change on livelihoods	Limited water access, they collect community water reservoirs (berkads), they use water trucking from 90km. Limited fodder production only during rainy periods, limited plant diversity in the rangelands.
Min Monthly Rainfall (mm)	265 mm/annum.
Water infrastructure recommended	1A) – Construction of 1 Earth Dam – (130m lengthx70m widthx4m deep). 2A) – Construction of 3 water reservoirs (Berkads) – 25m by15m and 3m deep
Activities and approx. costs required to implement water infrastructure	1A – (Approx. USD220,0000) 2A – (USD 120,000)
O&M repair costs	1A- (USD 22,000) 2A- (USD 12,00)
Expected lifetime of infrastructure	1A- 50-70 years 2A- 20 years
Fodder production recommended	2 sites, approximately 300 hectares of land Production capacity expected (10,000kg/Ha/year)
Activities and approx. costs required to develop fodder sites	- Prepare land - (USD56,000/ha) - Establish nursery for seedlings - (USD54,000) - Develop water distribution scheme (500m Canal, one water gate, and water diversion scheme) - (60,000) - Seeding and tree planting - (USD45,000) - Mini harvester machine - (USD50,000) - Seed harvester machine - (USD20,000) - Fodder/hay baler tractor - (USD40,000) - Ware house construction for seed and forage store (25mx20mx5m) - (USD60,000)

Expected environmental impacts	Improved access to drinking water during dry season, plant/grasses diversity, improved soil structure, improved fodder production for livestock; reduce death of livestock for poor feeding.
Expected social impacts	ADO is constructing earth Dam for vegetable production, community Seed bank , B**eer college livestock husbandry students** apprenticeship and fodder production experience improved, existing pastoral cooperatives in the area strengthened,
Other donors or NGOs present	No other NGOs/ donor Currently working

Region	Sool
District	Habariheshay
Population	4,620
Expected No. Beneficiaries	4,500 direct who will benefit from water sources 9,000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 9 months per year, dry periods extending in recent years Higher average temperatures Limited plant diversity in the grazing areas due to Higher average erosion (wind and soil erosion) Reduction of ground water, Seasonal river floods to the villages two times every year
Effect of climate change on livelihoods	Limited water access, they collect community water reservoirs (berkads), they use water trucking in dry periods from Ainabo. Limited fodder production, fodder available only during rainy periods, limited plant diversity in the grazing lands. shallow wells dried up
Min Monthly Rainfall (mm)	260 mm/annum.
Water infrastructure recommended	1A) – Construction of flood control structure (gabion for 200m long, 1m wide and 3m high with steel mesh on both riversides). The other option is to use retaining wall which less expensive 1B) - Rehabilitation of 3 shallow wells
Activities and approx. costs required to implement water infrastructure	1A – (Approx. USD 96,000) 1B – (Approx. USD 25,000)
O&M repair costs	1A – (Approx. USD 12,000) 1B – (USD 2,500)

Expected lifetime of infrastructure	10-25 years
Fodder production recommended	NO improved forage production due to shortage water availability but rehabilitation of the existing grazing land.
Activities and approx. costs required to develop fodder sites	Land rehabilitation – (Approx. USD 60,000)
Expected environmental impacts	Improved access to drinking water during dry period, improved soil structure and vegetation cover in the rehabilitated areas,
Expected social impacts	Risk of flooding is reduced, movement of pastoralists o the other areas is reduced since we have water and rehabilitated grazing land for the livestock, CARE international provides unconditional cash transfer to the internally displaced people in the area.
Other donors or NGOs present	No NGO, or other donor works here

Puntland sites:

Region	Bari
District	Kobdhaxad, Bosaso
Population	12,000
Expected No. Beneficiaries	10,000 direct who will benefit from water sources 17,000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 9 months per year, dry periods extending in recent years. Floods 2 times per year approximately, more with recent years causing Higher average temperatures up to 40 °C (86 to 104 °F), high wind erosion
Effect of climate change on livelihoods	No Potable water access, must collect potable water from trucks up to 50 Km distance. The only potable borehole require maintenance, 14km from the village, limited fodder for livestock, limited water for human consumption, reducing rangeland ecosystem services, wind erosion
Min Monthly Rainfall (mm)	300mm
Water infrastructure recommended	1A) Rehabilitation of 1 Borehole (50 km out of town) and providing infrastructures with 14km long pipping system to supply potable water to the village 2A) 1 Earth dams/ water pond – (4 m deep, 130m long and 70m wide with capacity of 142360 Cum)

	1B) Construction of 4 Barkads with Dimensions: 25m by 15m and 3m deep
Activities and approx. costs required to implement water infrastructure	1A) – (USD 109,500) 2A) – (USD 200,000) 1B) – (USD 160,000)
O&M repair costs	1A) (USD 10950) 2A) (USD 20,000) 1B) (USD 16,000
Expected lifetime of infrastructure	1A) 70-100 years 2A) 50-70 years 1B) 15 years
Fodder production recommended	No fodder production, pastoralists use open pastureland grazing system.
Activities and approx. costs required to develop fodder sites	
Expected environmental impacts	Earth dams and Borehole strengthen the resilience of local communities to climate change, reduces pastoralist migration, reduces conflicts over scarce water resources
Expected social impacts	Enhanced availability of and access to water 1. Improved living conditions of both pastoralists and farmers 2. Promote peace and stability 3. Enhance settlements and reduces the competition for water between farmers and pastoralists
Other donors or NGOs present	No Ngo or other donor in the area

Region	Sanaag
District	Dhahar Village/Badhan district
Population	60,000
Expected No. Beneficiaries	24,000 direct who will benefit from water sources 36,000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 8 months per year, dry periods extending in recent years Higher average temperatures
Effect of climate change on livelihoods	No water access, must collect water from trucks Limited fodder production, only during rainy periods
Min Monthly Rainfall (mm)	300 mm
Water infrastructure recommended	1A)- Construction of earth dams – (130m x 70x 4m) 1B) - Rehabilitation of 10 Berkads (community barked)

Activities and approx. costs required to implement water infrastructure	1A) – (Approx. USD 220,000) 1B) – (USD 100,000)
O&M repair costs	1A)- (Approx USD 40,000) 1B)-(USD 10,000)
Expected lifetime of infrastructure	1A)- 50-70 years 1B)-15 years
Fodder production recommended	Rehabilitation of Dhahar grazing land (200km^2)
Activities and approx. costs required to develop fodder sites	- Soil and water conservation structures (USD 110,000) - Establishment of tree nurseries (USD 62,000) - Distribution of seedling and reforestation of the reserve (USD 60,000) - Protection of the selected reserve area through community mobilization - Training communities (USD 15,000)
Expected environmental impacts	Earth dams strengthen the resilience of local communities to climate change, reduce greenhouse gas emission due to rehabilitation of the grazing and encouraging more reforestation measures
Expected social impacts	Enhanced availability of and access to water Improved living conditions of both pastoralists and farmers Promote peace and stability Enhance settlements and reduces the competition for water between farmers and pastoralists
Other donors or NGOs present	ADESO - ARC - CARE - ASAL

Region	Mudug
District	Bursallah
Population	18,000
Expected No. Beneficiaries	9,500 direct who will benefit from water sources 16,500 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 6 months per year, dry periods extending in recent years Limited water to drink and use for livestock consumption Higher average temperatures
Effect of climate change on livelihoods	good water access to the marginal area, good fodder production
Min Monthly Rainfall (mm)	300 mm

Water infrastructure recommended	1A) Construction of 1 Earth dams – (130m long, 70m wide and 4m deep). 4 existing boreholes
Activities and approx. costs required to implement water infrastructure	2A) – (Approx. USD 220,000)
O&M repair costs	1A)– (Approx. USD 22,000)
Expected lifetime of infrastructure	1A) - 50-70 years
Fodder production recommended	Rehabilitation of the grazing lands
Activities and approx. costs required to develop fodder sites	Nursery site establishment (one already exists). (USD 60,000) Livelihood activities like energy saving stoves – (USD80,000) milk value chain – (USD60,000) hide and skin value chain - (USD52,000)
Expected environmental impacts	Earth dams strengthen the resilience of local communities to water stress and drought shocks, reduces death of livestock,
Expected social impacts	Improved living condition of the communities Women and youth are empowered and improve participation Reduced charcoal production in the area when livelihood skill strengthened Unemployment rate of women group and youth reduced
Other donors or NGOs present	No NGOs or donors working in this area except WFP for food aid distribution

Galmudug State:

Region	Galgaduud
District	Bacaadwayne
Population	13,000
Expected No. Beneficiaries	8,000 direct who will benefit from water sources 9,2000 indirect beneficiaries that include the nomadic pastoralists that pass through
Climate change impacts on environnement	Extended dry periods for approximately 9 months per year, dry periods extending in recent years High wind erosion Higher average temperatures
Effect of climate change on livelihoods	No water access, must collect water from trucks Limited fodder production, only during rainy periods Production of charcoal in the forest land due to loss of livestock
Min Monthly Rainfall (mm)	300 mm

Water infrastructure recommended	1A) - Construction of 1 Earth dams – (130mx70mx4m), 1A) – Rehabilitation and expansion of existing Earth Dam - (50mx50mx1.5m deep) to new dimension earth dam with infrastructures – (130mx70mx4m)
Activities and approx. costs required to implement water infrastructure	1A) – (Approx. USD 240,000) 2A) – (Approx. USD 220,000)
O&M repair costs	1A) – (Approx. USD 24,000) 2A) – (Approx. USD 22,000)
Expected lifetime of infrastructure	1A)-50-70 years 2A) -50-70 years
Fodder production recommended	
Activities and approx. costs required to develop fodder sites	Area recommended for iodized salt production
Expected environmental impacts	Earth dams strengthen the resilience of local communities to climate variability , Contribute GHG emission control land reforestation measures
Expected social impacts	Enhanced availability of and access to water Improved living conditions of both pastoralists and farmers Enhance settlements and reduces the competition for water between farmers and pastoralists
Other donors or NGOs present	NO NGOs in the area

Annex O: Meeting minutes

February 02, 2018.

Discussion among focal points for LDCF2 project

Date:
2 Feb 2018

Participants:
Cara Tobin, Abdul Rafiq, Hassan Abdirisak, Salah Dahir, Abdi Yusuf, and Ahmed Mohamoud

Summary:

- As part of the update, Project team held a meeting with the Federal Ministry of Energy and Water Resources (MoEWR. Discussion focussed the scope of the LDCF2 project
- From the above meeting, no changes highlighted in the Project document and scope of the LDCF2 project, however, Senior Advisor was to join the Ministry and he is specialised in the NRM and Climate Change field with added advantage of an international experience. He will also be our main focal point
- This morning, we received initial comments from the ministry with suggestion to include an assessment of potential of ground water resources in Somalia to reduce the impact of climate change, setting policy around ground water. This should be placed in Component 3 (15 Aug 2018)
- Detailed proposals and designs have been developed by head of meteorology unit in Federal MoEWR, this can cover the requirements for the Southern Central Regions. Also, Somaliland and Puntland are quite ahead in terms of water and energy polices, rain gauges and metrology stations within the respective Ministries (Ministry of Agriculture, and Ministry of Water and Resources). Therefore, MOA and MOWR within Somaliland and Puntland may know all standards, overall predictions are that they will be able to suggest more rain gauges and metrological equipment's-, while FAO SWALIM has sub-office in the ministry of water and Natural resources thus data and available resources may be followed up with them.
- Enlightening further above concerns, Hasan Abdirisak cited to have received an email from the Director General (DG) informing him the allocation of 10 Hydrological equipment's by IGAD and WMO categorically 5 for Shabelle, and 5 for Jubaland Regions. Progress so far are the installations of 2 equipment's among the 10 (Afgooye:1, and Jowhar:1), while installed equipment's to be used in monitoring the river water rise/fall. Status of the 8 in stock would be followed up with colleagues in the very Ministry.
- Cara enquired the metrological service within the ministry, and their required standards, and on whether they would remain linked with all regions or some may want autonomy? Responding to this, Abdul said that in the near future, ministries self-autonomy would be obvious, but as of now, we may assume them being pleased with the 5-10 years FAO SWALIM modality at Federal level.
- Cara informed to have been pleased by the received documents prepared by the Somaliland Ministry of Water and Resources, and asked on the supply agreements?
- Responding to the above, Abdi Yusuf replied that all factored areas in the shared documents were not properly implemented and major challenge lies the implementation and sustainability in which all these were even the concerns raised by the ministry during their meeting and their primarily focus
- As part of the updates for the GCF site selection in Somaliland, Abdi Yusuf informed that the MoERD proposed additional sites with water scarcity issues which were again not very far from earlier

proposed sites, so we can keep prior selected sites but again need for addition or replacements subject to team discussion and guidance.

- Adding on the sites viability, Abdul proposed to have a summary table with sites and targeted locations for GCF and LDCF1 in Somaliland in particular and all other regions to reflect and know on what we are going to cover by districts. While Knowing our previous focus or coverages was mainly one to two regions be it in Somaliland or Puntland, the table may guide us well on where we have invested more in the light of conclusion to regional balance and fairness coverage.
- Cara flagged the mapping for the water infrastructures by AFDB and EU projects;
- In reference the above, Abdul mentioned that EU restored project was majorly on investment on sand dams and other water storage facilities while AFBD tailored master plan and study on the access of communities to clean water supply in the context of water vs Households
- Cara emphasised on the clarity of projected areas for the DRSL on pastoral water supply since not well versed with what they have done so far in Somaliland, Puntland and South-Central Regions?
- Abdul raised a concern on the wide range needs of the old and new member states regarding available LDCF2 budget, thus balancing the needs vs available resources may alert worries and coverage dynamics. Also, priorities may differ from regions to region, for instance boreholes may sound practical for Southern Central regions and investment on underground water and other water storage facilities like sand dams, water catchments, shallow wells and Berkads (traditional water reservoirs) for Puntland and Somaliland.
- As part of the Puntland updates, Ahmed Mohamud expressed that Environmental/land Use Policies are available with Ministry of Environment, Tourism, and Wildlife (MoEWT) while water policies and acts would be followed up with PSAWEIN.

Discussion on Component 2, LDCF2 Project

Date:
18 March 2018

Participants:
UNDP (Hassan Abdirizak) and Ministry of Energy and Water Resources (Dr. Elmi, Eng. Omar and Ahmed)

Summary:
Wording was revised slightly for activities under component two (Transfer of technologies for enhanced climate risk monitoring and reporting on water resources in drought and flood prone areas) and their indicative budget requirements were provided.

Annex P: UNDP Project Quality Assurance Report

(to be completed in UNDP online corporate planning system by UNDP Country Office, does not need to be attached as separate document)

Annex Q: Barriers

Lack of water governance frameworks and fragmented water resources management and planning

130. There is no centralized, institutional framework and policy for water resources management. To regulate the use of water resources, the Government of Somalia drafted a National Water Resources Law in 1984. The draft law, which was never formally endorsed by Parliament addressed the issue of water rights. Remaining issues were addressed in the new draft Water Law of 1990. The enactment and implementation of this new Law was not complete when the old government collapsed in 1991.

131. After 2004, international support was given to both Somaliland and Puntland to draft and enter into force water policies for their respective territories. The Water Policy of Somaliland was drafted in June 2004 by the Ministry of Water and Mineral Resources (MWMR) in collaboration with UNICEF and the Danish Royal Government. Its purpose is to improve water availability and access in a sustainable and equitable way for all types of uses, in a manner that is environmentally safe. Subsequently, Somaliland also drafted a Water Act. Specific objectives of the Water Act include managing water resources and providing water services by implementing and enforcing the Somaliland Water Code, its laws and regulations as well as developing a national water strategy to be translated into water plans. The Water Act and Code have not yet been endorsed.

132. Similarly, the Puntland Water, Energy and Natural Resources Corporation (PSAWEN) has developed a Green Water Paper to establish a water policy. The Green Water Paper has the following institutional goals for water supply services: a) to provide water services to consumers based on full cost recovery, b) to support institutional development at local and national levels and c) to maintain service delivery. Subsequently, Puntland finalized its Water Policy in 2017. Similar to Somaliland, while the Water Act has been submitted for review. None of these water regulations have been endorsed by the government to date.

133. In addition to legitimizing already existing water policies, customary laws and traditional leaders involved in administrative, fiscal and judicial affairs for the water sector must be officially endorsed. Pastoralists must be given a key role in local governance to enhance resource conflict prevention and peace building. Currently, there is no multi-disciplinary planning and evaluation of water resources, programs and projects. A clear and collaborative mapping for water policies, water acts and water quality standards must be developed for all Federal Member states in Somalia which defines the roles of actors across sectors at all levels. In all of the water resource planning and policy development, pastoralists must be given a voice.

134. Overall, developing a national strategic plan for IWRM which focuses on rainwater harvesting, groundwater and shallow wells, was highlighted as an urgent need by SWALIM 2007.[122] Such a strategy must link to livelihood generation and job creation in order to support Somalia's peaceful development and address Somalia's interlinked crises of unemployed youth, forced displacement, contested land and drought and natural resource depletion.

Unsustainable water management practices

135. In the context of scarce water and predicted climate change, there is a shortage of technical knowledge and capacity to apply groundwater capture and surface water mobilisation techniques in Somalia. The Water Departments have constructed numerous boreholes which have insufficient capacity and/or poor water quality. The institutions relevant to water management are also unable to capture wadis' periodic flows and store water for the dry seasons, such as by using rainwater harvesting techniques. According to the Status of IWRM in the Arab region report, Somalia needs

[122] SWALIM, Oct 2007. Potential for Rainwater Harvesting for Somalia, Technical Report.

support in assessing its groundwater resources in addition to expanding other non-conventional water resources to meet its demand. Somalis have less than 55 litres/day/person relative to the standard XX litres/day/person. Moreover, demand will undoubtedly increase because population growth is estimated to be at least 2.3%.[123] Water conservation measures such as water recycling and rainwater harvesting are limited in spite of technical studies on the potential for water conservation and water harvesting.[124]

136. Currently, the human population and livestock depend on surface water harvesting structures such as dams and berkads. The first berkads were built in the 1950s and continue to be widely used.[6] However, berkads are subject to siltation and evaporation. Proper designs require silt traps and grass covers to mitigate evaporation losses. Water trucking is common in such districts during prolonged droughts, yet it is not economically efficient. Waters in these reservoirs are often polluted with organic matter, silt and sometimes garbage and there can be a high likelihood of biological contamination.

137. Extraction from shallow wells, springs, river water and groundwater from aquifers of various depths, are not well-managed, if managed and controlled at all.[125] Extraction of groundwater is mainly un-regulated and has led to excessive drilling of boreholes in low-yield locations, which have caused unsustainable dependencies. For instance, in rural areas, an inadequate network of pastoral water structures that supply both domestic and livestock water remains the major cause of conflict between pastoralists and settled communities. Overgrazing at existing water points is causing environmental degradation.

Limited climate monitoring and weak flood and drought preparedness capacities

138. The prolonged civil war in Somalia saw the collapse of the climate monitoring network which has recorded data between 1963 and 1990. The data gap post 1991 makes accurate flood and drought forecasting challenging. For the past 5 years, the FAO SWALIM, IGAD ICPAC and USAID's FEWSNET initiatives have focused on improving regional forecasting for Somalia, making use of the rehabilitated network of monitoring stations in addition to stations abroad (Kenya, Djibouti). The network is still extremely sparse with only one functioning weather station in South Central. Furthermore, the centralized agency for Disaster Risk Management (DRM) in the south has only been operational for one year.

139. Technical and operational flood and drought preparedness capacities are extremely weak in all zones of Somalia. Currently, if early warning information is provided to communities, it is usually passed on in a very ad-hoc, uncoordinated manner by leaders to others through text messages or word of mouth. Due to their remoteness, the majority of pastoralists are rarely forewarned about and prepared for extreme events.

140. At present, communities protect flood prone areas through embankments (using sacks of mud). Construction of gabions using stones and wire meshed to prevent flooding of farms and houses takes place is some flood plain areas (supported by UNDP and the International Labour Organisation). However, in general flood preparedness by pastoralists is weak. Similarly, drought management has been reactive and consequently poorly coordinated and untimely (IDMP). There is a need to focus on drought resilience with a strategy to prepare for and mitigate the effects of drought, particularly in the Arid and Semi-Arid Lands of Somalia.

Limited empowerment of local populations and regional governments to assist with water provision and operation and maintenance

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[123] Verner, Dorte, 2012. ***Adaptation to a Changing Climate in the Arab Countries***, MENA Development Report, The World Bank

[124] SWALIM, Oct 2007. Potential for Rainwater Harvesting for Somalia, Technical Report.

[125] Ministry of Water. May 2012. Background Paper on Water: Preparing Somalia's Future: Goals for 2015.216 Second Istanbul Conference, Turkey

141. Since the collapse of the Central Government, water sector service provision has been largely in the hands of communities in the rural sector and dominated by the private sector in urban centres. For instance, at the local level, Water User Associations are involved in the management and operations of rural water supply and irrigation systems.

142. Most of these existing WUAs have been formed by communities or groups of water users, for the purpose of cooperative management, operation and maintenance of water supply infrastructure. In addition, they play an important role in conflict resolution, mediation, user agreements and allocations at the local level, awareness creation, and community mobilisation (e.g. for self-help maintenance works). They do, however, suffer from poor capitalisation, limited technical skills, and skill migration to urban centres.

143. The rural population's limited technical skills are evident in the high percentage of non-functioning boreholes. According to a survey conducted by the Ministry of Mining, Energy and Water Resources, approximately 40% of all existing wells are operational. Most of these have been rehabilitated over the last seven years with the help of international organizations. An equal number of wells have been abandoned. The remaining 20% of the wells surveyed require rehabilitation. Other water sources are in a similar state of disrepair; ponds and dams, for instance, need to be de-silted.

Limited youth empowerment to support water management and livelihood diversification

144. Vocational skills to ensure water sector service delivery are almost entirely lacking in Somalia. The youth do not have the technical knowledge to support understaffed ministries (Ministries of Water, Agriculture, etc, JPLG WASH 2012). As recommended by the Somaliland National Development plan (2012 – 2016), there is a need to establish water technology institutes, water engineering faculties and water research in order to produce technical, water sector professionals. Vocational qualifications and curricula need to be standardised so that the youth can learn about water resources management and how it feeds into various sector planning such as agriculture and husbandry.

Limited socio-economic development and diversification of livelihoods for Somalia's pastoralists

145. Somali pastoralists face informational market access barriers due to their knowledge on the value chain of local products. Young pastoralists must be trained in exploiting the value chain of livestock products such as meat, milk, cheese and hides. Opportunities such as on the pasture training and south-south co-operations which promote the value chain and trade of pastoral products must be expanded in Somalia. Also, awareness-building on best practices such as re-seeding, re-fertilization of soils with compost and use of locally-produced manure and organic material to increase productivity must be enhanced. Finally, small- and medium-size rural enterprises and/or markets to promote livestock commodity sales are lacking.

Annex R: Hydro-met-geo equipment

Cost and Status of Proposed Hydromet Monitoring Network in Somalia												
Type	**Description**	**Unit Cost (USD)**	**Proposed Quantity**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Total Cost (USD)**	**Remark**	**Exisitnging Net**	**Proposed**	**% Increase**
Automatic Weather Stations (AWS)	Full weather station (Sensors, datalogger, solar panel, battery, mast and accessories)	12,000	11	12,000	0	0	0	132,000		**11(Total)** 4 in SL 3 in PL 4 in SC	**11 (Total)** 2 in SL 3 in PL 6 in SC	118 %
	Server and Central Control Units	30,000	1	30,000	0	0	0	30,000				
	Software	30,000	1	30,000	0	0	0	30,000				
	Satellite Transmission	70 usd per station per month	11	840	840	840	840	36,960	Annual transmission per station			
	Installation, fencing	4,000	11	4,000	0	0	0	44,000				
	Security	60 usd per station per month	11	720	720	720	720	31,680	Annual security cost per station			
	O & M Costs		LS	0	2,000	3,000	3,000	8,000				

								312,640				
Manual Rain Gauges	Standard EA Rain gauge	200	10	200	0	0	0	2,000		**103(Total)** 35 in SL 24 in PL 44 in SC	**10(Total)** 1 in SL 3 in PL 6 in SC	10%
	Installation, fencing	100	10	100	0	0	0	1,000				
	O & M Costs	50	10	600	600	600	600	24,000	gauge readers cost, security and maintenance			
								3,000				
Synoptic Stations	Evap Pan Class A	2,000	8	2,000	0	0	0	16,000		**8(Total)** 35 in SL 24 in PL 44 in SC	8 **(Total)** 3 in SL 2 in PL 3 in SC	112%
	Set of Thermometers	800	8	800	0	0	0	6,400				
	Stevenso Screen	1,500	8	1,500	0	0	0	12,000				
	Accessories	150	8	150	0	0	0	1,200				
	Installation, fencing	4,000	8	4,000	0	0	0	32,000				
	O & M Costs	150	8	1,800	1,800	1,800	1,800	57,600	gauge readers cost, security and maintenance			
								125,200				
	RL Radar Sensors	3,500	4	3,500	0	0	0	14,000		0	4 in SL	

Radar River Level Sensors	Satellite Transmission	420	4	420	420	420	420	6,720					
	Installation	7,500	4	7,500	0	0	0	30,000					
	Security	60 usd per stn per month	4	720	720	720	720	11,520					
	O & M Costs		LS	0	500	500	500	1,500					
								62,240					
Groundwater	GW Sensors	6,000	7	6,000	0	0	0	42,000		**6(Total)** 3 in SL 3 in PL 0 in SC	**7(Total)** 2 in SL 2 in PL 3 in SC	116%	
	Satellite Transmission	420	7	420	420	420	420	11,760					
	Installation	2,000	7	2,000	0	0	0	14,000					
	O & M Costs		LS	0	500	500	500	1,500					
								69,260					
FRISC	Mobile application	25,000	1	25,000	0	0	0	25,000		10000- # of people reached	50000 -# people to be reached	500%	
	Communication Equip	10,000	1	10,000	0	0	0	10,000					
	Transmission	1,000	1	1,000	1,000	1,000	1,000	4,000					
	O & M Costs		1	4,500	4,500	4,500	4,500	13,500					
								52,500					

Proposed Station Locations by Region (needs update on locations from FAO with 2 AWS, 1 Synoptic, eliminated above)

Region	Proposed Locations	Automatic Weather Stations (AWS)	Synoptic	Manual Rain gauge	Automatic River Gauging Station (RGS)	Ground Water Stations (GWS)
Somaliland	Erigavo	1	1	0	0	1
	El Fweyne	0	0	0	0	
	Caynabo	1	1	0	0	
	Lughaye	1	1	0	0	0
	Baki	0	1	1	0	0
	Burco	0	0	0	0	1
Total # of stations for SL		**3**	**4**	**1**	**0**	**2**
Puntland	Buhodlee	0	1	0		0
	Las Anod	1	0	0		
	Iskushban	0	0	0		0
	Qardo	1	0	0		1
	Eyl	0	0	0		1
	Taleex	1	1	0		
	Dhuudo	0	0	1		
	Ufeyne			1		
	Gooraan			1		
Total # of stations for PL		**3**	**2**	**3**	**0**	**2**
FGS	Hobyo	1	0	0		1
	CabdiWaq	0	0	1		
	Eel Bur	0	0	1		
	El Dheer	0	1	1		
	El Berde	1	0	0		

	Belet weyne	1	0	0	1	
	Jowhar	1	0	0	1	0
	Hudur	0	0	0		0
	Wanle Weyne	0	1	0		
	Kismayo	1	0	1		
	Afmadow	0	0	1		
	Bualle	0	0	0	1	0
	Gabaharey	1	0	0		
	Dinsor	1	0	0		
	Luuq		0		1	
	El Waq			1		1
	Bardheere	0	1	0		
	Baidoa					1
Total # of stations for SC		**7**	**3**	**6**	**4**	**3**
Total # Stations by type		**13**	**9**	**10**	**4**	**7**

Annex S: IWRM Curriculum

Example of IWRM Curriculum:

Introducing the section and its significance: Water resources management is an important aspect in the arid- and semi-arid regions of Somalia. In addition to widespread water shortage, the transboundary nature of Somalias two main water courses in the south-central region, the Juba and Shebelle rivers need to be considered. In addition to quantity, also water quality is a point of concern. Given population growth and development increasing strain is expected on Somalias water resources leading to the need for improved resource management

Introducing the specific objectives: The students shall learn the physical background as well as management principles of water resources management, i.e. the planning, developing, distributing and managing the optimum use of available water to various stakeholders and considering their competing needs in a holistic approach.

Specific didactical features and suggestions: Classic teaching, group work.

Specific materials for this section: Example material, PowerPoint presentation

Specific contents of the section:

- Physical processes
  - Water cycle
  - Water quality
  - Water availability in the Somali context (surface water, groundwater)
- Sustainability
  - Competing stakeholder requirements
  - Upstream-downstream relation
  - Integrated management of surface-and groundwater
  - Sustainability
- Management of sustainable water resource utilization
  - Upstream-downstream
  - Surfacewater-groundwater interaction
  - Management under competing requirements
- Case studies and examples
- Detailed analysis of cases including management scenarios