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BASELINE EVALUATION FOR THE RESILIENT ARID LANDS PARTNERSHIP FOR INTEGRATED DEVELOPMENT PLUS (RAPID+) PROGRAM

FINAL REPORT



SUBMITTED ON 30TH APRIL 2022



FOOD FOR THE HUNGRY World Vision



A herd of goats and sheep headed to the grazelands in Oropoi Villa, Turkana West Sub County



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Cover Photo Credits: A herd of goats at a watering point on the Ewaso Ng’iro River in Isiolo County.

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Degraded rangelands in Eldas village, Wajir County



LIST OF ABBREVIATIONS AND ACRONYMS

ASAL	Arid and Semi-Arid Land
ASALs	Arid and Semi-Arid Lands
ACF	Action Against Hunger
ATM	Automated Teller Machine
CADP	County Annual Development Plan
CBM	Community-Based Management
CBWRM	Community-Based Water Resource Management
CCAAP	Climate Change Adaptation Action Plan
CDF	Constituency Development Fund
CI	Confidence Interval
CIDP	County Integrated Development Plan
CLRRM	Community Land Rights Recognition Model
CRS	Catholic Relief Services
CTCN	Climate Technology Centre Network
FAO	Food Agricultural Organization
FFS	Farmer Field Schools
FGD	Focus Group Discussion
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GAWASCO	Garissa Water and Sewerage Company
IBLI	Index Based Livestock Insurance
IPTT	Indicator Performance Tracking Table
KII	Key Informant Interview
LOWASCO	Lodwar Water and Sanitation Company
MEAL	Monitoring, Evaluation, Accountability and Learning
MoALFC	Ministry of Agriculture, Livestock, Fisheries and Co-operatives
MUS	Multiple-Use Water System
MWA	Millennium Water Alliance
O and M	Operations and Maintenance
PPP	Public Private Partnership
RAPID	Resilient Arid Lands Partnership for Integrated Development
RAPID+	Resilient Arid Lands Partnership for Integrated Development Plus
SCMP	Sub-Catchment Management Plan
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SGBV	Sexual and Gender-Based Violence
SLG	Self Learning Group
SMS	Short Message Service
SPSS	Statistical Package for the Social Sciences
STATA	Statistical Software for Data Science
ToC	Theory of Change
TOR	Terms of Reference
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
US	United States
USAID	United States Agency for International Development
USD	United States Dollar
WAJWASCO	Wajir water and sewerage Company
WASH	Water, Sanitation and Hygiene
WSMTF	Water Service Maintenance Trust Fund
WRUA	Water Resources Users Association

Abandoned water trough at Ndugu Zangu village, Isiolo County



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Contaminated water in unprotected dug well in Eben village, Wajir County



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A herd of goats shielding from the heat in the degraded rangelands in Kamboe village, Isiolo County



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EXECUTIVE SUMMARY

Background

Kenya's Arid and Semi-Arid Lands (ASALs) are characterized by water shortages, poorly coordinated and implemented water resource management systems and limited skills among Water User Committees (WUCs), among other challenges.^{1&2} Similarly, rangelands in these areas are poorly developed and they face numerous challenges, including inadequate and fluctuating availability of fodder and water, encroachment of crop production into pastoral land, alienation of pastoral communities, inadequate markets and marketing infrastructure, and inadequate extension services.³ There is, therefore a need to explore new approaches to unlocking the potential of water sources, and resource use, and manage them strategically and sustainably, while at the same time promoting their recharge, and the regeneration of the rangelands. For this reason, Millennium Water Alliance (MWA), in collaboration with CARE Kenya, Catholic Relief Services (CRS), Food for the Hungry and World Vision are implementing the 'Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) program in the Counties of Garissa, Isiolo, Marsabit, Turkana, and Wajir.'

The Kenya RAPID+ program is convened and led by the MWA, with primary funding from the Swiss Agency for Development and Cooperation (SDC), alongside matching investment grants from private sector actors, implementing partners and participating County governments. The overall goal of the Program is to ensure improved access to safe and sustainably managed water and rangelands that contribute to resilient peaceful livelihoods and environments for communities in the five targeted Counties. The program targets 200,000 beneficiaries with two outcomes, namely: pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth, and pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity. A baseline survey was required before the kick-off of program activities and interventions, to establish benchmarks for relevant indicators, confirm the assumptions made in the program's theory of change, and inform programming approaches.⁴

Objectives of the Baseline Evaluation

The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in these five Counties, in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents, and to generate recommendations for improvement of the program design, and the planned interventions.

Baseline Evaluation Methodology

The baseline evaluation was conducted in the five Counties of Isiolo, Turkana, Wajir, Garissa and Marsabit, in April 2022, through a mixed methods study approachs entailing:

- A desk review of program documents, County governments documents and other secondary materials.
- A quantitative household survey reaching 1,970 respondents (386 in Garissa County, 439 in Isiolo County, 334 in Marsabit County, 401 in Turkana County and 410 in Wajir County).
- Key Informant Interviews (KIIs) as follows: nine (9) interviews with staff of the County Governments' Departments of Water Services; ten (10) interviews with staff of the County Governments' staff in the Departments of Agriculture, Livestock and Fisheries, and Environment, Lands and Natural resources; four (4) interviews with staff of the County Governments' Departments of Gender and Youth; fourteen (14) interviews with private water service providers

¹OXFAM.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. <<https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

²Republic of Kenya. 2013. Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-edo-2013-17>>

³Ibid [10]

⁴Terms of Reference.

⁵Schoonenboom, J., & Johnson, R. B. 2017. How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>

across the five Counties and two (2) interviews with water and rangelands resources management stakeholders in two of the five Counties.

- Focused Group Discussions (FGDs) as follows: five (5) FGDs with members of Water Resource Users Associations (WRUAs); ten (10) FGDs with members of Water Users Associations (WUAs) committees; fifteen (15) FGDs with ordinary community members (5 male adults' groups, 5 female adults' groups and 5 youths' groups) and nine (9) FGDs with Rangelands Management Committees (RMCs) members.
- In total 40 KIIs and 40 FGDs were conducted. The FGDs involved a total of 338 respondents of whom 33% (111) were women and 67% (227) were men. The low participation of women attests both to the multiple roles assigned to women in the households (and therefore not having enough time to participate in 'non-productive activities'), and to the general biases and constraints confronting their effective participation in household and policy decision-making processes in the ASAL regions.

To analyze the data generated, the team:

- Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
- Exported all quantitative data from Huawei Media Pad Tablets and Android-based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
- A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks' 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by four (4) to obtain the effectiveness score of the policy / legal framework.⁶

Baseline Evaluation Findings

- Households in the five counties were characterized by large family sizes, averaging 7 members (6 in the Counties of Marsabit and Turkana, 7 in the Counties of Garissa and Isiolo, and 8 in Wajir County). This contrasts with the national average of 5 members per household, confirming the high population density and the rapid population growth rate in the ASAL Counties.⁷
- Education levels were low in the visited households, depicted by a high proportion of 66.0% of household survey respondents (71.4% females and 54.1% males) never having attended school, (78.1% in Marsabit County, 74.6% in Garissa County, 74.3% in Turkana County, 56.9% in Isiolo County, and 49.5% in Wajir County). These figures confirm low literacy levels in the ASAL counties of Kenya, compared to the national average of 9.3%.⁸ The low literacy levels reflect the low capacities of community leadership structures (WUCs, WUAs, WRUAs, and RMCs) observed in the survey sites.
- On livelihoods, 71.9% of the respondents were pastoralists (84.2% in Garissa County, 93.6% in Isiolo County, 93.0% in Marsabit County, 47.9% in Turkana County and 41.2% in Wajir County), 10.2% were agro-pastoralists (12.4% in Garissa County, 4.1% in Isiolo County, 3.6% in Marsabit County, 28.4% in Turkana County and 2.0% in Wajir County), while only 1.7% were purely crop producers (2.1% in Garissa County, 0.7% in Isiolo County, 0.3% in Marsabit County, 4.7% in Turkana County and 0.5% in Wajir County). It was noted that 42.4% of the respondents in Wajir County described themselves as peri-urban but were engaged in the production and sale of livestock and livestock allied products, including pastures. This reflects a growing urbanization trend in ASAL Counties, caused by more people moving away from rural areas into urban centres and back into the Counties perceived to have more livelihood opportunities following devolution in the country.¹⁰

⁶https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdccontext/Documents/SDC_indicators_AFS_TRI_2.pdf

⁷Kenya National Bureau of Statistics. 2020. 2019 Kenya population and housing census November 2019, Volume I: population by County and sub-County. <<https://housingfinanceafrica.org/app/uploads/VOLUME-I-KPHC-2019.pdf>>

⁸Republic of Kenya. 2020.Challenges in the ASALs. <<http://www.asals.go.ke/asal-info/>>

⁹Republic of Kenya. 2020.Challenges in the ASALs. <<http://www.asals.go.ke/asal-info/>>

¹⁰The Constitution of Kenya, 2010 creates a decentralized system of government wherein two of the three arms of government; namely, the Legislature and the Executive are devolved to the 47 Political and Administrative Counties as provided for under Article 6 and specified in the First Schedule.

- Related to the above was the fact that the main sources of income in the five counties were sale of livestock (63.4%), sale of livestock products (24.1%), sale of crop products (8.9%), and sale of fodder and other rangeland products (3.7%). The production and sale of fodder and other (new) rangeland products denoted changing livelihood patterns among ASAL communities, as they increasingly sought and pursued alternatives to a livelihood based solely on the keeping and sale of livestock and livestock products. In addition to pasture/fodder production and sale, other alternative practices being promoted and adopted included: cross-breeding of the local East African Somali goat breed with the Galla goat to improve its genetic vigour and productivity; the controlled cutting and use/processing of *Prosopis* (for fuel/charcoal, livestock fodder, and building timber); the production of resins (from local acacia trees); the production and processing of Aloe Vera juice into solid products for sale; and increasingly, poultry production for both domestic and commercial use. Across all five Counties, the burning and sale of charcoal were rampant along the major highways, and in urban and peri-urban centres. These changing livelihood patterns have implications for water and rangelands resources management and sustainability in the ASAL regions.
- Overall and per capita incomes, however, remain low, with 53.0% of the visited households (17.1% in Garissa County, 64.2% in Isiolo County, 59.0% in Marsabit County, 86.0% in Turkana County and 41.7% in Wajir County) reported an annual income of between 0 and 50,000 Kenya Shillings (0- 500 USD). This translates to 1.19 USD¹¹ every day, compared to the 1.90 USD per day poverty line, a confirmation that households in these counties are living in extreme poverty.¹²
- The FGDs indicate that communities in the five counties traditionally keep livestock for subsistence and prestige purposes, and as a form of insurance against drought. Thus, 86.4% of the households had any form of livestock, with 50.5% of them having cows, 79.8% having goats, 68.7% having sheep, and 24.0% having camels. Goats were the predominant type of livestock kept by the households, 53.8% of the livestock herd in each household, followed by sheep (23.8%), cows (17.6%) and lastly camels (4.6%).
- From the FGDs, the livestock structure in all counties was dominated by female livestock kept purely for milk. Camels were mostly used for transport, cows for milk production, goats for both meat and milk purposes, and sheep for meat. The most common camel breed kept was the one-hump Somali camel, while the goats were the indigenous Somali breed. These local breeds were preferred because of their tolerance to local climatic, water and pasture dynamics.
- The baseline evaluation was conducted in the middle of a drought, and, on average, every household had 22 cows, 41 goats, 21 sheep and 12 camels. Households in Marsabit County had the largest herd of goats (62), while those in Wajir County had the largest herd of cows (32), and those in Garissa County had the largest herd of sheep (30). Households in Wajir County also had the largest herd of camels, at 15 per household.
- There were three main sources of livestock in the region and by hierarchy, they were named as: (1) local breeding, (2) purchase, and (3) social donations given as wedding gifts and donations to vulnerable families by wealthy Muslim families. Other minor sources include donations from humanitarian agencies, inheritance from parents and those obtained from raiding other communities.
- Only the County governments of Turkana and Isiolo had water policies in place (dated 2018 and 2020 respectively). The two Counties also had water Acts promulgated in 2019 and 2020, respectively. The County Government of Marsabit had a Water Bill (2018), as did the County government of Wajir, the latter Bill has been in draft form since 2019 (three years due to political divisions in the County's Assembly and the foreseen negative effect on some communities' access of water). Despite the availability of water policies in the Counties of Turkana and Isiolo, these documents lacked costed implementation frameworks, M and E frameworks, gender mainstreaming and financing hence low impact on the targeted beneficiaries.

¹¹ Conversion rate of 1 USD = 115 Kenya Shillings as of May 2022.

¹² Extreme poverty, deep poverty, abject poverty, absolute poverty, destitution, or penury, is the most severe type of poverty, defined by the United Nations (UN) as "a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services" (UN 1995 report of the World Summit for Social Development). In October 2017, the World Bank updated the international poverty line, a global absolute minimum, to \$1.90 a day.

- County Water strategic plans were available in the Counties of Garissa (2018), Turkana (2017-2021) and Isiolo (2017-2021). Despite the availability of these documents, gender mainstreaming, financing and subsequently implementation were either lacking or sub-optimal, hence minimal impact on the intended beneficiaries.
- Gender inclusion achievement in the water sector was rated 1.2/4 in the five counties (3/4 in Isiolo County, 0/4 in Marsabit County, 1/4 in Turkana County, 1/4 in Garissa County and 1/4 in Wajir County). The impact of water policies on the targeted beneficiaries was rated 0.6/4 in all then five counties; the level of water policy implementation was 0.6/4, and allocation of budgets to water services was scored 0.6/4 in the five counties. It was observed that the installation of water infrastructure was done by development partners. These scores were based on the low mainstreaming of gender, unavailability of budgets for implementation of the contents thereof, low implementation, monitoring, and evaluation of the same and poor or no impact on the residents of the five counties.
- Access to improved sources of safe water for drinking and domestic use in the rainy seasons was reported by 73.6% of the households (82.9% in Wajir County, 64.8% in Turkana County, 49.1% in Marsabit County, 81.8% in Isiolo County and 85.8% in Garissa County). For households reporting access, the main sources of safe water for drinking and human consumption in the rainy seasons were boreholes or tube wells identified by 37.5% of the households sampled (51.3% of the respondents in Garissa County, 37.8% in Isiolo County, 17.7% in Marsabit County, 30.9% in Turkana County and 46.6% in Wajir County, respectively).
- During the dry seasons, surface water was not available and as such, 73.9% of the household indicated accessing safe water for drinking and domestic use from improved sources (72.4% in Wajir County, 65.1% in Turkana County, 75.1% in Marsabit County, 72.9% in Isiolo County and 84.5% in Garissa County). The main sources of safe water for drinking and human consumption in the dry seasons were again boreholes or tube wells identified by 46.6% of the households overall (51.8% in Garissa County, 46.9% in Isiolo County, 54.4% in Turkana County, 55.4% in Marsabit County, 31.2% in Turkana County and 56.0% in Wajir County). Across the two seasons use of boreholes or tube well water increased due to diminished surface water, while the quantity of water accessible, the distance to the water points and the waiting time at the water points increased in the dry seasons.
- Close to half (45.2%) of the households reported access to improved sources of safe water for livestock consumption in the rainy seasons (58.1% in Wajir County, 42.7% in Turkana County, 59.6% in Marsabit County, 71.4% in Isiolo County and 39.1% in Garissa County). The main source of such water, reported by 31.0% of the households, was boreholes or tube wells (28.8% in Garissa County, 40.3% in Isiolo County, 23.1% in Marsabit County, 32.4% in Turkana County and 37.1% in Wajir County). In the dry season, 60.1% of the households accessed safe water for livestock consumption from improved sources due to migration and reduced surface water (67.7% in Wajir County, 34.9% in Turkana County, 70.2% in Marsabit County, 70.5% in Isiolo County and 55.4% in Garissa County). The main source of such water in the dry seasons, reported by 46.0% of the households were boreholes (47.4% in Garissa County, 51.9% in Isiolo County, 61.7% in Marsabit County, 20.2% in Turkana County and 50.5% in Wajir County).
- One in ten households (9.4%) reported dysfunctional main sources of safe water for human consumption and domestic use during the rainy seasons (11.4% in Garissa County, 5.2% in Isiolo County, 23.7% in Marsabit County, 7.0% in Turkana County and 2.9% in Wajir County), while 28.3% of the households, reported dysfunctionality of the same sources during the dry seasons (27.5% in Garissa County, 35.8% in Isiolo County, 25.0% in Marsabit County, 15.0% in Turkana County and 22.9% in Wajir County).
- From the FGDs and KIs, water points and systems breakdowns were attributed to poor operational skills (with or without exposure to training), natural wear and tear (for example, of the motors), inadequate ventilation, overheating due to daily long hours of pumping water every day, blockages of suction tips and salinity, damage by livestock and wildlife, sucking of gravel by the pumps and the on-going road construction works across these Counties.
- Turnaround time for the repair of broken water systems ranged from between a day and 30 days. KIs and FGDs across the five Counties indicated that turnaround time for repairs was influenced

by distance from the water point to County headquarters, availability of transport services, availability and affordability of spare parts and service technicians, and importantly, availability of finances in the water user committees or associations.

- Only 48.8% of the respondents reported covering less than a kilometre in the rainy season to access the main source of safe water for drinking and domestic use (47.4% in Garissa County, 60.3% in Isiolo County, 28.1% in Marsabit County, 52.6% in Turkana County and 49.3% in Wajir County).
- In the dry seasons, 37.4% of the respondents reported covering less than a kilometre to access their nearest source of main water for human consumption and domestic use (43.0% in Garissa County, 28.5% in Isiolo County, 19.5% in Marsabit County, 51.6% in Turkana County and 42.2% in Wajir County).
- From the FGDs across all sites, even the main water source (boreholes) in the villages and other strategic points in the communities experienced declined volumes of water in the dry seasons. In several instances, water from these sources changed colour, taste, and smell, forcing communities to walk longer distances to access alternative sources, for which they had to pay, in most cases, as they were not in their communities' territories.
- Slightly more than one-quarter of the households (26.4%) reported travelling less than a kilometre to reach their main source of water for livestock consumption during the rainy seasons (41.6% in Garissa County, 41.7% in Isiolo County, 14.4% in Turkana County and 26.3% in Wajir County). In the dry seasons, this proportion of households reduced to 19.1% (11.9% in Garissa County, 22.1% in Isiolo County, 7.5% in Marsabit County, 27.4% in Turkana County and 19.6% in Wajir County).
- There was time variability in access to safe water for domestic use across seasons. During the rainy seasons, 45.0% of the households took less than 30 minutes to get to the main source of safe water for drinking and domestic use (51.6% in Garissa County, 60.4% in Isiolo County, 22.8% in Marsabit County, 46.1% in Turkana County and 39.3% in Wajir County). In the dry seasons, this proportion of households reduced to 38.2% (47.4% in Garissa County, 41.9% in Isiolo County, 17.7% in Marsabit County, 44.6% in Turkana County and 38.5% in Wajir County). FGDs revealed that communities covered longer distances to access alternative sources of safe water during the dry seasons and even longer during droughts.
- Time spent to fetch/collect water at the safe water sources also varied by season. In the rainy seasons, 31.0% of the households reported spending less than 30 minutes at their main source of safe water (40.9% in Garissa, County, 41.9% in Isiolo County, 6.0% in Marsabit County, 37.9% in Turkana County and 35.4% in Wajir County), while in the dry seasons, this proportion of households reduced to 25.4% (40.2% in Garissa County, 19.6% in Isiolo County, 27.9% in Turkana County and 32.9% in Wajir County). FGDs revealed that during drought, water points were shared among many other households and livestock herds, leading to longer waiting times across all the Counties. In some of the Counties, for example, Marsabit, Wajir and Garissa, households reported receiving lower or no volumes of water as a result of increased sharing.
- On time taken to bring livestock to safe sources of water, 21.6% of the households reported spending less than 30 minutes in the rainy seasons (14.5% in Garissa County, 37.8% in Isiolo County, 7.8% in Marsabit County, 24.7% in Turkana County and 19.0% in Wajir County). In the dry seasons, this proportion of respondents was reduced to 15.4% (10.9% in Garissa County, 20.7% in Isiolo County, 3.3% in Marsabit County, 19.0% in Turkana County and 20.5% in Wajir County). FGDS revealed that during periods of intense droughts, livestock moved across sub-Counties and at times, across counties and national borders, to access water and pasture (into Uganda's Karamoja region and Ethiopia and South Sudan for the Turkana pastoralists, and across the Kenya- Somalia borders for communities in Garissa and Wajir Counties). As such, long distances were traversed, and pastoralists could be away from home for months. To access water in these foreign territories, advance delegations of elders were sent to negotiate for peaceful sharing of the water points and pastures.
- Waiting time at the main source of safe water for livestock consumption in the rainy seasons was less than 30 minutes for 15.4% of the households (10.9% in Garissa County, 20.7% in Isiolo County, 3.3% in Marsabit County, 19.0% in Turkana County and 20.5% in Wajir County). In the dry seasons, this proportion reduced to 11.3% (7.5% in Garissa County, 13.0% in Isiolo County, 1.2% in

Marsabit County, 15.0% in Turkana County, and 17.8% in Wajir County). FGDs in Turkana west sub-County revealed that herders waited up to 2 days during the dry seasons to water their animals. In Wajir, Garissa and Marsabit waiting times during the dry season went up to 72 hours. Thus, some water sources had troughs installed to control livestock movements as they waited for their turn, to drink water, at the main water sources.

- According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day is required to meet the most basic human needs.¹³ On average households accessed 170 liters of safe water for drinking and domestic use in the rainy seasons per day (130 liters in Garissa County, 323 liters in Isiolo County, 108 liters in Marsabit County, 103 liters in Turkana County and 161 liters in Wajir County). In the dry seasons, the volume of water accessible for the same needs declined to 105 liters (151 liters in Garissa County, 56 liters in Isiolo County, 83 liters in Marsabit County, 79 liters in Turkana County and 166 liters in Wajir County). This translates to 28.73 liters per person per day (based on the survey's derived household size of 7 members) for all the Counties in the rainy seasons (20.97 liters in Garissa County, 54.22 liters in Isiolo County, 19.22 liters in Marsabit County, 19.39 liters in Turkana County and 23.28 liters in Wajir County) and to 17.17 liters per person per day in the dry seasons (25.4 liters in Garissa County, 14.29 liters in Isiolo County, 14.55 liters in Marsabit County, 13.78 liters in Turkana County and 23.34 liters in Wajir), all of which allude to intakes way below the recommended minimum rates.
- The quantity of water accessible to each household for drinking and domestic use during the rainy seasons in all five Counties was scored at 3.39/5 on a 0-5 Likert scale, 5 being the highest score and 1 being the lowest (2.84/5 in Garissa County, 4/5 in Isiolo County, 4.26/5 in Marsabit County, 2.76 in Turkana County and 3.68/5 in Wajir County) while the same in dry seasons, was rated 2.75/5 (3.02/5 in Garissa County, 2.43/5 in Isiolo County, 3.26/5 in Marsabit County, 2.48/5 in Turkana County and 2.76/5 in Wajir County). The same scale scored the volume of water available for livestock consumption in the rainy seasons at 3.32/5 (3.71/5 in Garissa County, 3.94/5 in Isiolo County, 4.05/5 in Marsabit County, 2.39/5 in Turkana County and 3.34/5 in Wajir County) and 2.18/5 in the dry seasons in all the five Counties (1.9/5 in Garissa County, 2.22/5 in Isiolo County, 2.58/5 in Marsabit County, 2.01/5 in Turkana County and 2.75/5 in Wajir County).
- More than three fifths (62.3%) of the households surveyed had their water sources managed by a water committee (74.4% in Garissa County, 73.1% in Isiolo County, 72.8% in Marsabit County, 43.9% in Turkana County and 49.0% in Wajir County).
- Surveyed water user committees had between 6 and 17 members each across all 5 Counties. From interviews with the WUCs, 58.3% had at least 1/3 of their leadership positions occupied by women (33.3% in Isiolo County, 0.0% in Marsabit County, 50.0% in Turkana County, 100% in Garissa County and 100% in Wajir County). For the most part, women were elected or appointed as secretaries or treasurers in these committees, but it was noted that they did not understand their roles in these committees well. The FGDs revealed that, often, their roles were undermined, and they did not participate actively in the decision-making processes of the committees.
- Across all 5 Counties, the youth made up 32.5% of the membership of the WUCs (43.2% in Marsabit County, 31.0% in Isiolo County, 50.0% in Turkana County, 33.4% in Wajir County and 18.2% in Garissa County) mainly as secretaries or water plants operators.
- KIs and FGDs further revealed that these committees faced a wide range of Operation and Management (O & M) challenges including: limited management skills, poor governance, poor capacities for mobilizing resources and forging effective partnerships, poor or no records keeping of their operations, use of obsolete technologies, frequent water system breakdowns due to mis/over-usage, and destruction by livestock and wildlife, on-going road construction works in the Counties among other causes.
- Another limitation for the committees was noted to be, their low engagement in water catchment protection, restoration, and management. The committees were however found to be inclusive

¹³United Nations.2015. The Human Right to Water and Sanitation, media brief. < https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf>

and widely accepted, as they drew their membership, from across all segments of the communities (men, women, youth, clans, and persons with disability, as appropriate).

- Charges for water access by the WUCs, were largely in the form of flat monthly fees, meter bills or per litre accessed and per livestock or per household accessing water. In some committees, water was available for free in the rainy seasons, but access was charged in the dry seasons, largely to high demand and low supply dynamics.
- In terms of technologies for pumping and delivering water, the evaluation established an array of abstraction, distribution, dispensing and management technologies, both traditional and conventional types. KIs in Turkana County documented the use of hand pumps and boreholes running on solar, generators, grid power and combinations of all the three aforementioned technologies (hybrid systems) and used for multiple purposes (MUS), borehole pumps with remote sensors (for location mapping, yield and functionality monitoring), water kiosks fitted with ATMs (15 installed within Lodwar Municipality), and Management Information Systems (being implemented) that will capture key water systems performance parameters such as source location, water levels and volumes, and pump functionality (e.g. the Continuous data updating system – CODuSYS created by JICA for the County Department of Water Services). In Marsabit KIs captured similar and additional technologies-prepaid water meters, bulk prepaid meters for water bourses to support water tracking, solarized water pumps, sensors for monitoring borehole performance, dashboards for remote monitoring of water use, and desalination systems working on the reverse osmosis technology. In Isiolo County, technologies reported included solarized water pumps, diesel generators, pre-paid water meters and borehole sensors. In the Counties of Wajir and Garissa, solarized water pumps, generators driven water points and desalination units were documented.
- Private water providers and stakeholders were present in the counties except for Isiolo County. Where present, they were largely involved in the installation of water systems (solar pumps and diesel generators), sale of spare parts, servicing of water systems, and water desalination for commercial and non-commercial sale.
- Private water providers and stakeholders were, however, not involved in water catchment protection or regeneration activities, or water infrastructure development dialogues at the communities or County levels and did not provide funding or support to community-driven water infrastructure development initiatives.
- Most households across the five Counties were found to be water insecure. The percentage of water security in the households was 5.5% (8.2% in Isiolo County, 1.2% in Marsabit County, 2.7% in Turkana County, 8.5% in Garissa County and 6.1% in Wajir County).
- Access to safe and adequate water for basic domestic uses was reported in only 1.9% of the households (0.0% in Isiolo County, 0.3% in Marsabit County, 1.2% in Turkana County, 5.2% in Garissa County and 0.2% in Wajir County).
- Timely access to water varied by age category and seasons, with the youth reporting more timely access compared to women. Specifically, 33.6% of the youth reported timely access to water during the rainy seasons (47.9% in Isiolo County, 7.3% in Marsabit County, 50.0% in Turkana County, 33.9% in Garissa County and 22.5% in Wajir County) compared to 32.1% of women (34.3% in Isiolo County, 12.8% in Marsabit County, 36.4% in Turkana County, 43.8% in Garissa County and 29.6% in Wajir County). During the dry seasons, this number proportion to 23.4% of the youths (28.8% in Isiolo County, 2.4% in Marsabit County, 35.0% in Turkana County, 33.9% in Garissa County and 16.9% in Wajir County) and 22.0% for the women (16.5% in Isiolo County, 1.2% in Marsabit County, 26.8% in Turkana County, 36.7% in Garissa County and 26.1% in Wajir County).
- Water availability for livestock consumption in catchment areas in the dry seasons was reported by 50.4% of the households (46.0% in Isiolo County, 47.9% in Marsabit County, 47.8% in Turkana County, 57.6% in Garissa County and 50.4% in Wajir County) while in the rainy seasons it was reported by 69.3% of the respondents (80.1% in Isiolo County, 68.3% in Marsabit County, 60.1% in Turkana County, 72.0% in Garissa County and 65.1% in Wajir County).
- From the FGDs and KIs, conflicts over water and pastures were reported in all five Counties with higher frequencies being captured in Marsabit and Isiolo Counties. These conflicts were

characterized by raids and counter raids between clans and communities as well as small quarrels and disagreements at collection points. In these two Counties, clannism and political incitements over traditional land boundaries were cited as historical triggers of conflicts. Trust of communities that households have conflicted, was reported by only 2.8% of the respondents and was lowest in Isiolo and Marsabit Counties (0.3% in Isiolo County, 2.2% in Marsabit County, 4.8% in Turkana County, 7.0% in Garissa County and 4.3% in Wajir County).

- Only 42.8% of the responding households reported owning land. Title deeds, allotment letters, lease documents and other ownership records (including purchase agreements) for the reported pieces of land were only available in 16.8% of the households (40.7% in Wajir County, 23.1% in Turkana County, 18.0% in Garissa County, 8.9% in Isiolo County and 3.7% in Marsabit County). FGDs largely indicated that most of the referenced pieces of land were under communal land tenure systems and were largely used for livestock production purposes hence no ownership documents.
- KIs and FGD in Turkana and Wajir Counties revealed further that a growing body of community members were beginning to pursue alternative livelihoods sources, engaging in an array of activities including fodder production, bee keeping, resins production, Aloe Vera juice extraction, and poultry keeping. Also notable was the emerging trend of selling livestock assets and using the proceeds to establish rental properties in close-by urban centres.
- Inter-communal and transboundary resources sharing was negotiated in parts of Turkana and Isiolo Counties. In both counties, it was common for advance teams of elders to seek access rights for water and pasture from other communities. In Garissa and Wajir Counties notifications were made among communities of intended migrations in search of water and pasture. Thus, overall, 60.2% of the respondents felt welcomed by neighbouring communities during migration for water and grazing areas in times of need (40.1% in Isiolo County, 39.5% in Marsabit County, 43.9% in Turkana County, 96.1% in Garissa County and 80.5% in Wajir County).
- More than two-thirds of the respondents (70.4%) from the 'marginalized' communities believed that they had equal access to water services with members from the dominant clans or communities (80.0% in Isiolo County, 84.2% in Marsabit County, 54.9% in Turkana County, 93.9% in Garissa County and 52.5% in Wajir County). However, qualitative interviews revealed perennial clan rivalries over boundaries, cultural and traditional raids, especially among young men, and political instigations among various community groups and clans across all the five Counties (but highest in Isiolo and Marsabit Counties) triggered most of the conflicts, with water access and sharing being secondary triggers.
- Cases of SGBV linked to access to water and rangeland resources among household members in the year preceding the survey were reported by 11.0% of the females (7.3% in Isiolo County, 0.9% in Marsabit County, 14.2% in Turkana County, 9.3% in Garissa County and 21.5% in Wajir County). From the FGDs, such cases happened when women and girls went to fetch water and access other rangeland resources in places far off from their villages, including in the forests. In Wajir County, FGDs revealed that pastoralists with livestock at the water points hardly gave priority to women and girls to fetch water, therefore, the gendered priority for water access at times resulted in physical and/or sexual abuse, especially in cases where females were not known to the herders.
- Asked about the frequency of SGBV cases, FGD participants of all genders in Wajir County reported 1 case every month in the rainy seasons but up to 2 cases every month in the dry seasons. From the FGDs, SGBV cases in the five Counties were largely resolved by elders and clan leaders who settled the matters through arbitration, fines or forced marriages in cases where the females were impregnated. In cases where elders could not agree on solutions, reports were made to the chiefs who then escalated them to the local police stations and thereafter, to the courts.
- The criminal justice system was however said to be inefficient and ineffective in resolving SGBV cases due to a number of reasons, including intimidation of survivors, late presentation in health facilities (past the 72 window period and tampering with clinical evidence through showering and change of clothes), the compromising of chiefs and police officers (who then either declined or issued inconclusive supportive court documents), long distances to courts, unavailability of transport services, and the lengthy trial periods during which complainants were not notified in time, thus missing court sessions. KIs with the gender Department representatives identified that

medical services, psychosocial services, and dignity kits were available in health facilities for victims but were inadequate. The commonest forms of SGBV named by these key informants in the five Counties were: rape, defilement, sodomy, and intimate partner violence.

- From the KIIs and FGDs, it emerged that communities in the five Counties were largely patriarchal and as such women had limited space to make decisions in the households. Decision-making on livestock production, sale, feeding, and migration were largely the preserve of male members in all the five Counties (over 80.0% of the households in the five Counties), while the sale of livestock products such as meat, milk, hides, and skins was delegated to women (over 50.0% of the households in the five Counties). Agricultural production and crop product sales decisions were however made by all genders given their implications for grazing lands, although actual production was a female activity (40.0% to 50.0% of males and males in the five Counties).
- The County Government of Isiolo has a Rangeland Resources Management Policy (2021) and a Livestock Strategy (2021) while the County Government of Marsabit has enacted a Livestock Bill into an Act (2021). Implementation of these documents was, however, sub-optimal in the absence of adequate political goodwill evidenced through adequate resource allocation in the County budgets. In addition, these documents lacked gender mainstreaming, costed implementation frameworks and M and E plans. The other four Counties have either draft Rangelands Management Policies or Bills or Livestock Sales Yard Bills.
- In the five Counties, rangeland resources management lacked dedicated departments or directorates and budgets, and were either lumped with agriculture, livestock production, livestock extension services or natural resources management departments or directorates, hence their low visibility in the County government's departments (except in Turkana County where there was rangelands resources management unit).
- Gender aspects were not mainstreamed or prioritized except in Garissa and Isiolo Counties where gender policies were recently developed.
- From the households' survey, the baseline average household income from crop production per season was reported to be KSHs. 16,358.66 KSHs. Per season (KSHs. 3,800.80 in Isiolo County, KSHs. 35,000 in Marsabit County, KSHs. 1,569.86 in Turkana County, KSHs. 24,907.41 in Garissa County and KSHs. 113,500.00 in Wajir County).
- Knowledge of sustainable rangelands resources management was low in the five target Counties with only 35.7% of the respondents naming three such known practices (26.7% in Isiolo County, 18.9% in Marsabit County, 83.3% in Turkana County, 28.8% in Garissa County and 19.3% in Wajir County). The main rangeland management practices known to the respondents were water harvesting (48.1%), destocking (38.5%), fodder production and conservation (27.8%) and grazing management (22.4%). Knowledge of rangeland resources management practices was, however, significant in Turkana County, a fact attributed to a number of viable and sustained rangeland development partnerships between local communities and a number of key development partners, including key national and international research institutions.
- Participation in rangelands resources planning and management activities was reported by 23.0% of women across the five Counties (9.6% in Isiolo County, 0.8% in Marsabit County, 71.7% in Turkana County, 8.6% in Garissa County and 12.8% in Wajir County) and by 4.6% of the youths (13.7% in Isiolo County, 4.9% in Marsabit County, 80.0% in Turkana County, 4.8% in Garissa County and 5.6% in Wajir County).
- From the FGDs and field observations, the main rangeland management practices noted were production, conservation and sales of fodder and pastures, rangeland seeding and reseeding, breed improvement (based on the Galla Goat) in Turkana County and parts of Wajir County (Habaswein and Bute wards), alternative livelihoods adoption (resin production, Aloe Vera production and juice extraction, apiculture), irrigation along shallow wells and rivers, and grazing management in parts of Turkana and Wajir Counties. Destocking and voluntary-off taking were only slowly being adopted in the five Counties, given the cultural premium attached to owning large livestock herds. Indeed, at the time of this evaluation, massive deaths of livestock were being experienced across all five counties, despite destocking and voluntary off-taking campaigns by the national government to cushion pastoralists against unnecessary losses.
- Private sector entities, largely in the form of humanitarian organizations were present in the five

counties, promoting various rangelands resources management and improvement practices. This was happening with the knowledge of the relevant County government Departments, but the latter were not engaged in any tangible or strategic way, such as through co-financing, follow-up extension visits or scaling up of what has been shown to work. In a number of Counties however, the Departments had established livestock holding grounds and livestock sales yards which were thriving. Farmers associations and cooperatives were existent in three of the five Counties (Wajir, Turkana and Garissa), but they were constrained organizationally, technically, and financially.

- Rangelands Management Committees (RMCs) were existent in all five counties but were severely constrained and largely dormant when and where not supported by humanitarian organizations. Interest in RMCs at the community level was however huge, and this together with their strong embedment in the communities, drawing their membership from there, made them widely known and accepted in their respective communities.
- Additional strengths possessed by RMCs included their integration with other community structures such as the peace committees and the WUAs and the WRUAs, their inclusion of youth and women into leadership, and their management structures founded and codified in their respective constitutions and bylaws.
- The RMCs, however, faced and exhibited several palpable weaknesses and challenges that severely constrained their abilities to plan and implement their core duties as well as receive meaningful support from interested development partners. These included: weak management skills, poor governance, low financial resource mobilization, and management capabilities, interference by politicians, clan interests and bylaws that largely remained un-anchored on any County government policies or legal frameworks, and the lack of capacity in partnership development.
- From the survey, some 23.7% (477/1970) of the respondents from the five Counties identified benefitting from a range of concrete climate change measures [65/439 (14.8%) in Isiolo County, 32/334 (9.6%) in Marsabit County, 226/401 (56.4%) in Turkana County, 48/386 (12.4%) in Garissa County and 96/410 (23.4%) in Wajir County].
- Solarization of boreholes, furrow irrigation and destocking were identified as the main climate change adaptation and mitigation measures adopted by communities.
- County Government departments and private sector players were promoting a range of other measures in climate change mitigation and adaptation, including alternative livelihoods, improved goat breeding (Galla goats in Turkana County), use of solar power in water abstraction, minimum tillage to increase soil moisture retention, voluntary off-taking as a destocking measure, green houses/shades, solar lighting (streets), early planting and adoption of drought tolerant crops.

Table 1: Indicator Performance Tracking Table (IPTT) for the Kenya RAPID+ Program

Indicator		Baseline values in all the five counties	Isiolo County	Marsabit County	Turkana County	Garissa County	Wajir County
Household water security (with a focus on water supply and not water risk management) in the targeted ASAL Counties		5.5%	8.2%	1.2%	2.7%	8.5%	6.1%
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties		15.9%	9.2%	0.6%	72.9%	8.9%	10.1%
% Of households with increased access to safe and adequate water for basic domestic uses (disaggregated by gender, minority groups)	Gender	Female=1.8% Male=1.9%	Female=0.0% Male=0.3%	Female=0.0% Male=1.2%	Female=1.6% Male=0.0%	Female=5.1% Male=5.4%	Female=2.7% Male=2.2%
	Group	Minority=0.6% Dominant=2.2%	Minority=0.0% Dominant=0.3%	Minority=0.0% Dominant=0.3%	Minority=0.0% Dominant=1.8%	Minority=0.0% Dominant=5.9%	Minority=5.0% Dominant=2.2%
Households accessing 350 litres of water per day		Rainy seasons=4.9% Dry seasons=3.1%	Rainy seasons=10.0% Dry seasons=2.1%	Rainy seasons=0.6% Dry seasons=0.9%	Rainy seasons=1.0% Dry seasons=1.0%	Rainy seasons=2.3% Dry seasons=2.3%	Rainy seasons=9.0% Dry seasons=8.8%
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)		Rainy seasons=1.6% Dry seasons=1.5%	Rainy seasons=0.0% Dry seasons=0.0%	Rainy seasons=0.0% Dry seasons=0.0%	Rainy seasons=0.7% Dry seasons=0.5%	Rainy seasons=2.1% Dry seasons=2.1%	Rainy seasons=4.9% Rainy seasons=4.6%
% Of people in the target area report their trust in members of communities they are in conflict has increased		2.8%	0.3%	2.2%	4.8%	7.0%	4.3%
% Increase in volume of water available for livestock consumption in a catchment area	Wet seasons	69.3%	80.1%	68.3%	60.1%	72.0%	65.1%
	Dry seasons	50.4%	46.0%	47.9%	47.8%	57.6%	50.4%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)		58.3%	33.3%	0.0%	50.0%	100.0%	100.0%
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses (Baseline Average in KSHs)		16,358.66 KSHs	3,800.80 KSHs	35,000.00 KSHs	1,569.86 KSHs	24,907.41 KSHs	113,500.00 KSHs

% Of people in the target areas who say they feel welcome by neighboring communities to access water and grazing areas in times of needs		60.2%	40.1%	39.5%	43.9%	96.1%	80.5%
% Of women and adolescents reporting Wet reduction time in accessing water (<30mins time)	Wet seasons	Youth=33.6% Women=32.1%	Youth=47.9% Women=34.3%	Youth=7.3% Women=12.8%	Youth=50.0% Women=36.4%	Youth=33.9% Women=43.8%	Youth=22.5% Women=29.6%
	Dry seasons	Youth=23.4% Women=22.0%	Youth=28.8% Women=16.5%	Youth=2.4% Women=1.2%	Youth=35.0% Women=26.8%	Youth=33.9% Women=36.7%	Youth=16.9% Women=26.1%
% Of women reporting GBV related to access to water and rangeland resources		11.0%	7.3%	0.9%	14.2%	9.3%	21.5%
% Of marginalized groups who believe they have equal access to water services		70.4%	80.0%	84.2%	54.9%	93.9%	52.5%
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)		Degree of gender inclusion: 1.2/4 Impact on beneficiaries: 0.6/4 Level of implementation: 0.6/4 Allocation of budgets: 0.2/4	Degree of gender inclusion: 3/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	Degree of gender inclusion: 0/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 2/4 Level of implementation: 2/4 Allocation of budgets: 1/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 1/4 Level of implementation: 1/4 Allocation of budgets: 0/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3 practices)		35.7%	26.7%	18.9%	83.3%	28.8%	19.3%
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing >=3 practices)		21.0%	10.7%	0.6%	71.6%	8.3%	11.2%
% Of women and youth actively participating in rangeland resource planning and management activities		Women= (23.0%) Youth= (14.6%)	Women= (9.6%) Youth= (13.7%)	Women= (0.8%) Youth= (4.9%)	Women= (71.7%) Youth= (80.0%)	Women= (8.6%) Youth= (4.8%)	Women= (12.8%) Youth= (5.6%)
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities (those who reported no shortage in a pasture in dry seasons)		20.1%	12.5%	7.8%	11.5%	19.4%	15.1%
# Of persons benefiting from concrete climate change measures		23.7% 477/1970	14.8% 65/439	9.6% 32/334	56.4% 226/ 401	12.4% 48/386	23.4% 96/410
Output level indicators							

# Of households reporting improved water access in terms of quantity and reliability (disaggregated by gender, minority groups) [Scores of 5/5 on reliability and quantity]		Total=5.7% F=6.3% M=4.5% M=7.6% D=5.3%	Total=2.5% F=12.9% M=8.1% M=8.0% D=12.7%	Total=4.5% F=4.4% M=4.7% M=31.6% D=2.9%	Total=2.7% F=3.4% M=0.0% M=8.0% D=1.6%	Total=1.5% F=8.2% M=6.2% M=10.2% D=7.1%	Total=2.0% F=1.3% M=2.7% M=10.0% D=1.1%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		21.3 days	8.5 days	8.5 days	45 days	4 days	10.5 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=5.0% Adults=0.9% Male=0.0% Female=2.5% Total=1.6%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=100.0% Adults=5.6% Male=0.0% Female=12.5% Total=10.5%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=20 Adults=108 Male=47 Female=81 Total=128	Youths=15 Adults=44 Male=22 Female=37 Total=59	Youths=0 Adults=6 Male=3 Female=3 Total=6	Youths=1 Adults=18 Male=3 Female=16 Total=19	Youths=2 Adults=24 Male=8 Female=18 Total=26	Youths=2 Adults=16 Male=11 Female=7 Total=18
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=7,926.36 KSHs M=6,612.13 KSHs	F=13,964.55 KSHs M=11,216.33 KSHs	F=0.00 KSHs M=4,080.00 KSHs	F=812.50 KSHs M=0.00 KSHs	F=7,0727.78 KSHs M=9,500.00 KSHs	F=1,428.57 KSHs M=727.27 KSHs
	Livestock production	F=10,685.78 KSHs M=8,317.45 KSHs	F=13,964.55 KSHs M=11,216.33 KSHs	F=5,133.33 KSHs M=8,333.33 KSHs	F=106.25 KSHs M=0.00 KSHs	F=10,166.67 KSHs M=6,125.00 KSHs	F=16,714.29 KSHs M=13,909.09 KSHs

Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- Align the RAPID plus program activities with the County governments' departmental priorities as well as the 2022-2027 County Integrated Development Plans (CIDPs) County.
- Investment in strategic targeted advocacy and lobby initiatives aimed at placing water and rangeland resources management improvement at the center of policy decision-making and implementation processes in the five target Counties.¹⁴ We see this being played out in three important ways:
 - Lobby the executive and legislative arms of the five County Governments to prioritize increased technical, policy and financial investments in water, gender, and rangeland resources development as the critical drivers of growth and livelihood improvement in the ASAL counties.
 - Invest in a participatory and in-depth analysis and petitioning of the next generation CIDPs to be developed from September 2022 for the Counties. Such investment could focus on enabling groups that makeup RAPID plus program's core beneficiary institutions and groups to convene, analyze the CIDPs, and generate well-considered policy and programmatic feedback and recommendations-examples of groups that could be mobilized for this purpose would be WRUAs, WUAs, pasture groups, the RMC, the LMCs, the private sector water and rangeland resources actors, producer cooperatives, the faith-based groups, and other local Community Based Organizations (CBOs).
 - Sharing the resulting feedback in key forums of CIDPs stakeholders (such as the sector and thematic working groups, the Sub-County and County public hearings, and the County Budget Execution Forums (CBEFs), and in specific meetings/workshops convened by the program to bring strategic stakeholders together for the purposes of advocating for specific interests. Support here could include enabling partners to attend relevant meetings/forums and financing and co-facilitating such events.
- Support strategic awareness events targeting members of the County Government Executive and Legislature aimed at securing their full understanding and support for core water and rangeland improvement interventions sought by the program- such events could include (I) reflection and learning sessions organized monthly or bi-monthly; (II) benchmarking and learning visits for MCAs and County Government executives and share experiences on leading-edge water, rangeland resources management practices.
- Develop and share high-impact Information, Education and Communication (IEC) materials, policy/learning briefs, program information packages, public media material, including video documentaries and press releases to deepen and popularize the program's core messages.¹⁵
- Provide dedicated technical and financial support towards the completion and passage of selected key sector/Departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland resources management gender sectors). Some of these were initiated through the support of the RAPID program. Two ways to achieve this could be to:
 - Support the establishment or strengthening of steering committees for selected policies and Bills and sector working groups and serve as co-chair and secretariat for these Counties. This approach has been shown to galvanize stakeholders, improve inter-Ministerial coordination, congeal expertise and experiences, and streamline and speed up policy formulation, legislation, and subsequent implementation.¹⁶
 - Support consultancy assignments to assist with the drafting of relevant policies and Bills as well as processes to validate and bring them to County Assemblies for passage.

¹⁴This approach, along with the accompanying targeted advocacy and lobby interventions was at the heart of the success of the V4CP program, a 5-year DGIS-funded programme implemented by SNV-IFRI in partnership with Civil Society Groups across Africa, Asia and Latin America focused on 4 areas-renewable energy, food and nutrition security, and water, sanitation, and hygiene, with close attention to gender, social inclusion, and climate. The V4CP empowered CSOs to engage with decision-makers by providing sound arguments and a solid evidence base backing the proposed sectoral changes. For a reading of the specific program interventions and policy impact, see the learning brief at https://snv.org/assets/explore/download/snv_learning_brief_wash_v4cp_okt_2020_v3.pdf

¹⁵As an example, under the V4CP programme, the video documentary "Price of Poop" <https://www.bing.com/videos/search?q=Mericy+korir+poop+documentary&view=detail&mid=FAC924DA0EC8E066A0F6FAC924DA0EC8E066A0F6&FORM=VIRE> was produced and aired nationally and in strategic Program meetings. The video together with other police evidence materials produced and widely and strategically disseminated by the program, including policy research and social audit reports were key to the impact that the programme made on WASH policies and budgets in the 5 focus Counties.

¹⁶SNV. 2020. Evidence based advocacy for WASH. <https://snv.org/assets/explore/download/snv_learning_brief_wash_v4cp_okt_2020_v3.pdf>.

- For Counties that have policies and legislative frameworks on water and rangelands resources management, support forums and digital platforms for their wide dissemination. From field visits, these documents were hardly available and traceable and were missing on online portals and websites of most of the County governments.
- Ensure all future policies, sectoral plans and laws developed have costed implementation frameworks and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation

Water Interventions

- Influence the full ownership of the ward development plans (WDPs) by the County governments and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.¹⁷
- Promote water stakeholders' coordination in the five Counties by supporting/strengthening the County Water Forums. Lack of coordination and inconsistent procedures and policies are currently causing confusion amongst the user groups. It is recommended that the respective Water Departments should ensure and enforce adherence to agreed implementation guidelines where available. This gaps approach has been widely recommended through the Inter-governmental Consensus Events on water reforms.¹⁸ Deliberate and support innovative and cost-effective approaches towards the capacity development of WMCs, WUAs and WRUAs, and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Ways to achieve this could include (I) partnerships to develop relevant IEC materials such as water and NRM posters, pamphlets, training, and service manuals (for boreholes and other water sources and catchments), flow charts; (II) review of successful models for cost-efficient operation and management of these structures to draw important lessons and experiences that can be replicated under the program. For example, interesting lessons and experiences exist on delegated water management models that could be studied and replicated-especially now with several County water companies considering developing their strategic/master plans.¹⁹ (II) subsequent use of resulting evidence and materials in Trainer of Trainers (TOTs), refresher training and strategic planning sessions for these structures. This is in view of the evident high levels of illiteracy and O & M and natural resources management knowledge and skill gaps among the WRUAs, WUAs, and RMCs to restore water sources, and the capacity challenges facing County water companies.^{20,21,22&23}
- Promote women's active and effective involvement in decision-making processes in the water user committees, beyond their mere presence in these structures. To achieve this would be to ensure WUA training manuals are strongly gendered, organizing leadership training for WUA leaders, and promoting of cross-WUA learning in exchange for scale up of practices.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water. In view of the ongoing decentralization processes with their focus on local-level control of the management of resources, the analysis and strengthening of the role and effectiveness (capacity) of local-level institutions must constitute an important area of programming focus for organizations seeking to work at this level
- Consider training male and female youths as village borehole and solar installation attendants (including through apprenticeships with available private water sector players) and supplying them with complete O & M service tool kits as a way of building and ensuring local capacities, reducing water point downtimes, and providing viable employment routes

¹⁷Feed the future. 2020.FEED The Future Kenya Livestock Market Systems, Activity Fy2020 Quarterly Progress Report. <https://pdf.usaid.gov/pdf_docs/PA00WS6M.pdf> .

¹⁸Republic of Kenya.2019. Inter-governmental Consensus Events on water reforms. <<https://www.waterreforms.go.ke/inter-governmental-consensus-events/>> .

¹⁹In this regard the work of Isiolo and Nakuru water and sewerage companies and the Merti WUA would be worth looking at for some lesson learnt in Nakuru County. See more details by clicking this link: s<<https://nakuruwater.co.ke> <https://www.iwasco.or.ke> <https://waterfund.go.ke/stories/merti>>.

²⁰County government of Garissa.2022. Garissa County Launches Rangelands Management Programme. <<https://www.kenyanews.go.ke/garissa-launches-rangelands-management-programme/>>

²¹Business Daily.2021. New rangeland system boosts northern Kenya. <<https://www.businessdailyafrica.com/bd/data-hub/new-rangeland-system-boosts-northern-kenya-3521342>> .

²²Ministry of Water and Irrigation.2012. A Trainer's Manual for Community Managed Water Supplies in Kenya. <https://www.pseau.org/outils/ouvrages/fao_unicef_a_trainer_s_manual_for_community_managed_water_supplies_in_kenya_2012.pdf> .

²³Plan International. 2002.Evaluation Report of a Potable Water Project in Luwero District. <<https://core.ac.uk/download/pdf/1360864.pdf>>.

through alternative livelihood approaches. UNICEF has shown this to be an effective intervention in Nigeria.²⁴

- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of water and rangelands resources management in the five Counties, to increase their capacities for resource mobilization for increased investment within the sector. Resource mobilization should be included in annual Departmental work plans for acceptance by potential funders as advocated by the Food Agricultural Organization (FAO) and the World Bank.^{25&26}
- Support County Governments to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock and Rangelands Resources Management to promote knowledge sharing and collaborative problem solving and investment in natural resources management.
- Support WRUAs and WUAs in their efforts to identify and grow partnerships for technical and financial resource mobilization. The Water Service Maintenance Trust Fund (WSMTF) in Kwale County and the Water Sector Trust Funding of the Merti WUA in Isiolo County are examples of where funding has been successfully attracted from private sector and local businesses. In the case of Kwale, local companies engaged in mining and agriculture activities availed funding to support rural water supply maintenance activities. In the Case of Merti, the Water Sector Trust Fund, impressed by the ambitious vision of the community in Merti, invested, through its Rural Investment Programme, provided KSHs 7.6 million in their community water project, enabling the Merti Community Water User Project to hire more technical staff, abandon water kiosks and increase the number of individual meters, rehabilitate two core project boreholes, and embark on an ambitious piping and extension of clean water from Merti town to Mulanda Nur, a village situated 8 kilometres away and inhabited by more than 3,000 people. Even though these examples do not represent private equity investments, looking for a return on money, they demonstrate what is possible when optimal governance and oversight mechanisms are in place.^{27&28}
- Support WRUAs to identify the best modalities for charging for maintenance services including but not limited to: free service provision (payment for spare parts only as practiced in the Kabele water technician model in Uganda); variable cost-recovery fees paid per repair or per visit payment by a technician or mechanic on a case-by-case basis, depending on the type of repair or maintenance task; regularized set tariffs or fees (monthly payment for ‘guaranteed service’); volumetric tariffs (servicing after supply of a certain volume of water); and maintenance contracts for specific works as part of after sale services.²⁹
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on the principles of proper usage, source and catchment protection, routine infrastructure service, and effective O & M financing models such as the successful borehole service insurance model being implemented by the Catholic Diocese of Lodwar. In South Sudan, operation, and maintenance (O & M) contracts, with an agreed standardized quarterly fee and a fixed maintenance schedule involving repairs of all breakdowns, signed between WUCs, Mechanics Associations (Service Providers), and the Rural Water and Sanitation Services have been noted to be effective in reducing the downtime.³⁰
- In view of the increasing livestock and human populations, explore partnerships leading to the development of more strategically located community boreholes and other watering points across the Counties to increase available water and reduce waiting time and distances covered to access water.

²⁴UNICEF.2018. How women borehole mechanics are serving their communities, earning incomes, and breaking down social myths. <<https://www.unicef.org/nigeria/stories/how-women-borehole-mechanics-are-serving-their-communities-earning-incomes-and-breaking-down-social-myths>>.

²⁵FAO.2012. A guide to resource mobilization. <<https://www.fao.org/3/i2699e/i2699e00.pdf>>.

²⁶The World Bank.2019. Mobilizing Tax Resources to Boost Growth and Prosperity in Sub-Saharan Africa. <<https://www.worldbank.org/en/results/2019/09/09/mobilizing-tax-resources-to-boost-growth-and-prosperity-in-sub-saharan-africa>>.

²⁷USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. <https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf>.

²⁸Water Sector Trust Fund.2022. Merti community water user's association in Isiolo County. <<https://waterfund.go.ke/stories/merti>>.

²⁹USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. <https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf>.

³⁰Social Finance, United Kingdom.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's Arid and Semi-Arid Lands. <<https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allotted water and rangelands resources management budgets and allied resources to promote prioritization and full and effective utilization. Part of this would involve supporting the WUAs and WUCs to develop user friendly social audit toolkits which have been successful in Nepal.³¹
- County public health officers and water officers to be actively involved in regular surveillance and ensure provision of water treatment agents to reduce waterborne diseases in Marsabit County, in view of the extremely poor quality of water in that County.

Efficient Water, Irrigation and Solarization Technologies

- Promote demand driven approaches where communities decide which technologies best serve their needs. From our assessment, due to the economic and physical inaccessibility of diesel and petrol, the use of hybrid water pump systems (solar and generators) as complementary measures to ensure continuous availability of water to communities.
- Ensure robust management information systems for water services monitoring in the Counties, given the dearth of data and the high volumes of unaccountable water usage in some of the Counties. Valuable information generated by various stakeholders is not easily accessible leading to duplication of efforts and wasted resources. The water Departments in the Counties should coordinate all data relating to water delivery, using state of the art databases and MIS increasingly available. The use of digital applications and tools by technicians to mine and report data on facility yield, functionality, water quality and populations served (disaggregated by gender) is strongly recommended. This will provide a comprehensive database on the functioning and impact of water systems in the Counties, exposing common causes of breakdown, as well as serving as an important tool for anticipating O&M needs (and thus spare parts to be stocked) and policy decision-making and budgeting.³² Before deciding on any rehabilitation work, the technical feasibility and cost of the operation would be known. The use of the iPads will also be instrumental in the analyses of the repair would be known with some certainty as documented in Ghana and other parts of the world.^{33&34}
- Incorporate sensors in community boreholes to create alerts signalling imminent breakages hence timely repairs and servicing to avert water shortages.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for water by WUCs members as documented in Marsabit and Turkana Counties.
- Institutionalize monitoring of water recharge following rains, as an early warning system for contingency planning during seasons when rainfall is inadequate.

Rangelands Resources Management Interventions

- Advocate for enhanced prioritization and visibility of the rangelands sub-sector, by lobbying for the creation of rangelands Units or Directorates and offices with dedicated officers and budgets across all program Counties.
- Facilitate community and village sessions to come up with integrated participatory community land use plans (PLUPs) to promote focused and effective community common natural resources use.³⁵ This participatory approach to community land use planning has been shown to be effective among pastoral communities in Tanzania. In doing this, potential

³¹International Water Management Institute.2021. How social accountability tools can improve water service delivery in Nepal. < <https://www.iwmi.cgiar.org/2021/09/how-social-accountability-tools-can-improve-water-service-delivery-in-nepal/>>.

³²USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. < https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf >.

³³Lee, Sangho & Suh, Jangwon & Park, Hyeong-Dong. 2014. Borehole AR: A mobile tablet application for effective borehole database visualization using an augmented reality technology. Computers & Geosciences. 76. 10.1016/j.cageo.2014.12.005.

³⁴Schultes, Olivia & Sikder, Mustafa & Agyapong, Emmanuel & Sodipo, Michelle & Naumova, Elena & Kosinski, Karen & Kulinkina, Alexandra.2022. Longitudinal borehole functionality in 15 rural Ghanaian towns from three groundwater quality clusters. BMC Research Notes. 15. 10.1186/s13104-022-05998-1.

³⁵Tilstone V and Flintan F (ILC Rangelands Initiative).2014. Participatory Land Use Planning for building resilience of ASAL communities in Kenya. < <https://dci-hoa.org/assets/doc/Vanessa%20Tilstone,%20DLCI%20and%20Fiona%20Flintan,%20ILC%20Rangelands%20Initiative.pdf>>.

- challenges should be borne in mind, including- low awareness and inadequate institutionalization of the process, conflicts over village boundaries and resources, budget constraints, reluctance amongst clan officials to relinquish their own power over land, excessive bureaucracy, and poor skills levels.³⁶
- Promote participatory Community Action Plans (CAPs) and dialogues on rangeland resources restoration. Tools that can be used in this process include participatory and two-stage resource mapping, transect walks, time and trend lines, livelihood mapping, household surveys, and ranking of problems and opportunities, towards drawing up CAPs.³⁷
- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.³⁸
- Support local/community initiatives that seek to build peace and resolve conflicts among themselves to promote peaceful co-existence and sharing of common pastoralism resources. In this regard identify and involve community peace committees in program activities
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages. This would include helping them develop bylaws and mark out the routes in the most appropriate manner. Grazing areas and water points may need to be developed along those routes, as well as institutions to manage them.³⁹ Non-resident herders gain access with permission from the elders, and those who break the by-laws are fined or have their livestock confiscated as guided by the USAID funded Resilience and Economic Growth in the Arid Lands – Improving Resilience (REGAL-IR) project in Turkana County.⁴⁰
- There are many farmer groups (especially women groups) across the five Counties, but they are not registered. The program should encourage and facilitate their registration with the relevant social services or agricultural departments and help them establish relationships of mutual support and assistance e.g., in the dissemination of new and improved agricultural technologies to communities.
- Institutionalize self-learning groups (SLGs) or farmer field schools (FFSs) in the targeted villages to capitalize on their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.^{41&42}
- Retrain all the RMCs given the high illiteracy levels and the low operational skills among members, with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County governments Departmental policies, plans or acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County departments of Livestock, Agriculture, Environment and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL). CRiSTAL is a project planning and management tool that helps users to integrate risk reduction and climate change adaptation measures into their community-level work.⁴³
- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.

³⁶International Land Coalition. 2013.Village land use planning in rangelands in Tanzania: good practice and lessons learned. <<https://landportal.org/sites/default/files/rangelandsvillagelanduseplanning.pdf>>

³⁷IUCN.2013. Booklet 2: Participatory Rangeland Planning: A Practitioners Guide. < https://www.iucn.org/sites/dev/files/import/downloads/handbook_2_web.pdf>.

³⁸NEMA.2021. Kenya State of Environment Report 2019-202. < https://www.nema.go.ke/images/Docs/EIA_1840-1849/Kenya%20State%20of%20Environment%20Report%202019-2021%20final-min.pdf>.

³⁹Rowley T.2013. Participatory digital map-making in arid areas of Kenya and Tanzania (PLA 66). < <https://pubs.iied.org/sites/default/files/pdfs/migrate/G03659.pdf> >.

⁴⁰ADESO.2015. Pastoralists Map Grazing Lands for Survival and Security in Northern Kenya. <<https://reliefweb.int/report/kenya/pastoralists-map-grazing-lands-survival-and-security-northern-kenya#:~:text=Pastoralists%20Map%20Grazing%20Lands%20for%20Survival%20and%20Security%20in%20Northern%20Kenya>>.

⁴¹Duveskog D, Friis-Hansen E & Taylor EV. 2011.Farmer Field Schools in Rural Kenya: A Transformative Learning Experience, The Journal of Development Studies, 47:10, 1529-1544, DOI: 10.1080/00220388.2011.561328

⁴²Waddington H and White H.2014. Farmer field schools, from agricultural extension to adult education, March 2014, 3ie Systematic Review Summary I. London: International Initiative for Impact Evaluation (3ie).

⁴³CRiSTAL.2022. CRiSTAL tool kit. <<https://www.iisd.org/cristaltool/>>

- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.⁴⁴
- Restore/support initiatives seeking restoration of degraded pastures and increase vegetation cover with different drought tolerant varieties.
- Fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland reseeding, catchment protection and other improved rangeland resources management practices should be promoted through community groups rather than individuals to popularize and deepen practice and to mitigate communal land use conflicts.
- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County public participation/hearing forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.^{45,46,47&48}

Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, and SGBV laws, and to develop costed and monitorable implementation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management. Community and women empowerment requires an integrated approach as opposed to the siloed sectoral/Departmental approach observed across the five Counties. Applying a more intersectoral (inter-departmental) approach to mainstreaming gender will yield a greater and faster cross-sectoral impact in a non-threatening way, given the strongly patriarchal nature of program's beneficiary communities.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' free time to pursue alternative productive livelihoods activities, including income generating activities, and pursuit of literacy (adult education) and acquisition of new skills beyond the health, sanitation, and hygiene themes. Areas of alternative business or income generation interest could include: pursuing businesses in innovative sanitation solutions (soaps and detergent making), waste utilization schemes, pasture production and conservation, manufacture/blending of feeds for animals, value addition for vegetables, fruits and range products (honey, resins, Aloe Vera juice) processing and sales of skins, processing of excess milk in rainy seasons into other long-lasting nutritious milk products for use in the dry seasons when food and milk are unavailable (Catholic Relief Services under the NAWIRI program is undertaking this in Marsabit and Samburu Counties while Save the Children International is doing the Same in Somalia and Ethiopia).^{49,50&51}
- Mitigate gender-based inequalities related to access to productive resources (assets and capital) to help redefine women's position in their families and their communities. This can be achieved through Village Savings and Loans (VSLA) groups and linkages to microfinance institutions available in the Counties. A case in point is Kakuma town where such outfits exist with contextualized services for women groups [Equity Bank, Kenya Commercial Bank, African Entrepreneur Collective (AEC)].

⁴⁴Kenya Climate Smart Agricultural Project.2020. Climate Smart Agricultural Technologies, Innovations and Management Practices for Pasture and Fodder Value Chain, Training of Trainers' Manual. < <https://www.kalro.org/sites/default/files/pasture-tot-22-12-20.pdf> >

⁴⁵Agency for Rangeland Information and Development in Kenya. 2018. Index-based livestock insurance as an innovative tool against drought loss: good practices and impact analysis from northern Kenya. Wageningen, The Netherlands: CTA

⁴⁶Imbali F.2019. Tackling drought in Kenya: livestock insurance policy to help pastoralists beat climate change. < <https://www.rapidtransition.org/stories/tackling-drought-in-kenya-livestock-insurance-policy-to-help-pastoralists-beat-climate-change/>>

⁴⁷International Livestock Research Institute.2011. Index-Based Livestock Insurance.2011. < <https://core.ac.uk/download/pdf/132634335.pdf>>.

⁴⁸CAFOD, SCIAF and Trócaire.2018. Participatory Research on the effectiveness of Index Based Livestock Insurance as a Pro-poor Climate Risk Management Strategy in Borena zone: the case of Moyale and Miyo Districts. <<https://reliefweb.int/report/ethiopia/participatory-research-effectiveness-index-based-livestock-insurance-pro-poor>>.

⁴⁹Catholic Relief Services.2021. Participatory Analysis and Co-design of Adapted Milk Matters interventions. < https://www.crs.org/sites/default/files/tor-consultancy_participatory_adapted_milk_matters_study.pdf>.

⁵⁰Save the children Somalia and UNICEF Somalia.2017. Feasibility study for the milk matters program in Hiiran region. < <https://somalia.savethechildren.net/sites/somalia.savethechildren.net/files/library/MILK%20MATTERS%20FEASIBILITY%20STUDY%20%20FINAL.pdf>>

⁵¹Sadler, K., Mitchard, E., Abdi, A., Shiferaw, Y., Bekele, G., and Catley, A. 2012. Milk Matters: The impact of dry season livestock support on milk supply and child nutrition in Somali Region, Ethiopia. Feinstein International Center, Tufts University and Save the Children, Addis Ababa.

- Factor in class-sensitive gender approaches to promote control and development of water and rangelands resources for shared benefits across all genders.^{52,53&54} The entry point of such an approach would be to start with female headed households while using their transformation as examples in the communities.
- Equip the communities to actively participate in policy and regulatory reform events on water and rangeland resource management in the Counties through integrating community-based advocacy in program interventions.
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.
- Explore jointly with County governments and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions, and they participate in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County Gender Departments and relevant Gender Thematic Working Groups, in addition to the support to line Departments (water and rangelands resources) to deepen and sustain domestication and sustained institutionalization of relevant interventions.

Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi-Autonomous Government Agencies (SAGAs) such as water and sewerage companies which provide a more sustainable and low risk entry point since PPPs with County governments are faced with inhibiting challenges including: small balance sheets, leadership transitions every five years, and creditworthiness of County governments in view of delayed payments.⁵⁵ Under the newly enacted Public Private Partnerships Act (2021), County governments have a representative in the national PPP Committee but their role is limited to the identification of viable projects and proposals, which are then assessed by the national government through a tedious and tortuous process.⁵⁶ To date, no PPP between County governments and the private sector has moved past the feasibility assessment stage.
- Further encourage water stewardship approaches that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as already identified in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, and more wholesome water treatment (beyond basic chlorine treatment), and to participate in O & M capacity building of WRUAs and WUAs.
- Engage the private sector to support value additions (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the five Counties.
- Explore with the County governments and partners ways to strengthen water and rangeland resources value chains. As part of this, link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic empowerment.

Climate Change Mitigation

- Explore ways of re-prioritizing water and rangelands resources and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial

⁵²JNDP.2006. Mainstreaming Gender in Water Management. < https://www.pseau.org/outils/ouvrages/gwa_resource_guide_mainstreaming_gender_in_water_management_2006.pdf >.

⁵³Coppock DL, Fernández-Giménez, ME & Harvey, J.2013.Women as change agents in the world's rangelands: Synthesis and way forward. Rangelands, 35(6), 82-90.

⁵⁴Bullock R & Kariuki.2019. A review of gender and sustainable land management: implications for research and development. ILRI Discussion Paper 36.

⁵⁵Brufal Jand Gray T.2017. Kenya: Kenya County Government PPPs. <<https://www.mondaq.com/government-contracts-procurement-ppp/631532/kenya-County-government-ppps>>

⁵⁶Kenya Law Reforms.2021.The Public Private Partnership Act,2022.< http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2021/ThePublicPrivatePartnershipsBill_2021.pdf>

conflicts over grazing lands. This can be done through participation in the annual Community Land Summit.⁵⁷

- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce demonstration or model farms for climate resilient and adaptive crop cultivation and animal husbandry to showcase best practices to local farmers in the Counties.⁵⁸ This could start with selecting and training model farmers and then facilitating their adoption of the various climate smart agricultural technologies.^{59&60}
- Support agricultural management techniques adapted to intensive and prolonged droughts. Such techniques should include the use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the establishment of climate funds in the Counties of Turkana, Wajir and Marsabit based on the lessons from Isiolo and Garissa Counties which have already rolled out these funds.^{61&62} The funds should be used for designated purposes while factoring in the unique needs and characteristics of recipient Counties.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice on climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies including but not limited to modified version of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.⁶³
- For communities living along forest reserves in the Counties of Turkana, Wajir and Isiolo, liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS). This is a system whereby KFS allows forest adjacent communities, through community forest associations, the right to cultivate agricultural crops during the early stages of forest plantation establishment. Cultivation is often allowed to continue for 3 to 4 years until tree canopy closes.⁶⁴

Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among people about gendered topics that pre-dispose to conflict (household workload, access and control of household assets and resources, productive roles for women and power inequities between genders).
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and statutory regulations existing across the five Counties.
- Promote a community centred approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources. In this regard, support the development and implementation of common resource sharing plans.

⁵⁷Community Land Summit.2021. Community Land Summit. < <https://communitylandsummit.org/>

⁵⁸CAR-Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad.2021. < <https://www.manage.gov.in/publications/eBooks/Climate%20Resilient%20Animal%20Husbandry.pdf> >.

⁵⁹The World Bank. 2021. Climate Smart Agriculture. < <https://www.worldbank.org/en/topic/climate-smart-agriculture>>.

⁶⁰FAO.2021. Climate-Smart Agriculture. <<https://www.fao.org/climate-smart-agriculture/en/>> .

⁶¹County government of Isiolo.2018. The Isiolo County Climate Change Fund Act, 2018. <

<https://www.adaconsortium.org/index.php/component/k2/item/373-isiolo-County-climate-change-fund-act-2018>>

⁶²County government of Garissa.2018. Garissa County Climate Change ACT – 2018. < <https://www.adaconsortium.org/index.php/component/k2/item/371-garissa-County-climate-change-act-2018>>

⁶³Sharma, Bikash & Banskota, Kamal. 2015. Development of Sustainable Energy for Rangelands In the Hindu-Kush Himalaya Final Report on Phase I.<

https://www.researchgate.net/publication/280489063_Development_of_Sustainable_Energy_for_Rangelands_In_the_Hindu-Kush_Himalaya_Final_Report_on_Phase_I>

⁶⁴Kenya Forestry Research Institute (KEFRI).2014. Contribution of pelis increasing tree cover and community livelihoods in Kenya. <

<https://www.kefri.org/assets/publications/extension/Contribution%20of%20pelis%20in%20increasing%20tree%20cover%20and%20community%20livelihoods%20in%20Kenya.pdf> >.

- Invest adequate time and resources in the resolution of boundary and other conflicts, and particularly in those that are deeply rooted and complex. Build in communities the understanding that conflicts must be resolved if land is to be secured and that trade-offs and compromises will be required. Multiple community meetings may be needed for this.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

Programming

- MWA and the partner organizations need to be well acquainted with the SDC Gender Toolkit and Gender Checklist to ensure that gender mainstreaming is ensured in every activity of this program's implementation.
- MWA to adopt a more participatory reflection and learning approach to program implementation, sourcing and blending expertise, knowledge and skills in staff and ensuring visibility of female staff in field work to improve the program's chances of reaching out more effectively to women and changing the gendered perceptions and attitudes in the communities.
- Programme to keep in mind the fact that productivity of rangelands is likely to be influenced by soil and site characterization and usage, as well as perennial vegetation cover which require mitigation through soil, site, and vegetation amendment interventions. An assessment of the state or condition of the rangelands in the program Counties from the outset, therefore, becomes a necessary baseline exercise. Drone technologies could be adopted to undertake this mapping and assessment.
- The Kenya RAPID+ program implementation needs to begin with clear exit strategies as a priority if sustainability is to be achieved.

Monitoring and Evaluation

- Encourage and where necessary support Counties to develop costed M&E implementation plans within the 2 areas of program interest and in gender mainstreaming.
- Move beyond disaggregation of data by gender, to training female committee members and treating gender as a variable in water and rangelands resources management by interrogating the programs' input and process level indicators to include non-quantitative and innovative of gender equity promotion and monitoring.
- Derive output and process indicators for measuring conflict sensitivity programming as a cross-cutting theme in the program.
- From the onset (prior to commencement of interventions), generate baseline values for the status (including financial status) and the organizational and institutional capacities of focus County Departments WRUAs, WUCs, RMCs, pasture groups as well as water and pasture sources (types, yields, functionality status, size and condition, populations of people and livestock served) to enable subsequent routine and systematic monitoring and assessment.
- Revise, drop and add some program indicators which are either ambiguous or difficult to
- monitor over the program's five-year cycle.

Further Research

- Together with wildlife and forestry stakeholders, explore the best approaches to ensure water availability for wildlife in dry seasons to reduce human-wildlife conflicts, including destruction of water systems in times of drought.
- Explore the best approaches and methods of fencing and safeguarding water points from vandalization by human beings, livestock, and wildlife.
- Explore ways to productively manage and utilize Prosopis Spps. as fodder and a source of income (fodder, fuel and building material) and to reduce its impact as an invasive species
- Undertake further research on the traditional 'Ekwar' system⁶⁵ as a viable and replicable approach to fodder and natural resources conservation and management.

⁶⁵Barrow EGC.1990. Usufruct rights to trees: the role of Ekwar in dryland central Turkana, Kenya. <<https://www.worldagroforestry.org/publication/usufruct-rights-trees-role-ekwar-dryland-central-turkana-Kenya>>

A resident of Lagdera, Garissa County trying to access water from a dried unprotected well. Garissa County has a very high ground seepage of water hence water sources dry up so fast after short rains.



SECTION ONE: INTRODUCTION

1.1 Background

Growing water demand and water scarcity have turned into a prominent challenge worldwide, largely due to growing global warming, pollution, population growth, urbanization, and poor management of water and related natural resources.⁶⁶ Four billion people — almost two thirds of the world's population - experience severe water scarcity for at least one month each year, while over two billion people live in countries where water supply is inadequate.⁶⁷ Thus, Sustainable Development Goal (SDG) 6 targets availability and sustainable management of water and sanitation resources for all, which is an indication that water is critical for socio-economic development, energy and food production, healthy ecosystems and human survival itself.⁶⁸

Land degradation on the other hand, is a global concern for sustainable development, conservation of biodiversity, and mitigation and adaptation to climate change. Human activity continues to erode the health of ecosystems on which all species depend. It is estimated that, globally, about twenty five percent of the total land area has been degraded.⁶⁹ For this reasons, SDG 15 is devoted to protecting, restoring, and promoting sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, and halting and reversing land degradation and biodiversity loss.⁷⁰

Kenya is among the water-scarce countries across the world, with a per capita availability below 1000 m³ annually.⁷¹ Only 59.0% of Kenyans have access to safe drinking water. ^{72,73} Water shortage in Kenya is pronounced in rural areas and in Arid and Semi-Arid Lands (ASALs) in particular, which has led to strain on women and children who have the task of fetching water, especially for domestic use.⁷⁴ Further, 84 percent of Kenya's land mass of 582,650 square kilometres is constituted of savannah and grassland eco-systems collectively referred to as Arid and Semi-Arid Lands (pastoral rangeland).⁷⁵ Productivity of these lands has been under threat in recent decades due to various factors, including climate change and variability, frequent droughts and floods, land degradation, loss of biodiversity, and a growing urbanization trend.⁷⁶

ASALs in Kenya make up over 80.0% of the Country with approximately 38.0% of the national population and 70.0% of the national livestock herd, and an estimated worth of 700 million US Dollars. These regions are also home to more than 90.0% of the wildlife that supports the tourism industry, which contributes 12% of Kenya's Gross Domestic Product (GDP).⁷⁷ Further, they have enormous potential for renewable energy (solar, wind and geo-thermal) and other natural resources, and are strategically positioned for cross-border trade and socio-cultural interaction with Ethiopia, Uganda, Tanzania, South Sudan, and Somalia.⁷⁸

Despite the above enumerated advantages, the ASAL regions have the lowest development indicators and outcomes in the country. In addition, they are faced with several challenges including: cyclic conflict, drought and climate change, inadequate social services, poor physical infrastructure, insecure land tenure systems and poor land use management, dispersed human settlements, internal displacements, encroaching urbanization, low human development, high levels of poverty, low literacy, low population density, high population growth rates, and gender biases and negative cultural practices.⁷⁹

⁶⁶Mulwa, F., Li, Z. and Fangninou, F.F.2021. Water Scarcity in Kenya: Current Status, Challenges and Future Solutions. Open Access Library Journal, 8, 1-15. doi: 10.4236/oalib.1107096.
⁶⁷UNICEF. 2022. Water scarcity. < [⁶⁸United Nations.2019. The Sustainable Development Goals Report, 2019. <](https://www.unicef.org/wash/water-scarcity#:~:text=Key%20facts,by%20as%20early%20as%202025.></p></div><div data-bbox=)

⁶⁹United Nations.2015. SDG 15: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. < [⁷⁰United Nations.2015. SDGs knowledge platform, biodiversity, and ecosystems. <](https://unstats.un.org/sdgs/report/2019/goal-15/></p></div><div data-bbox=)

⁷¹Jones, J.A.A. 2014.Water Sustainability: A Global Perspective. Routledge, Abingdon-on-Thames.

⁷²Ibid [6]

⁷³UNICEF. 2022.Water, Sanitation and Hygiene. <

⁷⁴Ibid

⁷⁵Republic of Kenya.2021. Range management and pastoralism strategy, 2021 – 2031. <

⁷⁶Ibid

⁷⁷Republic of Kenya, Ministry of Public Service, Gender, Senior Citizens Affairs and Special Programs.2019. ASALs Categorization. <<https://www.asals.go.ke/asal-info/>>

⁷⁸Republic of Kenya. 2022.State Department of Arid and Semi-Arid Lands. < [⁷⁹Republic of Kenya. 2020.Challenges in the ASALs. < <http://www.asals.go.ke/asal-info/>>](https://www.asals.go.ke/></p></div><div data-bbox=)

In the ASALs, annual rainfall ranges between 150 mm and 850 mm per year.⁸⁰ Rains are unevenly distributed and spatial, with high temperatures all year round and high rates of evapotranspiration.⁸¹ Degraded water catchments and the effects of climate change reduce the amount of freshwater available, on land surface and as groundwater. Population growth confounds the administrative efforts to distribute adequate water services in ASAL regions.⁸² The ASALs are also characterized by poorly coordinated management of water resources between the many actors involved.⁸³

From the meta-analysis of the 2019 Kenya Population and Housing Census Report, 73.3% of the households in the country had safe drinking water (from the following sources: protected springs, protected wells, boreholes, piped into dwelling, piped into yard/plot, public taps, rain harvesting, bottled water and water vending). In the ASAL Counties it was 68.1% for Isiolo County, 56.8% for Garissa County, 56.4% for Wajir County, 51.1% for Turkana County, and 64.0% for Marsabit County.⁸⁴ Most water sources in the ASAL Counties, including strategic boreholes that serve both people and livestock during prolonged dry periods, are not operational for long periods due to various inefficiencies in operation and maintenance practices.⁸⁵ The inefficiencies are the result of a centralized support system with limited skills among user committees in repair and maintenance.⁸⁶ Other factors contributing to operational failures include poor management and accountability of water committees, illegal water connections, dilapidated water systems, delayed disbursement of funds from the national to the County governments, and inadequate allocation of funds to the water departments.⁸⁷

Rangelands in the ASAL Counties are poorly developed and are faced with numerous challenges including inadequate and fluctuating availability of fodder and water, encroachment of crop production and settlements into pastoral land, alienation of pastoral lands, inadequate markets and marketing infrastructure, inadequate extension services delivery, inadequate research in rangeland resources, uncoordinated drought responses, inadequate and inappropriate legal and regulatory frameworks and insecurity. As a result, the populations living in these areas are faced with high incidences of poverty and malnutrition, often requiring frequent relief assistance.⁸⁸ The dominant production systems in these rangelands are nomadic pastoralism and ranching, with limited agro pastoralism. The concept of conservancy is increasingly being embraced by pastoralists, working with private sector players, as an alternative means of harnessing the benefits of the vast landmass that is the ASAL. This system is practiced on communal lands, building on traditional customs.⁸⁹

Cattle raids, inter-communal resource conflicts, and banditry are common across much of the arid lands of northern Kenya, where illegal firearms are increasingly common among pastoralist communities. For the most part, conflicts revolve around livestock, pastures, water, land use, divergent modes of livelihoods and cultural identity.^{90,91} Livestock movement in search of scarce natural resources namely water and pasture are widely understood to be a primary cause of conflict in the region. The movement of livestock and herders often transcends communal and County boundaries and pastoralist groups across the region depend on the same communal pool of natural resources. Endemic conflicts represent a major obstacle to the free movement of pastoralists and their livestock, and therefore greatly contributes to pastoralists' chronic vulnerability in the region.⁹²

⁸⁰Kenya Markets Trust.2019. Contextualizing Pathways to Resilience in Kenya's ASALs under the Big Four Agenda. < <https://www.kenyamarkets.org/wp-content/uploads/2019/10/Contextualising-Pathways-to-Resilience-in-Kenyas-ASALs-under-the-Big-Four-Agenda.pdf>>

⁸¹Republic of Kenya. 2012.Vision 2030 Development Strategy for Northern Kenya and other Arid Lands. < <https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4300-vision-2030-development-strategy-for-asals>>

⁸²SNV.2020. Climate proofing infrastructure for improved water supply and sanitation in ASAL regions. < <https://snv.org/cms/sites/default/files/explore/download/fact-sheet-edc-cpira-2-pager-infographic.pdf>>

⁸³Republic of Kenya. 2013.Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-edc-2013-17>>

⁸⁴Kenya National Bureau of Statistics.2020.2019 Kenya population and housing census, volume IV, distribution of population by socio-economic characteristics.<<https://housingfinanceafrica.org/app/uploads/VOLUME-IV-KPHC-2019.pdf>>

⁸⁵Climate Technology Centre Network (CTCN). 2013.Catalysing low-cost green technologies for sustainable water service delivery in Kenya, Feasibility Study Report. < https://www.ctcn.org/system/files/dossier/3b/final_catalysing_low_cost_green_technologies_for_sustainable_water_service_delivery_final2.pdf>

⁸⁶OXFAM.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. < <https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

⁸⁷Chepyegon, C. and Kamiya, D.2018.Challenges Faced by the Kenya Water Sector Management in Improving Water Supply Coverage. Journal of Water Resource and Protection, 10, 85- 105. doi: 10.4236/jwarp.2018.101006.

⁸⁸Ibid

⁸⁹Ibid

⁹⁰Haider, H. 2020. Conflict analysis of Northeastern Kenya. K4D Emerging Issues Report 36. Brighton, UK: Institute of Development Studies.

⁹¹Security Research and Information Centre. 2014.The northern frontier, nature, and conflict dynamics in Marsabit County.<http://www.srickenya.org/publications/The_Northern_Frontier-Nature_and_Conflict_Dynamics_in_Marsabit_County.pdf>

⁹²UNDP.2020. Conflict dynamics in Isiolo, Samburu East and Marsabit South Districts of Kenya. Amani Papers, Volume I No 3 June 2010.

1.2 Context of Targeted Areas

1.2.1 The RAPID+ Program

Based on the dynamics in the ASAL Counties, there is need to:

- i) Improve access to water for household use and livestock and agricultural production.
- ii) Promote more sustainable management of rangeland resources.
- iii) Strengthen the resilience of local communities in times of drought and climate variability,
- iv) Strengthen the capacity of local institutions – both state and traditional - to understand and implement water and range management in the dry lands; and
- v) Build ownership for the sustainable governance and maintenance of water infrastructure while at the same time ensuring dialogues on water infrastructure development and natural resource management.

The project therefore is exploring new approaches to unlock the potential of water sources and use, and to manage them in a strategic and sustainable way, while at the same time promoting regeneration of rangelands. For this reason, the Millennium Water Alliance in collaboration with CARE Kenya, Catholic Relief Services (CRS), Food for the Hungry and World Vision are implementing the ‘Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) program in the Counties of Garissa, Isiolo, Marsabit, Turkana, and Wajir’ (Figure I.1). The RAPID+ program is convened and led by the MWA with primary funding from the Swiss Agency for Development and Cooperation (SDC) alongside matching and investment funds from private sector actors, implementing partners and participating County governments.

The overall goal of the project is that improved access to safe and sustainably managed water and rangelands in RAPID+ Counties contributes to resilient livelihoods for communities in a peaceful environment. The program targets 200,000 beneficiaries with two outcomes, namely: (a) pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth; and (b) pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity.

Figure I.1: Map of Kenya showing the program sites



1.2.2 Wajir County

Wajir County is located in the North Eastern region of Kenya, lies between latitudes 3° N 60'N and 0° 20'N and Longitudes 39° E and 4° E and covers an area of 56,685.9 Km².⁹³ It borders Somalia to the East, Ethiopia to the North, Mandera County to the Northeast, Isiolo County to the South West, Marsabit County to the West and Garissa County to the South.⁹⁴ Land in Wajir County is categorized as trust type, apart from a small percentage of the total area occupied by townships. Two main land tenure systems exist in the County; private and communal land; private land is mainly found in Wajir town and used for residential, business and crop/fodder production, while the communal land is used for grazing.⁹⁵ The land is mostly used communally for nomadic pastoralism, but some small areas are under small scale agricultural production activities by individuals or groups. There is a high increase in the number of new settlements which threatens rangeland management and strains delivery of essential social services such as water, education, health, and sanitation services.⁹⁶

Wajir County has several water resources namely: underground, surface, and sub-surface sources. The County has 272 boreholes, 15 mega pans, and 260 water pans. However, only 2% of the households have access to piped water, largely in Wajir town, Griftu, Eldas, Habaswein, Tarbaj, Arbajahan and Masalale.⁹⁷ In this County, there are no permanent surface water sources as most of the water sources are subsurface, including boreholes, shallow wells, and pans. The average distance to the nearest water point is around 20 Km and the Wajir water and sewerage Company (WAJWASCO) manages 30 boreholes while the rest are managed by the Department of Water. At the community level, Water Users' Associations (WUA) manage the day-to-day operations of these boreholes.⁹⁸

1.2.3 Turkana County

Turkana County is the second largest of the 47 Counties of the Republic of Kenya. It lies between Longitudes 34° 30'E and 36° 40'E and between Latitudes 10° 30'N and 50° 30'N and covers an area of 71,597.6 km², accounting for 13.5% of the total land mass of Kenya.⁹⁹ Turkana is in the Northwest of Kenya and borders Uganda to the west, South Sudan and Ethiopia to the north and northeast, respectively. Internally, it borders West Pokot and Baringo Counties to the south, Samburu County to the southeast, and Marsabit County to the east.¹⁰⁰ The majority of households in Turkana earn their income from livestock keeping (67% of the households) with only 3% of the households practicing crop farming.¹⁰¹

Turkana County is subject to the impacts of climate change brought about by land degradation, livestock keeping, deforestation, and burning of fossil fuels, among others.¹⁰² Environmental degradation stems from a loss of soil and biodiversity, and a lack of water capture and storage, as the result of unsustainable land management practices such as: overgrazing, leaving the vegetation without enough time to regenerate; poor farming practices; infestation by invasive species; deforestation; unsustainable irrigation resulting in soil salinization; and abandonment or lack of reclamation associated with mining.¹⁰³ Land degradation in Turkana County currently affects 50.0% of the County's land area and threatens food production and grazing land, water, energy security, climate change mitigation and adaptation, and livelihood resilience.¹⁰⁴ Furthermore, land degradation has huge economic costs as soil erosion, the main form of land degradation, reduces soil fertility and productivity, livestock carrying capacity, water quality and quantity, and fuel wood availability.¹⁰⁵

⁹³ County government of Wajir. 2013. Wajir County Integrated Development Plan, 2013. < <https://www.wajir.go.ke/UserSiteFiles/publicDocs/Wajir%20CIDP%201st-1.pdf>>

⁹⁴ Infotrak. 2020. Wajir County. < <http://Countytrak.infotrakresearch.com/wajir-County/#:~:text=Wajir%20County%20is%20located%20in,Ethiopia%20to%20the%20North%20West.>>

⁹⁵ County government of Wajir. 2018. Wajir County integrated development plan 2018-2022. < <https://www.cog.go.ke/downloads/category/106-County-integrated-development-plans-2018-2022?download=351:wajir-County-integrated-development-plan-2018-2022>>

⁹⁶ Ibid

⁹⁷ Ibid

⁹⁸ Ibid

⁹⁹ UN HABITAT and the County government of Turkana. 2019. Cities and Migration Exchange, Local Initiatives and Global Agendas. < https://www.citiesalliance.org/sites/default/files/2019-12/4.%20UN-Habitat%20Presentation_Bern_2019.pdf>

¹⁰⁰ Regional pastoral livelihoods resilience project (Kenya). 2021. Turkana. < <https://resilience.go.ke/turkana/>>

¹⁰¹ Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Climate Risk Profile for Turkana County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC), Nairobi, Kenya.

¹⁰² Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Analysis of opportunities for integration of climate change issues into national, County, and local sectoral development planning processes. < <https://drslpkenya.kilimo.go.ke/wp-content/uploads/2021/11/Final-Report-Integrating-CC-26092021.pdf>>

¹⁰³ Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Climate Risk Profile for Turkana County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC), Nairobi, Kenya.

¹⁰⁴ Akali, G. 2021. Effects of development interventions on pastoral livelihoods in Turkana County, Kenya. Pastoralism 11, 23 (2021). <https://doi.org/10.1186/s13570-021-00197-2>

¹⁰⁵ County government of Turkana. 2018. County Integrated Development Plan, CIDP II 2018-2022. < https://repository.kippra.or.ke/bitstream/handle/123456789/2832/Turkana_CIDP_2018-2022.pdf?sequence=1&isAllowed=y>

In Turkana County, 39% of residents use improved sources of water, the rest (61%) relying on unimproved sources such as unprotected wells and streams.¹⁰⁶ The main water sources in the County comprise protected springs, protected wells, boreholes, piped water into dwellings, collected piped and rainwater; while unimproved sources include ponds, dams, the lake, and streams/streams, unprotected springs, unprotected wells, Jabia, water vendors among others.¹⁰⁷ The distance to and from the nearest water point ranges between five and ten kilometers.¹⁰⁸ Currently, the County has only one Water Company - Lodwar Water and Sanitation Company (LOWASCO), which only supplies water within Lodwar town and its environs, typically up to 50 km². The other urban centres in the County are managed by water companies while most rural communities obtain their water from boreholes and shallow wells which are managed by Water Users Associations.¹⁰⁹

The County government has recently drilled about 200 boreholes and either upgraded or rehabilitated existing water schemes, but the management of water resources at all levels requires improvement and use of new and appropriate technologies.¹¹⁰ Specifically, uncontrolled sand harvesting has led to severe environmental degradation, leading to changes in the regime of some of the rivers, and loss of retention capacities of some of the seasonal rivers.¹¹¹ Except for Lake Turkana, naturally occurring surface water bodies are negligible due to the high evaporation rates. Water in the lake region has high fluoride content and is thus not suitable for consumption by humans and animals due to its negative effect. However, it is used both domestically and for livestock during dry season.¹¹² The County also has several rivers with the major ones being Turkwel and Kerio, while the rest are seasonal.¹¹³ Currently, there are 1,267 boreholes, 531 shallow wells, 129 water pans, 35 unprotected springs, 10 protected springs and 6,819 roof catchments.¹¹⁴

1.2.4 Marsabit County

Marsabit County falls within Kenya's arid and semi-arid areas, and as such can be classified as a dryland County. Occupying a total area of 70,961.2 sq. km it is in the extreme end of northern Kenya and lies between latitude 02° 45' North and 04° 27' North and longitude 37° 57' East and 39° 21' East.¹¹⁵ It shares an international boundary with Ethiopia to the north, borders Lake Turkana to the west, Samburu County to the south and Wajir and Isiolo Counties to the east.¹¹⁶ Marsabit County lacks a land use policy and spatial plan, hence the proliferation of informal settlements, inadequate infrastructure services, congestion, environmental degradation, unplanned urban centres, pressure on agriculture and grazing land, and intertribal conflicts.¹¹⁷ Out of its total land mass, only 2,082 sq. km or 3% in the mountain area of Marsabit sub-County has potential for farming.¹¹⁸

The people and livestock in Marsabit County rely on surface or ground water since there are no permanent rivers.¹¹⁹ There are three water catchments in the County (the upper horizon of Mt Marsabit and Mt Kulal; springs like Badassa, Songa and Balesa Bongole; and underground water (boreholes and shallow wells).¹²⁰ Thus, water accessibility is a challenge, with 50.0% of the rural population and 60% of the urban population accessing water from boreholes, shallow wells, pans and

¹⁰⁶County government of Turkana.2018. The Turkana County Water and Sewerage Services Sector Policy, 2018. <https://repository.kippira.or.ke/bitstream/handle/123456789/2079/Turkana-County-Water-and-Sewerage-Services-Sector-Policy-2016-Final_23022018.pdf?sequence=1&isAllowed=y>

¹⁰⁷UNESCO.2018. Water Security for Turkana, Kenya (WATSECT). <<https://en.unesco.org/fieldoffice/nairobi/watsect>>

¹⁰⁸County government of Turkana.2022. Department of Water Services. <<https://www.turkana.go.ke/index.php/ministry-of-water-irrigation-agriculture/departement-water-services/>>

¹⁰⁹Ibid [41]

¹¹⁰County government of Turkana.2018. County Integrated Development Plan, CIDP II 2018-2022. <https://repository.kippira.or.ke/bitstream/handle/123456789/2832/Turkana_CIDP_2018-2022.pdf?sequence=1&isAllowed=y>

¹¹¹Republic of Kenya and the County government of Turkana.2019. Climate Change Adaptation Action Plan (CCAAP), Technical Working Paper, 2019 – 2022. <<https://www.turkana.go.ke/wp-content/uploads/2022/02/Turkana-County-CCAAP-2019-2024-1.pdf>>

¹¹²UNICEF.20212. For villages in Turkana, Kenya, a new initiative that brings clean water to the community is life changing. <<https://reliefweb.int/report/kenya/villages-turkana-kenya-new-initiative-brings-clean-water-community-life-changing>>

¹¹³Ibid

¹¹⁵County government of Marsabit.2022. About Marsabit. <<http://www.marsabit.go.ke/>>

¹¹⁶Infotrak. 2022.Marsabit County. <<http://Countytrak.infotrakresearch.com/mandera-County/>>

¹¹⁷County government of Marsabit.2018. Second County integrated development plan 2018-2022. <<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

¹¹⁸County government of Marsabit.2018. Second County integrated development plan 2018-2022.<<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

¹¹⁹County government of Marsabit.2018. Climate Change Mainstreaming Guidelines, Water, and Sanitation Sector. <http://www.greenafricafoundation.org/publications/Marsabit%20Water%20_%20Sanitation%20CC%20Mainstreaming%20Guide%20_1_.pdf>

¹²⁰Marsabit County government. 2016.Environmental impact assessment for Bakuli 4 dam project and introduction of sewerage system in Marsabit town. <https://www.nema.go.ke/images/Docs/EIA_1340-1349/EIA%201328_%20Bakuli%204%20Dam%20Project%20Report-mini.pdf>

the lake.¹²¹ The daily demand for water in this County, is estimated at 6,750,000 liters, against a daily production of 4,050,000 liters.¹²²

Many of the water supply facilities and schemes in Marsabit County are not financially self-sustaining and from time to time depend on financial and technical support from the government, humanitarian organizations and other external partners.¹²³ As a result, they operate at less than 50.0% capacity. Their lack of sustainability is attributed to, among other factors, expensive and inefficient technologies, lack of technical skills and inadequate operational efficiencies, poor governance and management practices and lack of accountability.¹²⁴ In Marsabit County, most transmission and distribution lines are not fully functional while water schemes have outlived their design period and cannot meet the current population demands.¹²⁵ Similarly, most water points have fallen into disuse or neglect and require rehabilitation, reconstruction and catchment protection to serve the growing population; there are high levels of water contamination; and many of the water facilities, especially in rural areas are managed by user committees that lack adequate management capacities and therefore are ineffective and unable to run the water supplies efficiently.¹²⁶

1.2.5 Isiolo County

Isiolo County borders Marsabit County to the north, Samburu and Laikipia Counties to the west, Garissa County to the South East, Wajir County to the North East, Tana River and Kitui Counties to the south, and Meru and Tharaka Nithi Counties to the south west.¹²⁷ It covers an area of approximately 25,700 km² and is located between Longitudes 36° 50" and 39° 50" east and latitude 0° 05" south and 20 north. Isiolo town lies 285 kilometres north of Nairobi, the capital city of Kenya.¹²⁸ More than 80% of the land in Isiolo County is communally owned and is under the trusteeship of the County government.¹²⁹ Public land constitutes 10 percent of the total land and includes land for schools, administration, army barracks, health facilities and game reserves.¹³⁰ Less than 10% of the remaining land is under private ownership and has been alienated for private investment in housing, industrial and commercial purposes.¹³¹ Over 80 percent of the land cannot support crop farming and is used as grazing land by pastoralists. In some areas such as Kinna and along Ewaso Ngiro River, agro-pastoralism is practiced on a small scale.¹³²

Isiolo County lies in two ecological zones namely semi-arid and arid and receives rainfall ranging between 400-650 mm annually; the semi-arid zone has medium potential.¹³³ It has become an area of sedentary agro-pastoral activities that cover parts of Wabera Ward, Bulla Pesa Ward and some parts of Burat Ward in Isiolo North Constituency. It also covers some southern parts of Kinna Ward in Isiolo South Constituency.¹³⁴ The Arid zone covers Oldonyiro, Ngare Mara, some parts of Burat, Chari and Cherab Wards in Isiolo North Constituency, and Garbatulla, Sericho Wards and the northern part of Kinna Ward in Isiolo South Constituency.¹³⁵

¹²¹Ibid

¹²²Ibid

¹²³Ministry of Agriculture, Livestock and Fisheries (MoALF). 2017. Climate Risk Profile for Marsabit County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

¹²⁴County government of Marsabit.2018. Second County integrated development plan 2018-2022. <<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

¹²⁵County government of Isiolo.2018. Isiolo County integrated development plan, CIDP 2018-2022. <<https://repository.kippra.or.ke/bitstream/handle/123456789/1409/2018-2022%20Isiolo%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

¹²⁶County government of Marsabit.2018. Second County integrated development plan 2018-2022.<<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

¹²⁷Devolution knowledge hub.2022. Isiolo County. <<https://knowledgehub.devolution.go.ke/kh/Category/Countries/isiolo-County/>>

¹²⁸County government of Isiolo.2019. County Annual Development Plan (CADP), 2019/20. <<https://www.youthagenda.org/wp-content/uploads/2019/12/Isiolo-County-Annual-Development-Plan-2019.pdf>>

¹²⁹Devolution knowledge hub.2022. Isiolo County. <<https://knowledgehub.devolution.go.ke/kh/Category/Countries/isiolo-County/>>

¹³⁰Food Agricultural Organization (FAO). 2021. Effects of land Fragmentation on Land Use and Food Security; Case Study of Nyamira, Laikipia, Nandi, Trans Nzoia, Taita Taveta, Kiambu, Kajado, Nakuru, Tana River, Makeni, Isiolo, Kisumu and Vihiga. <https://www.landcommission.go.ke/media/erp/upload/land_fragmentation_report_6.3.22_final.pdf>

¹³¹Kenya Electricity Transmission Company. 2017.Environmental and social impact assessment study report for the proposed Isiolo-Garbatulla-Garissa high voltage transmission line project. <https://www.nema.go.ke/images/Docs/EIA_1400-1409/ESIA_1409%20Isiolo_Garbatulla_Garissa%20report%20.pdf>

¹³²MoALF. 2017. Climate Risk Profile for Isiolo County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

¹³³Sang, R., Arum, S., Chepkorir, E., Mosomtai, G., Tigoi, C., Sigei, F., Lwande, O. W., Landmann, T., Affognon, H., Ahlm, C., & Evander, M. (2017). Distribution and abundance of key vectors of Rift Valley fever and other arboviruses in two ecologically distinct Counties in Kenya. PLoS neglected tropical diseases, 11(2), e0005341. <https://doi.org/10.1371/journal.pntd.0005341>

¹³⁴USAID.2021. Communication pathways for building resilience in ASAL communities; Report on Knowledge and Communication Needs and Gaps in Isiolo County. <<https://resiliencelearninghub.com/wp-content/uploads/2021/11/USAID-Communication-Pathways-for-Building-Resilience-in-ASAL-Communities-Isiolo-Page-View-2-compressed.pdf>>

¹³⁵Ibid

1.2.6 Garissa County

Garissa County is one of the three Counties in the North Eastern region of Kenya and covers an area of 44,174.1 Km², lying between latitude 10 58'N and 20 1' S and longitude 380 34'E and 410 32'E.¹³⁶ The County borders the Republic of Somalia to the East, Lamu County to the South, Tana River County to the West, Isiolo County to the North West and Wajir County to the North.¹³⁷ In Garissa County, land is community owned and belongs to the people, which is recognized not just as a commodity for trade, but also as a principal source of livelihood.¹³⁸ In urban centres, people have acquired individual plots and majority of them have been given allotment letters to own the plots while in rural areas subdivision of land has not been done, hence land is used communally by the people in their unique ways.¹³⁹ Only one per cent of the populations holds title deeds, as majority of the population lives on communal land. This has seen increased cases of land related inter-clan clashes/conflicts in the recent past, leading to loss of human lives.¹⁴⁰

It is estimated that Garissa has 44,100 acres of land along the Tana River Basin which can be used for irrigation but, only, 5,121 acres of the land (12.0%), is under irrigation, mainly of horticultural crops.¹⁴¹ The major degraded areas are around the refugee bases of Dadaab and Fafi Sub Counties as a result of much overharvesting of firewood and construction materials.¹⁴² Activities that have contributed greatly to environmental degradation in the County include illegal encroachments of and unplanned human settlements, logging and over-grazing, mushrooming settlements on grazing land, increase in population, climate change, influx of refugees and charcoal burning.¹⁴³

Garissa County has one permanent river (River Tana), 25 shallow wells, 109 boreholes, 195 water pans and one dam; water from other sources is generally unsafe and requires treatment at the household level before consumption.¹⁴⁴ There are two schemes namely Garissa Water and Sewerage Company (GAWASCO) and the Garissa Rural Water and Sewerage Company, the latter not operational due to pending court cases.^{145 & 146} Garissa County is water scarce with only 23.8% of the population having access to safe water.¹⁴⁷ Access to piped water is limited to the sub Counties headquarters where approximately 27,725 households have connection.¹⁴⁸ In addition, there are 72 river-based water supply schemes that provide water to communities living along River Tana and hinterland which are managed by the Water Users Association.¹⁴⁹

1.3 Evaluation Background, Purpose, and Objectives

1.3.1 Background and Purpose

MWA required this baseline survey before kick-off of programmatic activities and interventions, to establish benchmarks on the relevant indicators, confirm the assumptions made in the theory of change, and to inform further programming approaches.¹⁵⁰

1.3.2 Objectives of the Baseline Evaluation

The objectives of this baseline evaluation were to:

1. Serve as a foundation for setting annual and five-year program targets.
2. Serve as a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations.

¹³⁶National Taxpayers Association. 2022.Garissa County. < <https://www.nta.or.ke/garissa-County/>>

¹³⁷County government of Garissa.2021. Flood Early Warning Communication Strategy, Garissa County, 2021. < <https://reliefweb.int/sites/reliefweb.int/files/resources/GARISSA%20COUNTY%20COMMUNICATION%20STRATEGY.pdf>>

¹³⁸County government of Garissa.2018. Second Garissa County integrated development plan (2018-2022). <<https://repository.kippira.or.ke/bitstream/handle/123456789/467/2018-2022%20Garissa%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

¹³⁹Republic of Kenya.2018. Kenya Development Response to Displacement Impacts Project (KDRDIP) Additional Financing (P166266). <<https://documents1.worldbank.org/curated/en/534001531467006900/pdf/KDRDIP-Social-Assessment-Report.pdf>>

¹⁴⁰County government of Garissa.2021. Flood Early Warning Communication Strategy, Garissa County, 2021. < <https://reliefweb.int/sites/reliefweb.int/files/resources/GARISSA%20COUNTY%20COMMUNICATION%20STRATEGY.pdf>>

¹⁴¹County government of Garissa.2020. Ninth Garissa County Annual Development Plan, Financial Year, 2021/2022. < <https://garissaassembly.go.ke/wp-content/uploads/ADP-2021-2022-August-2020.pdf> >

¹⁴²FAO.2020. Guidance to put forward sustainable forestry interventions in displacement settings in Kenya. < <https://data2.unhcr.org/en/documents/download/82666> >

¹⁴³County government of Garissa.2018. Second Garissa County integrated development plan (2018-2022). <<https://repository.kippira.or.ke/bitstream/handle/123456789/467/2018-2022%20Garissa%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

¹⁴⁴County government of Garissa.2022. Water and irrigation services. <<https://garissa.go.ke/water/>>

¹⁴⁵Garissa Water and Sewerage Company (GAWASCO). 2022.Home. <<https://gawasco.co.ke/gawasco/>>

¹⁴⁶Garissa Rural Water and Sewerage Company Limited.2022. Home. <<https://wasreb.go.ke/garissa/> >

¹⁴⁷County government of Garissa.2018. Climate change mainstreaming guidelines, water, and sanitation sector. < http://www.greenafricafoundation.org/publications/Garissa%20Water%20sector%20CC%20Mainstreaming%20Guidelines%20_2_.pdf >

¹⁴⁸UNICEF. 2018.Garissa social sector budget brief, (2013-14 to 2015-16). < <https://www.unicef.org/esa/media/841/file/UNICEF-Kenya-2017-Garissa-Budget-Brief.pdf> >

¹⁴⁹Ibid

¹⁵⁰Terms of Reference.

3. Serve as a tool for measuring and understanding changes in these five Counties' broader water and rangelands systems and actors.
4. Validate assumptions made in the program proposal and design; and
5. Generate recommendations for improvement of the program design and the planned interventions.

I.3.3 Baseline Evaluation Questions

The baseline evaluation was aimed at answering the following broad research questions:

- 1) What is the percentage of households with access to safe and sufficient water for multiple uses in rural and urban areas in the five target Counties?
- 2) What is the percentage of households with access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity?
- 3) What public and community institutional capacities exist in the target Counties to deliver water services?
- 4) What are the knowledge and practice levels of communities in water resource conservation and rangeland resource management among women, youth, and mixed groups?
- 5) How are communities utilizing MUS technologies to increase their livelihood diversification?
- 6) How do the public and private institutions in the five Counties sustainably manage range-land resources and improve biodiversity using appropriate technologies? and.
- 7) What are the livestock management practices by communities and institutions involved in fodder and seed productions?

Solar panels for sale at one of the private water sector players offices in Wajir County



SECTION TWO: BASELINE EVALUATION METHODOLOGY

2.1 Design and Approach

A mixed methods approach was proposed and employed for this baseline evaluation entailing both quantitative and qualitative data sources for triangulation purposes.¹⁵¹ This baseline evaluation used a non-experimental, cross sectional survey design to collect data on water and rangeland management practices from the targeted populations at one specific point in time.¹⁵²

2.2 Sample Size and Sampling Methodology

2.2.1 Data Sources

The data collection methods used were: a quantitative survey targeting heads of households (both male and female) and senior most females in the households; Key informant interviews (KIIs) with County government staff (Rangelands Resources Management, Lands, Environment, Water, Livestock, Natural Resources and Gender Departments); KIIs with the private stakeholders in water, livestock and rangelands sectors; FGDs with community members (adults males, adult females and youths of both genders separately); FGDs with Water User Committees' (WUCs) representatives; FGDs with Water Resource User Associations' (WRUAs)' representatives; and FGDs with Rangelands Management Committees.

2.2.2 Sample Size and Sampling

2.2.2.1 Quantitative Household Interviews

The project is targeting 200,000 beneficiaries, of whom 150,000 are rural, peri-urban, and urban dwellers (135,000 or 90% rural dwellers and 15,000 or 10% urban and peri-urban dwellers) with access to water for multiple uses, and 50,000 are pastoralists from rural communities. The distribution of beneficiaries by County is illustrated in Table 2.1 below. Based on the Cochran sample size formula below,¹⁵³ the proportion of households with access to safe water in each of the Counties (Table 2.1 below), 95% confidence, and at least 5 percent—plus or minus precision, a total of 1,807 household survey respondents were required (384 in Turkana County, 334 in Isiolo County, 377 in Garissa County, 334 in Marsabit County and 378 in Wajir County). However, 1,970 respondents participated in the baseline evaluation, translating into a 109.0% response rate (see Table 2.1).

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where:

- Z_2 is the abscissa of the normal curve that cuts off an area α at the tails ($1 - \alpha$ equals the desired confidence level, in this case = 1.96 corresponding to 95.0%).
- n is the sample size in each County.
- e is the desired level of precision (i.e., the margin of error=0.05).
- p is the (estimated) proportion of the population which has the attribute in question; and
- q is $1 - p$.

Table 2.1: Distribution of beneficiaries by County

County	Population based on the 2019 Kenya population and housing census reports ¹⁵⁴			Targeted beneficiaries	HHs with improved water sources ¹⁵⁵	Required sample size	Attained sample size	Response rate
	Male (54%)	Female (46%)	Total					
Turkana	348,676	322,996	671,672	63,168	51.1%	384	410	106.7%
Isiolo	64,926	54,641	119,567	11,245	68.1%	334	439	131.4%
Garissa	305,068	240,310	545,378	51,291	56.8%	377	386	102.4%
Marsabit	153,767	134,995	288,762	27,157	64.1%	334	334	100.0%
Wajir	268,735	232,499	501,234	47,139	56.4%	378	401	106.1%
Total	1,141,172	985,441	2,126,613	200,000	73.3% ¹⁵⁶	1,807	1,970	109.0%

¹⁵¹Regnault, A., Willgoss, T., Barbic, S. et al.2018.Towards the use of mixed methods inquiry as best practice in health outcomes research. J Patient Rep Outcomes 2, 19, 2018.

¹⁵²Setia M. S. 2016. Methodology Series Module 3: Cross-sectional Studies. Indian journal of dermatology, 61(3), 261–264. <https://doi.org/10.4103/0019-5154.182410>

¹⁵³Cochran, W. G. 1963. Sampling Techniques, 2nd Ed., New York: John Wiley and Sons, Inc.

¹⁵⁴Kenya National Bureau of Statistics.2020. 2019 Kenya Population and Housing Census Reports. <<https://housingfinanceafrica.org/documents/2019-kenya-population-and-housing-census-reports/#:~:text=The%20first%20volume%20of%20the,average%20household%20size%20is%203.9.>>

¹⁵⁵Kenya National Bureau of Statistics.2020.2019 Kenya population and housing census, volume IV, distribution of population by socio-economic characteristics.<<https://housingfinanceafrica.org/app/uploads/VOLUME-IV-KPHC-2019.pdf#>>

¹⁵⁶National figure based on the 2019 population and housing census report.

The program sites were purposively selected by the project implementing partners in each County, in consultation with MWA Kenya. In the absence of population distribution figures in the specific sites within each County, the number of quantitative interview respondents was equitably allocated to the sites (Annex 1). Respondents were selected through systemic random sampling (every 5th household) in each site. The distribution of quantitative interview respondents across the Counties is presented in Annex 1. The inclusion criteria entailed: being an adult (aged over 18 years of age); being either heads of household or senior most female member in the household; and consenting to participate in the interviews. The opposite applied to the exclusion criteria: minors (below 18 years of age); persons who were not household heads or senior most females in the household; and persons who decline to participate in the interviews.

2.2.2.2 KIs and FGDs

A total of 39 KIs were conducted (7 in Isiolo County, 8 in Marsabit County, 7 in Wajir County, 10 in Turkana County and 8 in Garissa County) as illustrated in Table 2.2 below with further details provided in Annex 2. Key informants were sampled through purposive sampling method.

Table 2.2: List of KIs conducted

County	County Govt. water services	County Agriculture livestock and range services	Govt. Gender and youth	County Govt. Private water service providers	Others (e.g., Agrovets, conservancy, etc.)	Total
Isiolo	2	1	0	3	1	7
Marsabit	2	2	1	2	0	8
Wajir	1	2	1	3	0	7
Turkana	2	3	1	4	0	10
Garissa	2	2	1	2	1	8
Total	9	10	4	14	2	40

A total of 40 FGDs were conducted (9 in Isiolo County, 8 in Marsabit County, 7 in Wajir County, and 8 in Turkana County and 8 in Garissa County) as illustrated in Table 2.3 with further details provided in Annex 2.

Table 2.3: FGDs conducted

County	WRUAs	WUA Committees	Community Members	RMCs	Total	Females	Males
Isiolo	2	2	3	2	9	34	46
Marsabit	1	2	3	2	8	28	37
Wajir	0	2	3	2	7	12	28
Turkana	1	2	3	2	8	27	59
Garissa	1	2	3	2	8	10	57
Total	5	10	15	10	40	111	227

2.3 Data Collection Process and Quality Control

- Quantitative data was collected using tablets and mobile phones, and the questionnaire was coded on the Kobo Toolbox.¹⁵⁷
- Each FGD were conducted by a team of two (a moderator and a note taker).
- KIs were conducted by the consultants.

2.4 Recruitment of Enumerators and Supervisors

A total of 50 enumerators (10 in each County) and 5 field supervisors (1 for each County) were engaged for the evaluation exercise. The HSED Group Africa provided CVs of enumerators and supervisors to MWA and the partner organizations for vetting and approval.

The requirements for appointment as enumerators were:

- Hold at least a Diploma in water, agriculture, or social sciences.
- Be conversant with the local language.
- Previous experience in data collection.
- Conversant with the Kobo Toolbox for data collection.
- Be willing to work in the sites where the survey is being conducted in every County.
- Field supervisors on the other hand were selected based on:

¹⁵⁷Kobo Inc.2022.KoboToolbox. <<https://www.kobotoolbox.org/>>

- University degree level of education.
- Extensive experience in data collection.
- Previous experience as field supervisors/leadership skills.
- Be conversant with the local language.
- Conversant with the Kobo Toolbox for data collection.
- Be willing to work in the sites where the survey is being conducted in every County.

2.5 Training of the Enumerators and Field Supervisors

Training of research assistants and supervisors took place in the respective Counties for two days covering the following topics:

- 1) COVID-19 safety protocols
- 2) Objectives of the study
- 3) Roles and responsibilities of the enumerators and how to collect high quality data
- 4) Potential problems in the field
- 5) Interviewing techniques and methodology (how to ask questions and record responses)
- 6) How to use the Kobo Toolbox on Android applications for data collection
- 7) Orientation with the evaluation tools including skip patterns
- 8) Pre-testing of the questionnaires
- 9) Pilot testing of the field procedures
- 10) Content and use of the questionnaires, survey forms and materials
- 11) Work plan and targeted respondents per enumerators
- 12) Ethical issues in research

2.6 Quantitative Data Quality Control Measures

2.6.1 Quantitative Data Quality Control Measures

Before Data Collection

- Coding of the quantitative data collection tool on Kobo Collect to ensure mandatory filling of all questions before proceeding to subsequent questions.
- Training of enumerators.
- Pretesting of data collection tools.
- Pilot testing of data collection procedures.
- Provision of common instructions on common errors.
- Defining the minimum duration for completing a quantitative interview.

During the Data Collection Exercise

- Over the shoulder supportive supervision of enumerators.
- Pre-filled, pre-loaded or auto-completed list e.g., for the clusters, gender etc.
- Skip/piping logic- questions that are not applicable (not displaying)
- Mandatory questions- not to be left blank or skipped
- Sequential, single question display so that an enumerator focuses on 1 question at a time
- Input masks- control of the number and types of characters that can be entered
- Validation rules ensuring keying in of 'valid' responses, e.g., age limits, pregnant males
- Regularly tracking the errors that field staff make in their SMS formats or answer values
- Answer confirmation: prompting to confirm the answer that has been answered
- Error feedback- if answers are incorrect, providing details of the error type
- Post-completion review, after completion before sending data to server
- Collection of GPS coordinates of the location of interviewees
- Collection of start and completion time to analyse time taken in each interview

After Field Work

- Post completion review of the data sets
- Analysis of survey completeness/errors
- Deletion of incomplete errors and questionnaires for respondents who declined interviews
- Analysis of time taken per questionnaire- questionnaires completed short time below the standard set time for each questionnaire is encountered, that questionnaire was is discarded
- Recording syntax steps for data manipulation, labelling and analysis

- Triangulation of findings-using findings from various data collection methods and from the various interviewers

2.6.2 Qualitative Data Quality Control Measures

- Conceptualization of research questions guided by the TOR.
- Inclusion and exclusion criteria-Only scientifically published documents and official partner organizations related literature and program data are included in the evaluation report.
- Data acquisition- multiple methods including a desk review and KIIs as strategies for increasing the validity of results.
- Selection of respondents- only persons knowledgeable in water and rangelands subjects were interviewed.
- FGDs participants were persons knowledgeable in community water and rangelands resources management practices.
- FGDs were conducted by a team of two persons (a note taker and a moderator)
- Transcription of every KII and FGD script was done by two persons.
- Upon transcription of FGDs and KIIs field notes, 20% of them were randomly sampled and reviewed by the consultants who recorded them in the field as a quality control measure.
- To avoid subjective elements, triangulation of findings from different sources was done during data analysis for every study theme. Validity and sorting-categorization, classification, sorting, and labelling were used to build themes around each research question.

2.7 Ethical Considerations and Beneficiaries Safeguarding Measures

The research team adhered to the MWA, CARE Kenya, Catholic Relief Services (CRS), Food for the Hungry and World Vision beneficiaries' safeguarding protocols, – Monitoring, Evaluation, Accountability and Learning (MEAL) policies and procedures and other universally accepted ethical research measures, including independence and impartiality; culturally meaningful approaches; informed consent; voluntary participation; and confidentiality. The cultural, religious and traditions of study populations and communities were respected. All participants were informed about the interview procedures and the voluntary nature of their participation; assured of the confidentiality of their responses; and informed that no adverse consequences would arise if they declined to participate. No identifiers were listed on any of the data collection tools used but the names of KIIs and FGDs participants were recorded. Written consent was obtained for respondents and other individuals in the study sites whose photographs were taken.

2.8 Data Management and Analysis

2.8.1 Qualitative Data Management and Analysis

Qualitative data was transcribed and analysed using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used where a predetermined structure based on evaluation themes (water sources, challenges in water access, participation in rangelands resources management etc.) guided the analysis process. The following steps were followed: transcription; deconstruction; interpretation; reconstruction; and establishing emerging patterns and themes.

2.8.2 Quantitative Data Management and Analysis

The quantitative survey data set was downloaded from the server in MS Excel format and then exported into the Statistical Package for the Social Sciences (SPSS) version 24.0. Labelling of various variables was done; data cleaning was conducted, including checking of outliers, missing data imputation and variable transformation. This was an iterative procedure that took place throughout the entire analysis phase. All data cleaning steps were documented on the syntax file. Descriptive analyses were conducted to undertake descriptive statistics, with frequencies, percentages, means, medians, and standard deviations computed in the analysis. Exploratory analyses entailing computations of indicators, cross tabulations by County and gender, and correlations to facilitate deeper insights on the program indicators. Quantitative scores on policy availability and gender mainstreaming in water and rangeland activities were keyed into Ms. Excel sheets and an average score computed per sector and per County.

2.9 Evaluation Limitations and Mitigation Measures

2.5.1 Challenges

- Two enumerators (1 in Wajir County and 1 in Garissa County) pulled out of the survey after a day of training. Their positions were taken up by the supervisor in the respective Counties and then fresh supervisors to manage the team were recruited and trained for a single day.
- In Turkana County, four of the ten enumerators used the wrong version of the quantitative questionnaire on day one of field data collection. This was identified during data quality checks, the responses from 40 respondents were discarded, the correct questionnaire was updated on their tablets and a plan agreed and implemented to make up for the discarded interview responses.
- Due to conflict in some parts of Isiolo County, some FGDs were conducted by the field supervisor (as opposed to the consultant) with one of the enumerator's being the note taker.
- In Marsabit County, there were inter communal conflicts during and after the training, which resulted in riots that led to police intervention. As such the consultant left the County and conducted KIIs virtually, while the local supervisor and enumerators, conversant with local conditions, continued with the FGDs in the County.
- The timing of the survey coinciding with the religious seasons of Ramadhan and Easter, posed some challenge with respect to accessing respondents for the qualitative interviews (KII and FGDs).
- One of the tablets used in Wajir County did not pick the GPS codes for the field but rather Nairobi GPS codes.

2.5.2 Limitations

- Some KII respondents were unavailable physically due other engagements outside the County and in some cases due to the upcoming Easter weekend, as such, interviews were done virtually.
- Some KII respondents (Isiolo and Wajir Counties) were totally unavailable for the interviews, but qualitative data largely indicated saturation of findings.
- A small number of WRUAs and WUCs were purposively sampled and as such, gender mainstreaming in the groups may not have been as representative of all the other groups as would have been desired.
- Some questions required recall of volume of water, distance, and time as well as quantification of income which may have been associated with recall bias in view of the high illiteracy levels among the respondents.
- Some questions requiring recall of volume of water, distance, and time as well as quantification of income may have suffered recall bias, in view of the high illiteracy levels among the respondents.
- Overall, some of the indicators were not defined while others were found not feasible in the context of the five Counties. As such, a recommendation has been made for review of the program indicators.
- Some output indicators related to staff knowledge (water and rangelands subjects) were not computed due to low sample sizes, as such, from the recommendations, this should be done by the program teams once they have come up with lists of specific persons in each department, targeted with program interventions in every County.
- Some private water sector players do not produce/treat water but install desalination units. As such computing of the created water volume was not done.

A pastoralist in Oropoi village, Turkana west sub-County leading a herd of goats and sheep to a nearby seasonal river in search of water



SECTION THREE: SOCIAL DEMOGRAPHIC BACKGROUND OF THE BASELINE EVALUATION RESPONDENTS

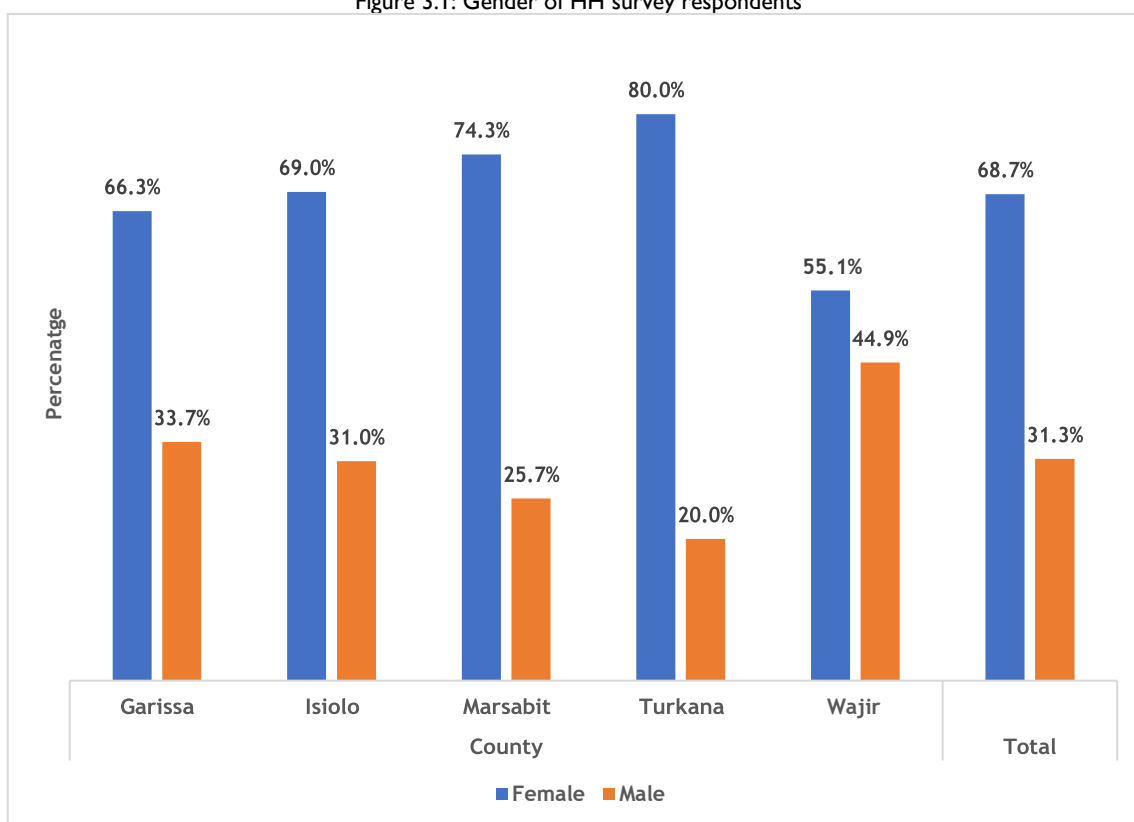
3.1 Introduction

The findings presented in the ensuing sections (3, 4 and 5) are based on quantitative interviews with 1,970 respondents (386 in Garissa County, 439 in Isiolo County, 334 in Marsabit County, 401 in Turkana County and 410 in Wajir County) and qualitative data from 39 KIIs (Table 2.2 and Annex 2), 10 FGDs with water user committees (Table 2.3 and Annex 2), 15 FGDs with community members (Table 2.3 and Annex 2), 10 FGDs with RMCs (Table 2.3 and Annex 2), 5 FGDs with WRUAs (Table 2.3 and Annex 2), and triangulations from secondary literature sources which are appropriately referenced in the report.

3.2 Household Size

With respect to gender representation, 31.3% of the respondents were male while 68.7% were female, with Turkana County and Wajir Counties recording the highest proportions of female and male respondents respectively (80.0% and 44.9%). The high number of female respondents in this evaluation was due to men being mostly away herding livestock during the day.

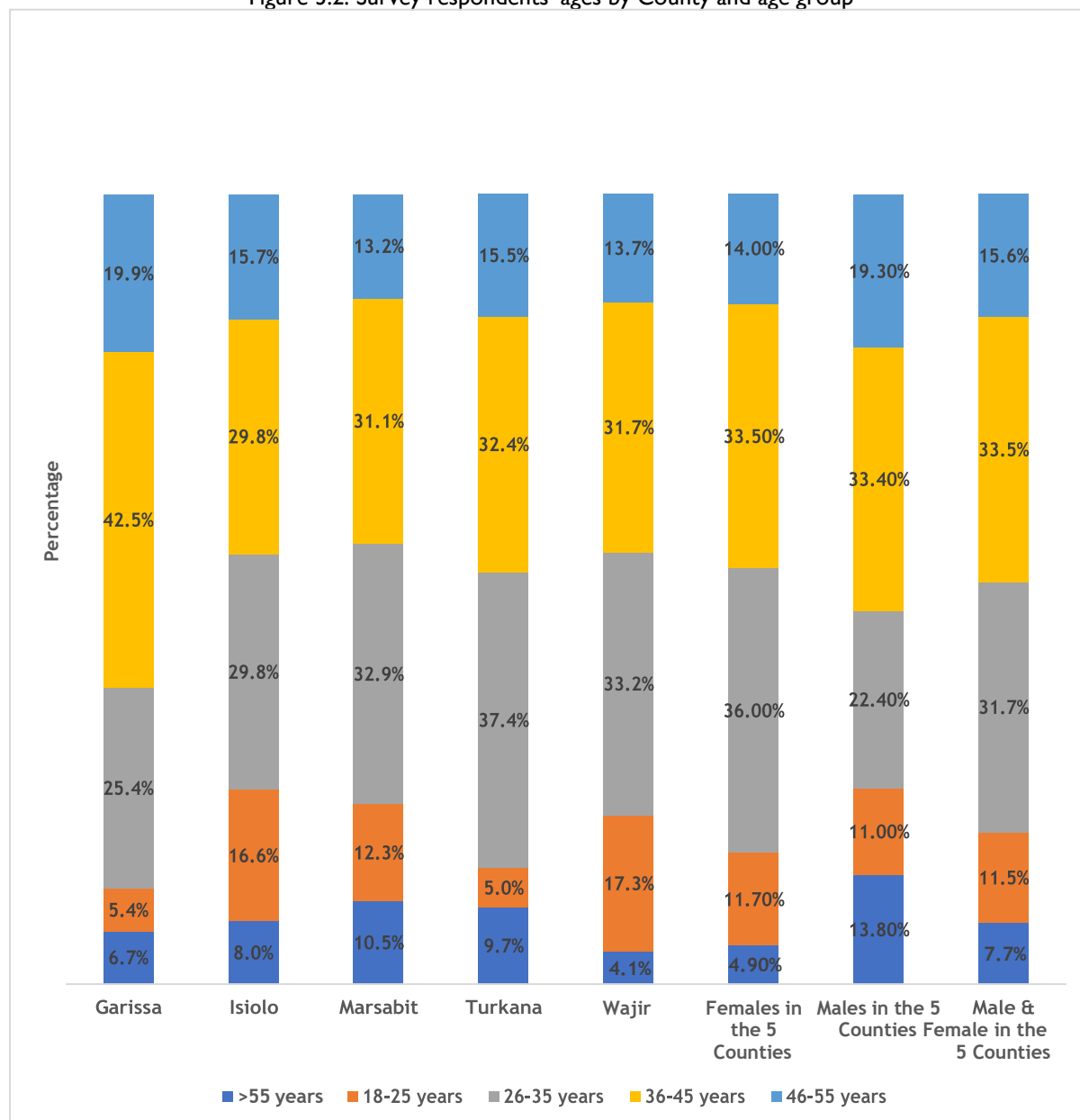
Figure 3.1: Gender of HH survey respondents



3.3 Age Groups for the Quantitative Household Survey Respondents

On age categories, 7.7% of the respondents were aged above 55 years, 11.5% between 18 and 25 years, 31.7% between 26 and 35 years, 33.5% between 36 and 45 years and 15.6% between 46 and 55 years. Marsabit County had the highest proportion of respondents aged above 55 years (20.9%), Wajir County the highest proportion of respondents aged 18 to 25 years (17.3%), Turkana County the highest proportion of respondents in the age category 26-35 years (37.4%), Garissa County the highest proportion of respondents aged 36 to 45 years (42.5%) and between 46 and 55 years (19.9%). Therefore, the low number of respondents aged above 55 years is consistent with the national age dynamics.

Figure 3.2: Survey respondents' ages by County and age group



3.4 Education Levels among Household Survey Respondents

From the household surveys, 66.0% of the respondents had never been to school (71.4% females and 54.1% males) with the highest proportion being in Marsabit County (78.1%) and the lowest in Wajir County (49.5%). Education achievement of respondents was as follows: attended informal education at 3.4%; attended religious education at 7.5%; not completed primary school education at 8.0%; completed primary school education at 6.5%; not completed secondary school at 3.0%; completed secondary school at 2.8%; completed a technical and vocational training (TVET) at 0.9% and attended university or college level education at 0.8% and 1.2% respectively (Figure 3.3 and Table 3.1). The proportion of Kenyans who have never been to school is 9.3%¹⁵⁸ and therefore, the high proportion of respondents without any education confirm the low literacy levels in the ASAL Counties of Kenya¹⁵⁹ and manifest in the generally low capacities of community leadership structures (water users committees, WRUAs, and RMCs) observed across all survey sites.

¹⁵⁸Kenya National Bureau of Statistics. 200. 2019 population and housing census, volume II, distribution of population by administrative units. <<http://housingfinanceafrica.org/app/uploads/VOLUME-II-KPHC-2019.pdf>>

¹⁵⁹Republic of Kenya. 2020. Challenges in the ASALs. <<http://www.asals.go.ke/asal-info/>>

Figure 3.3: Education levels

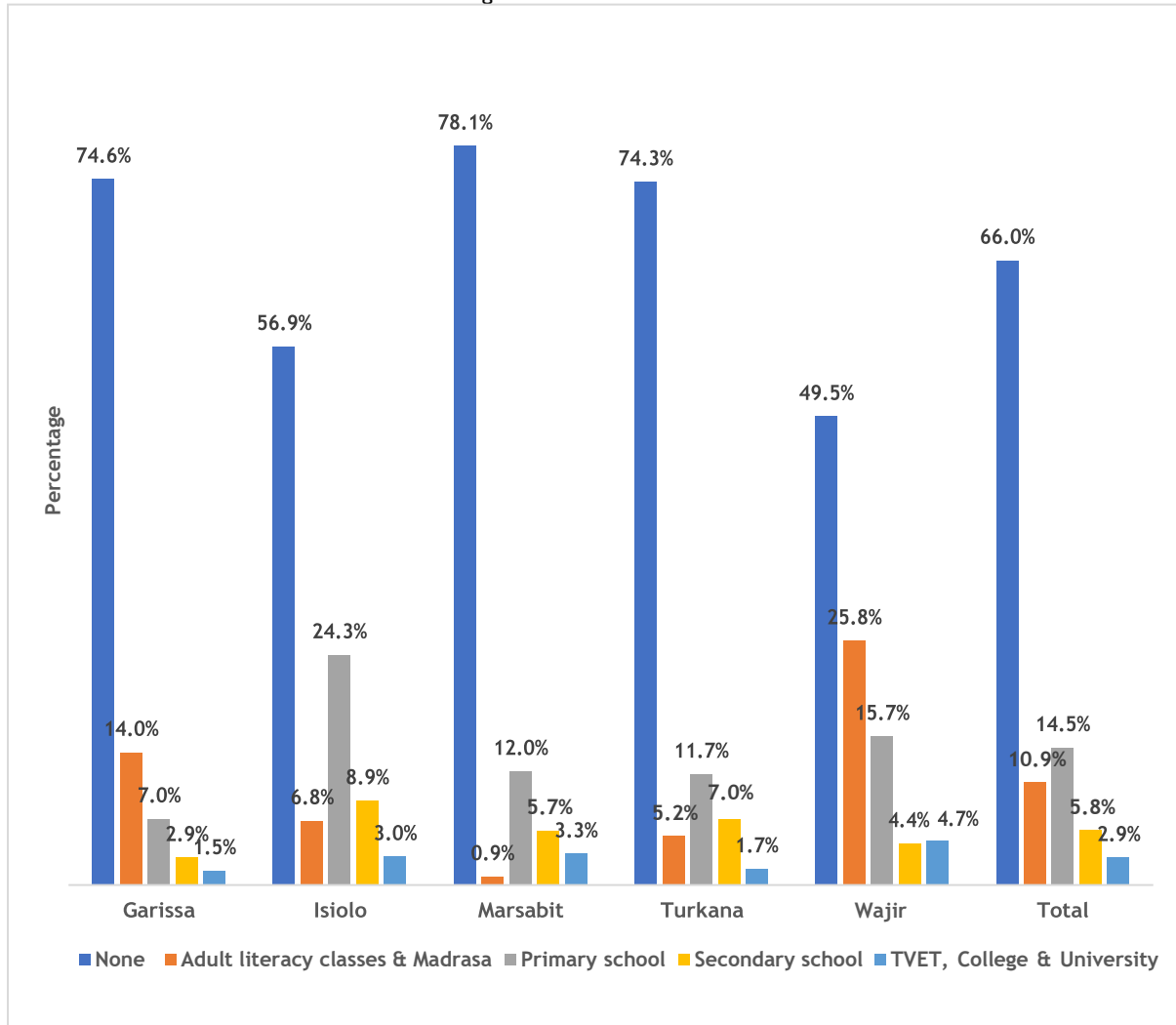


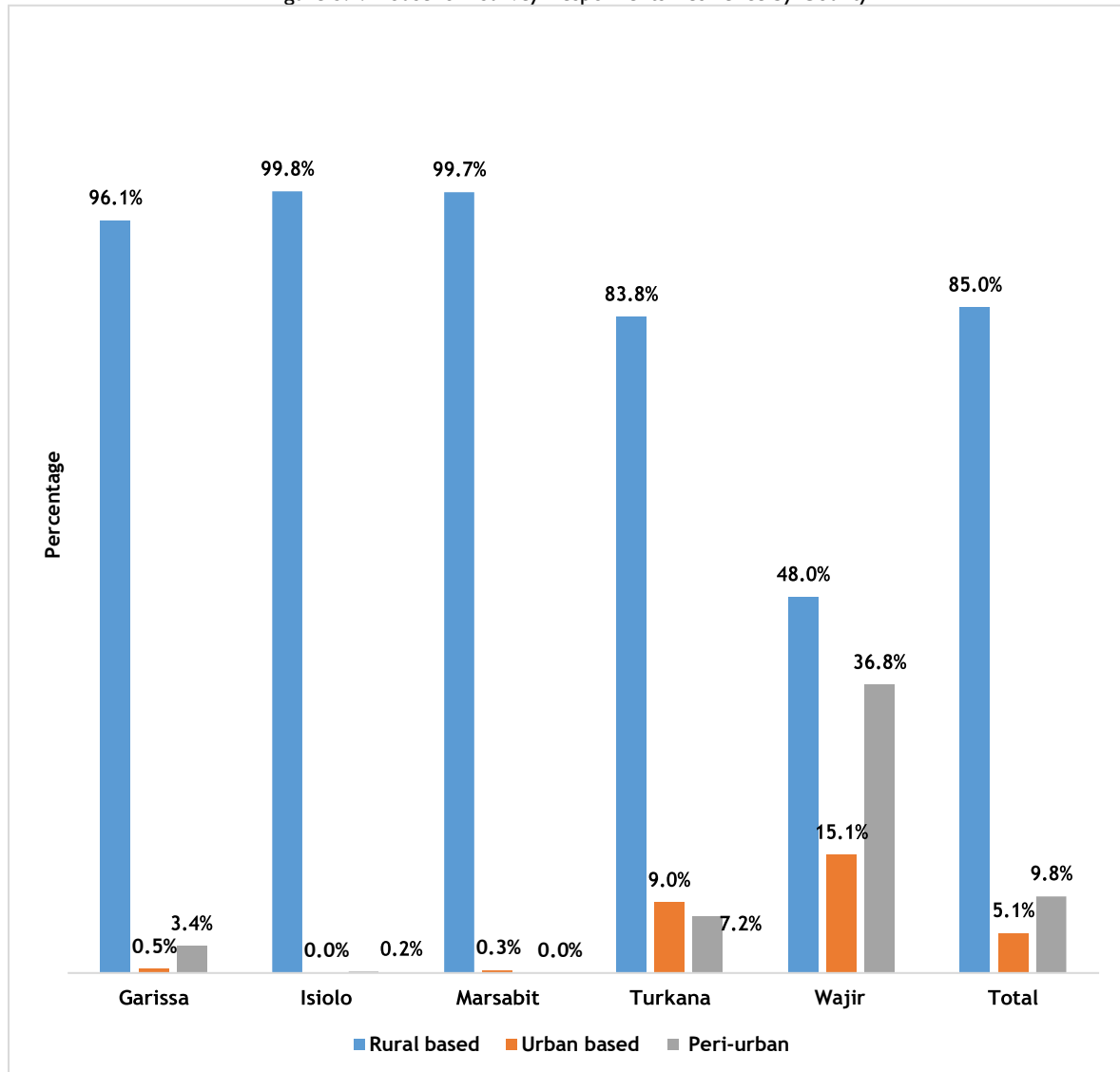
Table 3.1: Highest Level of education attainment by household survey respondents

	County					All the 5 Counties		
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
None (never been to school)	74.6% (28)	56.9% (250)	78.1% (261)	74.3% (298)	49.5% (203)	71.4% (967)	54.1% (333)	66.0% (1300)
University level (degree, masters, doctorate)	0.5% (2)	0.7% (3)	0.6% (2)	0.2% (1)	1.7% (7)	0.3% (4)	1.8% (11)	0.8% (15)
Informal education (adult literacy classes)	1.0% (4)	5.9% (26)	0.6% (2)	5.0% (20)	3.4% (14)	3.7% (50)	2.6% (16)	3.4% (66)
Religious education (Madrasa.)	13.0% (50)	0.9% (4)	0.3% (1)	0.2% (1)	22.4% (92)	4.6% (62)	14.0% (86)	7.5% (148)
Primary school incomplete	3.4% (13)	10.9% (48)	4.8% (16)	10.0% (40)	9.8% (40)	7.9% (107)	8.1% (50)	8.0% (157)
Primary school complete	3.6% (14)	13.4% (59)	7.2% (24)	1.7% (7)	5.9% (24)	5.7% (77)	8.3% (51)	6.5% (128)
Secondary school incomplete	0.8% (3)	4.8% (21)	3.0% (10)	4.0% (16)	2.4% (10)	2.4% (32)	4.5% (28)	3.0% (60)
Secondary school complete	2.1% (8)	4.1% (18)	2.7% (9)	3.0% (12)	2.0% (8)	2.6% (35)	3.2% (20)	2.8% (55)
TVET (Technical and Vocational Education and Training)	0.5% (2)	1.6% (7)	0.9% (3)	0.5% (2)	1.0% (4)	0.7% (10)	1.3% (8)	0.9% (18)
College level	0.5% (2)	0.7% (3)	1.8% (6)	1.0% (4)	2.0% (8)	0.7% (10)	2.1% (13)	1.2% (23)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1354)	100.0% (616)	100.0% (1970)

3.5 Residences of Survey Respondents

The evaluation sought to know where the households resided and found 85.0% of them to be resident in rural areas, 5.1% in urban areas and 9.8% in peri-urban areas (Figure 3.4). Most of the urban and peri urban populations were engaged in crop and livestock and livestock products sales, as opposed to production. The KIIs and FGDs revealed a growing trend of re-settlement in the Counties, in both urban and peri-urban areas, with the onset of devolution. It is note-worthy that these new settlers (from the same communities) are the main pursuers of alternative livelihoods in the program sites.

Figure 3.4: Household Survey Respondents' residence by County

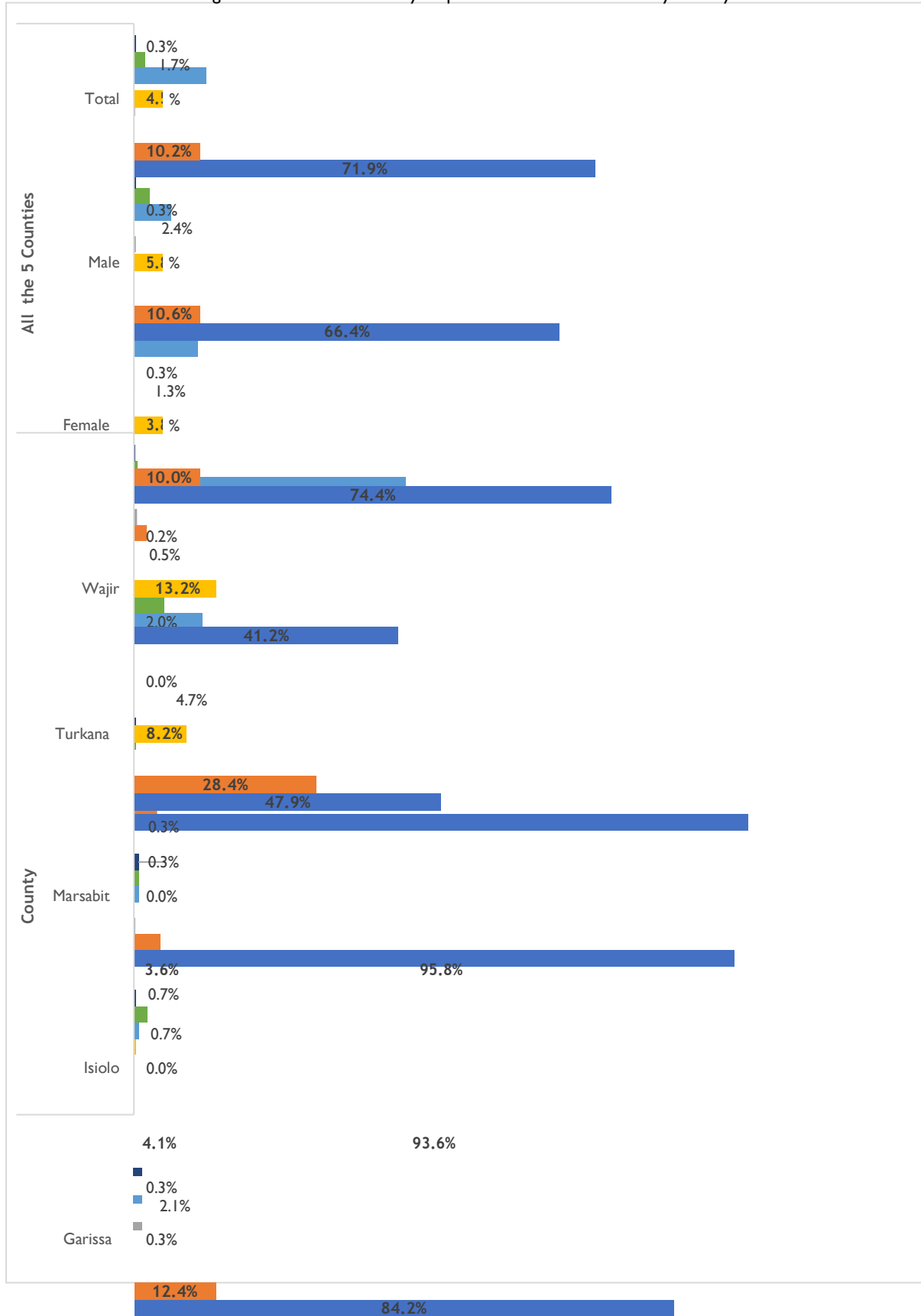


3.6 Respondents Livelihoods and Sources of Income

3.6.1 Livelihoods

On livelihoods, 71.9% of the respondents were pastoralists, 10.2% were agro pastoralists, 1.7% were purely crop farmers and 0.3% were petty traders in household commodities and sales of livestock products. A further 11.3%, 4.5% and 0.2% of the respondents described themselves as peri-urban populations, urban dwellers and IDPs with no livelihoods (the urban, peri urban and IDP populations were either engaged in businesses or relied on aid and remittance from family members)-Figure 3.5. However, from observations across all the Counties, most urban and peri urban dwellers were engaged in businesses revolving around livestock, either selling livestock or livestock allied products. Many households lived in urban and peri urban areas but kept livestock in their rural homes.

Figure 3.5: Household Survey respondents' livelihood means by County



■ Business
 ■ Agricultural household
 Peri-urban
 ■ Urban dweller household
■ Internally displaced (IDP) household
 ■ Agro pastoralist household
 ■ Pastoralist household

3.6.2 Primary Sources of Income and Income Levels in the Respondent's Households

The primary sources of income among visited households were sale of livestock and livestock products (63.4% sale of livestock, 24.1% sale of livestock products), (sale of crop products, (8.9%), sale of fodder and rangeland products (3.7%), petty trade involving sale of charcoal (15.0%), casual employment (15.5%), formal employment (2.7%), remittance from family members and relatives (10.3%), humanitarian aid (5.0%), NGOs and government funds (12.5%), petty trade involving sale of firewood (6.4%) and other sources such as motor bikes transport services and eateries (1.7%). In addition, 15.8% of the respondents indicated that they had no source of income. This was largely in Isiolo County (26.2%), Marsabit County (23.3%) and Turkana County (22.9%)-Table 3.2). From observations in the five Counties, sale of firewood and charcoal was very common and so was transportation of these two items from rural areas and forest reserves to urban and peri urban areas, KILs observed that the sale of these two items had adverse implications for water catchment protections, climate change and rangelands conservation.

Table 3.2: Household Survey respondents' primary income sources by County

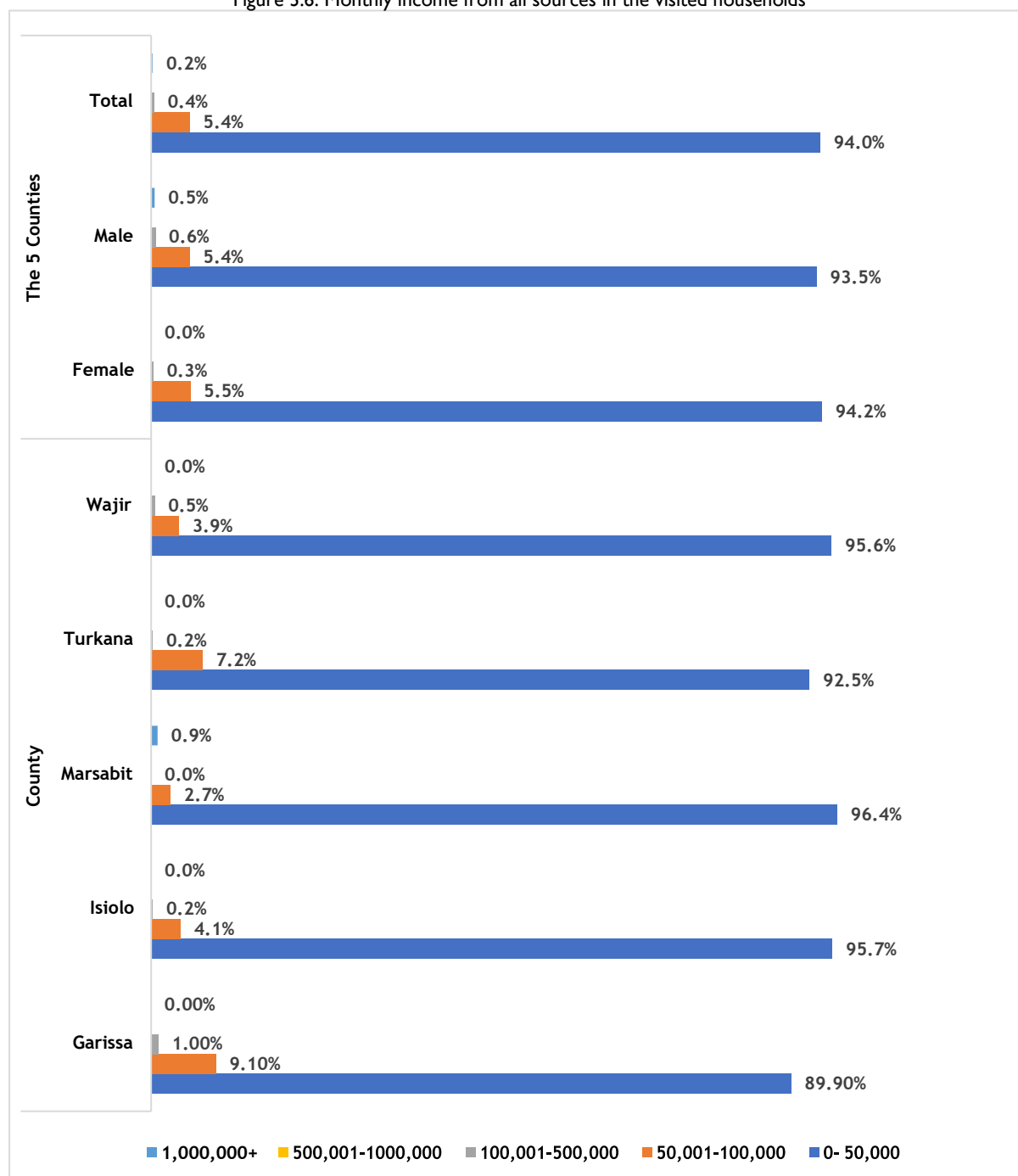
Source of income	County					All the five Counties		
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
No income	2.1% (8)	26.2% (115)	16.2% (54)	22.9% (92)	10.2% (42)	14.9% (202)	17.7% (109)	15.8% (311)
Sale of livestock	71.5% (276)	74.5% (327)	64.7% (216)	45.9% (184)	60.0% (246)	63.7% (862)	62.8% (387)	63.4% (124)
Sale of livestock products	39.6% (153)	17.3% (76)	17.4% (58)	24.7% (99)	21.7% (89)	24.4% (330)	23.5% (145)	24.1% (475)
Sale of crop products	10.9% (42)	1.4% (6)	0.6% (2)	27.4% (110)	3.9% (16)	8.6% (116)	9.7% (60)	8.9% (176)
Sale of fodder and range products	1.0% (4)	0.5% (2)	0.0% (0)	13.0% (52)	3.4% (14)	3.5% (47)	4.1% (25)	3.7% (72)
Petty trading (sale of firewood)	4.4% (17)	9.6% (42)	2.1% (7)	40.1% (161)	16.8% (69)	16.2% (220)	12.3% (76)	15.0% (296)
Casual labour/employment	25.4% (98)	5.5% (24)	8.4% (28)	23.7% (95)	14.9% (61)	14.0% (189)	19.0% (117)	15.5% (306)
Formal employment	1.0% (4)	0.2% (1)	1.2% (4)	2.7% (11)	8.3% (34)	1.9% (26)	4.5% (28)	2.7% (54)
Sale of personal assets	0.0% (0)	1.6% (7)	0.6% (2)	4.0% (16)	1.2% (5)	1.7% (23)	1.1% (7)	1.5% (30)
Remittance from family members and relatives	10.1% (39)	4.8% (21)	2.1% (7)	14.7% (59)	18.8% (77)	10.4% (141)	10.1% (62)	10.3% (203)
Humanitarian aid	0.5% (2)	2.3% (10)	0.6% (2)	12.5% (50)	8.3% (34)	4.9% (67)	5.0% (31)	5.0% (98)
NGO and Government Fund	2.1% (8)	10.7% (47)	7.8% (26)	33.7% (135)	7.6% (31)	13.6% (184)	10.2% (63)	12.5% (247)
Petty trade (sale of firewood)	1.8% (7)	0.9% (4)	0.6% (2)	22.2% (89)	6.1% (25)	6.5% (88)	6.3% (39)	6.4% (127)
Other sources (motor bikes and eateries)	0.0% (0)	0.9% (4)	1.5% (5)	3.7% (15)	2.2% (9)	1.8% (24)	1.5% (9)	1.7% (33)
Total	386	439	334	401	410	1354	616	1970

Across the five Counties, funds such as “Inua Jamii Senior Citizens' scheme” were provided for the elderly by the national government to cushion pastoralists in times of droughts. Remittance of money from relatives and family members was also found to be common across Wajir, Isiolo, Marsabit and Garissa Counties. In Turkana County it was limited to Kakuma town and Kalobeyei settlement where a significant number of refugees and asylum seekers of Islamic background lived. Fodder packing and sale was noted across most urban centres in the five Counties, especially in Wajir town, Kakuma, Kalobeyei and Lopur areas and was done largely women groups. From observation, a range of rangeland products were also being sold across the five Counties- gums and resins (Wajir and Turkana Counties), honey (all five Counties) and Aloe Vera juices and beaded bracelets and baskets (Turkana County).

In Turkana, Garissa and Isiolo Counties, the government had installed livestock holding grounds, sales yards, and was piloting with new forms of livestock and range-land-based economic activities among them, pasture/fodder production, processing/baling and storage, livestock improvement through crossbreeding with the improved Galla Goat, controlled harvesting and processing (for feeds and firewood) of prosopis spp. (Turkana central sub County), drip irrigation (including Turkana west sub County) , among other ventures. The uptake and up-scaling of all these activities however remain low both at community level and by government for a wide range of reasons, the main ones being a lack of prioritization through deliberate funding and extension by County governments and lack of effective partnerships with the private sector.

Nearly all households (94.0%) derived some form of income from the sources listed above, of between 0 and 50,000 Kenya Shillings every month followed by 50,001 to 100,000 Kenya Shillings (5.4%) while 0.4% earned between 100,001 to 500,000 Kenya Shillings. The annual household income from all sources was in the range of 0 to 50,000 Kenya Shillings for 53.9% of the households, 50,001 to 100,000 Kenya Shillings for 39.5% of the households, 100,001 to 500,000 Kenya Shillings for 5.4% of the households and above 1,000,000 Kenya Shillings for 0.3% of the households (Figure 3.6). Based on the Kenya National bureau of Statistics, 45.2% of Kenyan are currently living below the poverty line including 87.5% in Turkana County, 84.2% in Wajir County, 75.8% in Marsabit, 65.3% in Isiolo County and 45.32% in Garissa County.¹⁶⁰

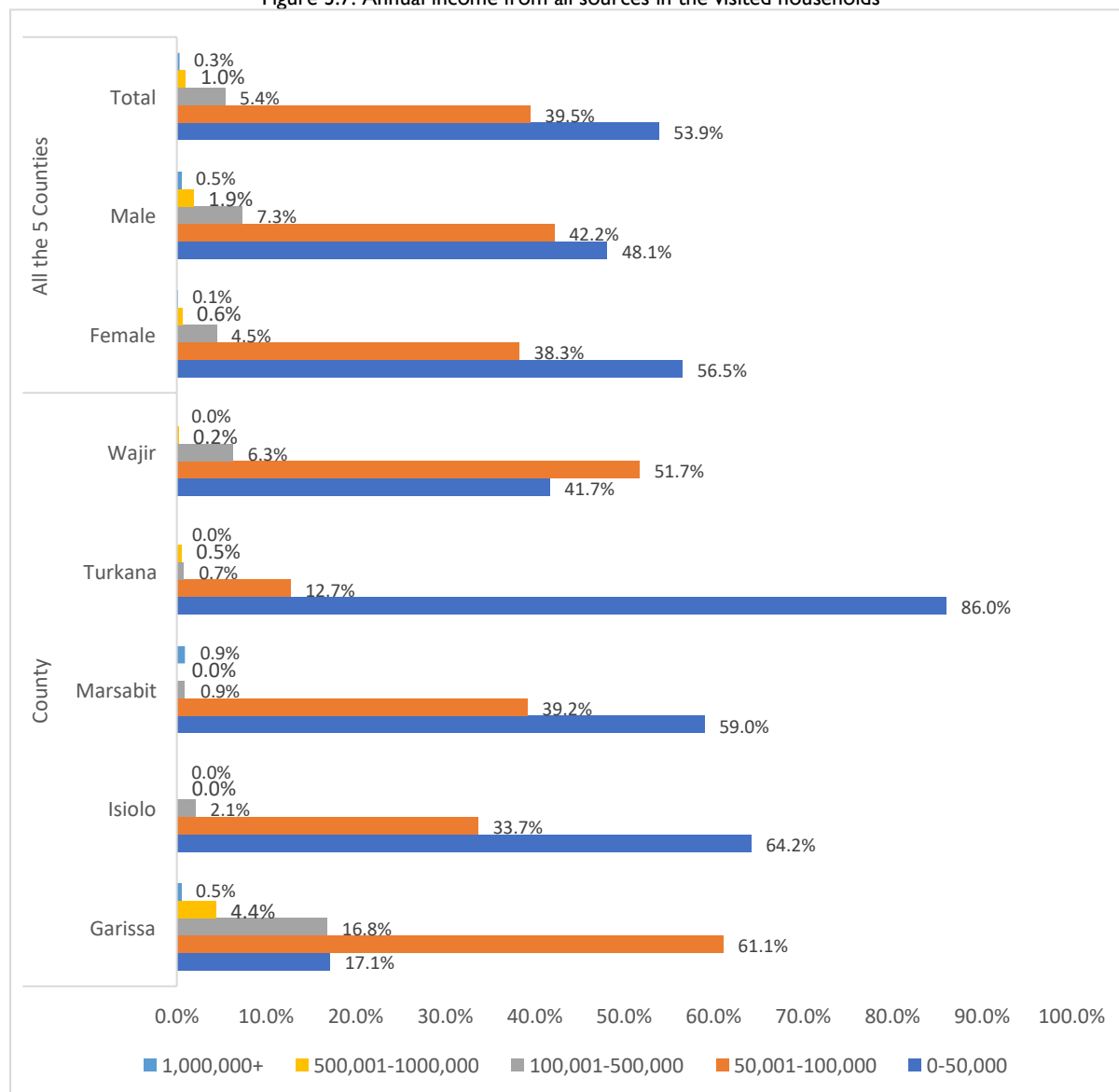
Figure 3.6: Monthly income from all sources in the visited households



¹⁶⁰Kenya national Bureau of Statistics.2013. Exploring Kenya's Inequality, Expenditure, and poverty. < <http://inequalities.sidint.net/kenya/wp-content/uploads/sites/3/2013/10/SID%20Abridged%20Small%20Version%20Final%20Download%20Report.pdf>>.

The annual household income of less than 50,000 Kenya Shillings (Figure 3.7) works out to 1.19 USD¹⁶¹ which is within the 0 to 1.90 USD poverty line defined by the World Bank. The World Bank statistics similarly indicate that, poverty in Kenya decreased between 2005 and 2019 from 46.8% to 33.4%.¹⁶² From the Kenya Economic Report of 2020 the National poverty by Head Count Rate was 36.1% while in Turkana County it was 79.4%, in Garissa County it was 65.5%, in Marsabit County it was 63.7%, in Wajir County it was 62.6% and in Isiolo County it was 56.9%.¹⁶³ From the same report, the national hardcore poverty rate is 8.6% while in the five Counties it was as follows: 52.7% in Turkana County, 23.8% in Marsabit County, 23.8% in Garissa County, 8.9% in Isiolo County and 10.5% in Wajir County. In addition, Turkana County accounted for 15.0% of the hard-core poverty in the country. These figures indicate, low household incomes and commensurate low purchasing power for water for most ASAL households. This was evident in the inability to pay for water and water O & M costs observed across all the Counties.

Figure 3.7: Annual income from all sources in the visited households



¹⁶¹Based on the exchange rate of 1 USD=115 Kenya Shillings as of May 2022.

¹⁶²World Bank. 2022. Poverty. < [¹⁶³Kenya Institute for Public Policy Research and Analysis \(KIPPRA\). 2020. Kenya Economic Report of 2020. < <https://kippra.or.ke/wp-content/uploads/2021/02/Kenya-Economic-Report-2020.pdf>>.](https://www.worldbank.org/en/topic/poverty#:~:text=Based%20on%20information%20about%20basic,less%20than%20%241.90%20a%20day.></p>
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Donkeys in Malka Galla headed to Salei, a distance of 20 kilometres to access water



SECTION FOUR: BASELINE RESULTS ON WATER ACCESS

4.1 Summary Findings on Water Access

From detailed findings presented in this section of the report: only 5.5% of the households were found to be water secure: only 1.9% of the households had access to safe and adequate water for basic domestic uses; only 2.3% of the respondents trusted members of the communities they had ever been in conflict with; 69.3% and 50.4% of the households reported accessing adequate volumes of water for livestock in rainy and dry seasons respectively; 58.3% of the water committees had at least one third of their leadership positions occupied by females; 11.0% the reported SGBV cases related to access to water; 60.2% of the respondents felt welcome by neighbouring communities to access water and grazing areas in times of need; 32.1% and 33.6% of women and youth were able to access to water points in less than 30 minutes respectively during the wet season. During the dry season, this number dropped to 22.0% for women and 23.4% for youth; 70.4% of persons from minority communities indicated that they had equal access to water services with members from the majority communities. Average seasonal income from crop production using accessed water was 16,358.66 Kenya Shillings, lastly; the effectiveness of water policies and legal frameworks was rated 1/4 effective for their degree of gender inclusion, 0/4 for level of implementation, 0/4 for allocation of budgets, and 0/4 for impact on beneficiaries (Table 4.1).

Table 4.1: Summary of the indicators related to water access

Indicators		Baseline values in then five Counties	Isiolo County	Marsabit County	Turkana County	Garissa County	Wajir County
Household water security (with a focus on water supply and not water risk management) in the target ASAL Counties		5.5%	8.2%	1.2%	2.7%	8.5%	6.1%
% Of households with increased access to safe and adequate water for basic domestic uses	Gender	Female=1.8% Male=1.9%	Female=0.0% Male=0.3%	Female=0.0% Male=1.2%	Female=1.6% Male=0.0%	Female=5.1% Male=5.4%	Female=2.7% Male=2.2%
	Group	Minority=0.6% Dominant=2.2%	Minority=0.0% Dominant=0.3%	Minority=0.0% Dominant=0.3%	Minority=0.0% Dominant=1.8%	Minority=0.0% Dominant=5.9%	Minority=5.0% Dominant=2.2%
Households accessing 350 litres of water per day		Rainy seasons =4.9% Dry seasons =3.1%	Rainy seasons = 10.0% Dry seasons =2.1%	Rainy seasons =0.6% Dry seasons =0.9%	Rainy seasons =1.0% Dry seasons =1.0%	Rainy seasons= 2.3% Dry seasons =2.3%	Rainy seasons = 9.0% Dry seasons= 8.8%
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)		Rainy seasons =1.6% Dry seasons =1.5%	Rainy seasons =0.0% Dry seasons =0.0%	Rainy seasons =0.0% Dry seasons =0.0%	Rainy seasons =0.7% Dry seasons =0.5%	Rainy seasons =2.1% Dry seasons =2.1%	Rainy seasons =4.9% Dry seasons =4.6%
% Increase in volume of water available for livestock consumption in a catchment area	Wet Season	69.3%	80.1%	68.3%	60.1%	72.0%	65.1%
	Dry Season	50.4%	46.0%	47.9%	47.8%	57.6%	50.4%

% Of water services management groups adopting gender transformative approaches in water services management		58.3%	33.3%	0.0%	50%	100.0%	100.0%
% Of women and adolescents reporting reduction time in accessing water (<30mins time)	Wet Season	Youth=33.6% Women=32.1%	Youth=47.9% Women=34.3%	Youth=7.3% Women=12.8%	Youth=50.0% Women=36.4%	Youth=33.9% Women=43.8%	Youth=22.5% Women=29.6%
	Dry Season	Youth=23.4% Women=22.0%	Youth=28.8% Women=16.5%	Youth=2.4% Women=1.2%	Youth=35.0% Women=26.8%	Youth=33.9% Women=36.7%	Youth=16.9% Women=26.1%
% Of women reporting GBV related to access to water and rangeland resources		11.0%	7.3%	0.9%	14.2%	9.3%	21.5%
% Of marginalized groups who believe they have equal access to water services		70.4%	80.0%	84.2%	54.9%	93.9%	52.5%
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)		Degree of gender inclusion: 1.2/4 Impact on beneficiaries: 0.6/4 Level of implementation: 0.6/4 Allocation of budgets: 0.2/4	Degree of gender inclusion: 3/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	Degree of gender inclusion: 0/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 2/4 Level of implementation: 2/4 Allocation of budgets: 1/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 1/4 Level of implementation: 1/4 Allocation of budgets: 0/4	Degree of gender inclusion: 1/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4
# Of households reporting improved water access in terms of quantity and reliability [Scores of 5/5 on reliability and quantity]		Total=5.7% F=6.3% M=4.5% M=7.6% D=5.3%	Total=2.5% F=12.9% M=8.1% M=8.0% D=12.7%	Total=4.5% F=4.4% M=4.7% M=31.6% D=2.9%	Total=2.7% F=3.4% M=0.0% M=8.0% D=1.6%	Total=1.5% F=8.2% M=6.2% M=10.2% D=7.1%	Total=2.0% F=1.3% M=2.7% M=10.0% D=1.1%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		21.3 days	8.5 days	8.5 days	45 days	4 days	10.5 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.)	Disaggregation	Youth=5.0% Adults=0.9% Male=0.0% Female=2.5% Total=1.6%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=100.0% Adults=5.6% Male=0.0% Female=12.5% Total=10.5%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=20 Adults=108 Male=47 Female=81 Total=128	Youths=15 Adults=44 Male=22 Female=37 Total=59	Youths=0 Adults=6 Male=3 Female=3 Total=6	Youths=1 Adults=18 Male=3 Female=16 Total=19	Youths=2 Adults=24 Male=8 Female=18 Total=26	Youths=2 Adults=16 Male=11 Female=7 Total=18

4.2 Water Services Governance and Legislation

The overall challenges in water governance and legislation across the five Counties were either unavailability of policies and Acts or lack of costed implementation frameworks and M and E plans in

the available policies, low financing of water activities, non-engagement of private sector players in the water industry, lack of resource mobilization initiatives for water services, poor coordination of water services and non-adherence to the Acts (where available).

From the KIIs with water stakeholders in Wajir County, the major challenges faced in the water sector were unavailability of natural water sources, overreliance on boreholes, salinity of water, high levels of water abstraction especially in urban areas (for sale and construction works), recurrent drought diminishing underground water levels, and low water purchasing power by community members due to a high poverty index.

In Wajir County there was no policy or legal frameworks to guide water resource management; a draft Bill has been in the County assembly for 3 years without finalization and enactment and not much follow-up was being made by sector stakeholders following the end of the RAPID program. The County did not have dedicated budgets for the mainstreaming of gender in the water sector and there were no actions to promote gender in the delivery of water services.

Wajir County was reported to rely on 28,000 shallow wells, 320 boreholes, and water trucking as the main sources of water for human, livestock, and irrigation water. However, 70.0% of the boreholes in this County were reported to have saline water. Although the water department received budgets for water services every year, the budgets were not ring-fenced and could be diverted to other departments in cases of emergency or through miscellaneous budget appropriations. The budget allocations were used for: drilling of boreholes, maintenance of boreholes and purchase of bore hole spare parts, excavation of water banks, and investment in and rehabilitation of water works. The County did not have water catchment management plans. Circulars issued to various community groups to protect and maintain water catchments were not adhered as they were not anchored in relevant laws.

There were no dialogues with the private sector water providers (Solargen, Davis and Shirtliff and other major business entities providing water related goods and services in the County) except under the public-private-partnership model set up during RAPID one program between Boreal and WAJWASCO. A County government partnership with Solargen had resulted in the installation of a water pump in the Wajir level five hospital. Water in the County was used for multiple purposes-domestic, livestock consumption, limited irrigation around the shallow wells and in urban areas, and for commercial purposes such as trucking, and construction works. In the County, budgets for water activities were developed by the primary department and forwarded to the executive and the members of the County assembly for consideration and adoption, often with significant alteration. Budgets could be changed in cases of emergencies or during supplementary budgeting. During the financial year 2021-2022, the Wajir County water department had been allocated 500 million Kenya Shillings, but this was reduced to 400 million following the droughts. The water department had not been successful in mobilizing additional funds from the development partners largely due to low resource mobilization capacities.

In Turkana County, sources of water included protected and unprotected springs, protected and unprotected wells, boreholes, piped water into dwellings, Jabia (rainwater harvesting), ponds, dams, the Lake (Turkana), streams and rivers, and water vendors. A County Water and Sewerage Services Sector Policy (2018)¹⁶⁴ assigns the responsibility for leading and coordinating water sector activities in the County to the department of Water in collaboration with the Department of Health and Sanitation. The two departments also co-chair the County Water Sector Inter Agency Coordinating Committee (WESCOORD) and all the other activities in water and sanitation services. The policy however makes no reference to gender mainstreaming in access to and use of water and sanitation services. Interviews with the County agriculture and gender departments revealed no budgetary allocations to support gender mainstreamed delivery of water services access.

¹⁶⁴County government of Turkana.2018. The Turkana County Water and Sewerage Sector Policy, 2018.https://repository.kippra.or.ke/bitstream/handle/123456789/2079/Turkana-County-Water-and-Sewerage-Services-Sector-Policy-2016-Final_23022018.pdf?sequence=1&isAllowed=y#:~:text=The%20policy%20recognizes%20that%20Turkana,There%20are%20two%20rainfall%20seasons.

Turkana County also has a County Water Strategic plan 2017-2021/2022-2027, a County Water Act (2019)¹⁶⁵ and a number of sub-catchment and Water master plans. The Water Act is a comprehensive legal framework establishing and regulating water supply, sewerage and sanitation services in the County, including effective administration of water supply, sanitation and sewerage services; the holding of water works and water service provision assets on behalf of the County; the regulation of water use rights; the co-ordination of the activities of institutional stakeholders in water services provision in the County; the promotion of public participation in the water services regulation in the County; the management of public private partnerships for water services in the County, and; the coordination of waterworks development in the County. Although these documents have not explicitly prioritized gender dynamics in their implementation options, support for women groups and funding of women groups engaged in water management for agricultural production are evident in parts of the County, in Turkana west Sub County, for example. Due to its strong CIDP, the County has managed to attract private funding for water services (for example, KOIKA – supported by UNICEF with 500 million Kenya shillings for drilling 86 boreholes, 500 million Kenya Shillings from the German Development Bank and other unquantified support from the European Union, Bill & Melinda Foundation, IFAD, World Bank and Danida). All the mentioned documents and partnerships are targeting the larger Turkana County with various water interventions either at the household or community level and these were indirect support without any direct financial assistance to the County government. Implementation of the water plans activities in the County CIDP required 25 billion Kenya Shillings (5 billion Kenya Shillings every year) but the County had a budget of less than 500 million Kenya Shillings annually.

In Garissa County the main water sources were identified as River Tana, River Ewaso Nyiro, water pans, boreholes (conventional water supply system) and springs in Benane. The County has water Act (2018), a draft water policy and draft water regulations and a water strategy 2018-2023. None of these documents however addressed gender mainstreaming in access and use of water resources, and there are no specific funds allocated towards this (see Annex 5). The County water department has an annual budget of 500 million Kenya shillings. Davis and Shirliff is the main private sector partner in the County and engage in Corporate Social Responsibility (CSR) activities as well supporting development and technical assistance activities.

The Water Act established GAWASCO and GARWASCO. GAWASCO is providing services for Garissa Town, 80% of the water they supply comes from surface water, and however, it still provides services to the rural communities for isolated projects that are more dependent on ground water. The design capacity for water service delivery for Garissa town expired in 2018, it was designed to last until 2020. The design was commissioned in 2008. With the County government not expecting the population to bulge in the town, this has caused the capacity to be overwhelmed. GAWASCO has implemented a Water Sector Trust Fund (WSTF), WB funded project in Dadaab 50km radius targeting refugee host community. 80% percent of water comes from surface water. GARWASCO is still in its formative stages and already has a board and substantive CEO in place. GARWASCO is currently in the process of developing their strategy that is going to inform their distribution planning.

There are no permanent rivers in Marsabit County and therefore, most parts of County experience chronic water shortage. The acute water shortage for domestic and livestock use is caused by inadequate and unreliable rainfall, environmental degradation, poor community water management practices, and increase in human and animal population. Water sources in Marsabit County include surface water (including rainwater sources) – water pans, dams, rock catchments; boreholes and shallow wells; springs; and Lake Turkana supplying water to the Elmolo region. Specifically, KIs indicated that only 4% of the households use piped water while 60% of the households rely on boreholes, springs, and wells. In addition, there are nine dams, 853 shallow wells, 18 protected springs, 17 unprotected springs, 53 water pans and 60 boreholes which serve as the main sources of water in the County. Only limited piped water is treated at the water supply plant while water supplied through piped in some parts of the County is not treated.

¹⁶⁵ County government of Turkana.2019. The Turkana County Water Act, 2019. <<http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/TurkanaCountyWaterAct2019.PDF>>

Marsabit County allocated the Water, Environment and Natural Resources Department annual budget of KSHs 230 million in the current financial year but there is no mention of the amount in this figure intended for the operations of MARWASCO. Budget proposals are made by the department, but approvals are done by the County executive and the legislature. Water management in the County is guided by the Marsabit water policy 2015, which has not been updated. A County Water Services Bill developed in 2018 but did not incorporate gender mainstreaming and has also not been implemented, due to a lack of budgetary allocation to operationalize it. The County also has a Water and Sewerage Act, which is not fully operationalized and on the basis of which the Marsabit Water Company (MARWASCO) was established. Both the Water policy and the Water Act have gender mainstreaming elements, for example they underline the importance of supporting vulnerable groups such as women, persons with disability and the youth by giving them priority to manage water kiosks, and ensuring they have equitable access to water. Marsabit County is made up predominantly of volcanic rock, with many parts having productive deep aquifers and deep groundwater levels (>200 meters below ground level). Areas suitable for boreholes construction include the areas around Mt. Kulal while those not suited for boreholes include Marsabit Town, areas around Mt. Marsabit, Mt. Kulal, Hurri Hills and the Chalbi Desert. Thus, extensive exploration is necessary to actualize ground water access.

Sources of water in Isiolo County were: six perennial rivers namely, Ewaso Ng'iro, Isiolo, Kinna, Bisan Adhi, Likiundu and Liliaba); boreholes; wells; springs; water pans, and the Isiolo urban water supply system managed by the County government (Isiolo Water and Sewerage Company). In Isiolo County, government staff were not able to quantify the number of finances spent by the NDMA (National Drought management Authority) and development partners (UNICEF, Christian Aid, ADS Eastern, WOMANKIND Kenya, ALDEF Kenya, FSD, Kenya Red Cross and USAID) on water services because the organizations plan and implement activities individually. However, their implementation plans, and locations are shared with the relevant departments. The County has a Water Act (2020) and a water policy (see Annex 6) both of which are gender sensitive, and an annual budget of 137 million Kenya shillings for the water department in the 2021-2022 fiscal year. Gender aspects captured in the policy include: role of both genders in the sustainable management of natural resources, the need to formulate gender-transformative water regulatory frameworks, gendered water resource management planning, and recognition that women were central to the provision, management, and safeguarding of water and sanitation resources, and as such, should be deliberately engaged in environmental restoration and conservation, and funded to contribute towards climate change adaptation and mitigation efforts.

Lastly, Counties in the country were benchmarking their water services with Nakuru County water supply management. In this County, the Nakuru rural water and sanitation company limited strategic plan (2017 to 2022) was aligned to the County department of water work plan and objectives, the strategic plan was financed and monitored, sound financial systems were in place and staff including those in villages were motivated to ensure functional water points and supply of water to the households at all times.¹⁶⁶

The table below (Table 4.2) offers an assessment of the state and extent of implementation of policy and legislative frameworks for water services delivery in the five study Counties. A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of policies and legal frameworks' 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. Based on the scoring: 0 denotes 'Not at all Achieved'; 1 denotes 'Marginally Achieved'; 2 denotes 'Partially Achieved', 3 denotes 'Largely Achieved'; and 4 denotes 'Fully Achieved'. The total score is then divided by 4 to obtain effectiveness score of policy / legal framework.¹⁶⁷

¹⁶⁶Nakuru rural water and sanitation company limited.2022. Nakuru rural water and sanitation company limited strategic plan 2017-2022. < Nakuru rural water and sanitation company limited.>.

¹⁶⁷https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdccontext/Documents/SDC_indicators_AFS_TRI_2.pdf

Table 4.2: Status of legal and policy frameworks within the water sector

County	Criteria	Rating	Comments
Wajir	Degree of gender inclusion	1/4	<ul style="list-style-type: none"> Draft Water Bill in the County Assembly over the last 3 years Gender mainstreaming not well articulated 500 million Kenya shillings for water services this financial year (slashed by 100 million Kenya shillings in the supplementary budget appropriations) but there are no specific measures on gender mainstreaming Budget not ring-fenced-can be chanted by the executive and the County Assembly No mobilization of budget from development partners No disaggregation of data by gender Low participation of women in water meetings and forums conducted by this County Low uptake of leadership in the water sector by women (only 2 out of 10 water engineers) No creation of public awareness regarding gender-specific dynamics in water services and water access No County government support of local women's groups/organizations/self-help groups to receive technical and/or financial support from government/non-government organizations for managing local water resources
	Impact on beneficiaries	0/4	
	Level of implementation	0/4	
	Allocation of finances	0/4	
Turkana	Degree of gender inclusion	1/4	<ul style="list-style-type: none"> Turkana County Water and Sewerage Services Sector Policy of 2018 makes no mention of gender mainstreaming in water and sanitation services access The policy lacks M and E plans The policy lacks a costed implementation framework County Water Strategic plan (2015-2020 and 2022-2027) County Water Policy (2019) County Water Act (2019) Sub-catchment and Water Master Plans No budgets for mainstreaming gender in water services No disaggregation of data by gender Gender is poorly understood Grants for women groups undertaking irrigate crop production available
	Impact on beneficiaries	2/4	
	Level of implementation	2/4	
	Allocation of finances	1/4	
Garissa	Degree of gender inclusion	1/4	<ul style="list-style-type: none"> Draft water policy -no gender mainstreaming Water Act (2018) -no gender mainstreaming Water Strategy (2018-2023) with no gender mainstreaming Established GAWASCO and GARWASCO but not fully operational All the above listed documents lack: M and E plans and costed implementation frameworks Leveraging of indirect private sector support noted (Corporate Social Responsibility programs implemented Davis and Shirtliff)
	Impact on beneficiaries	1/4	
	Level of implementation	1/4	
	Allocation of finances	0/4	
Marsabit	Degree of gender inclusion	0/4	<ul style="list-style-type: none"> Outdated Water Policy (2014) The Marsabit County Water Services Act (2018) exists but is not being fully implemented (there is a Chief Executive Officer, but the board is not fully functional) Activities supporting vulnerable women, people with disabilities and the youth by giving them priority to manage the water kiosks noted Marsabit County allocated the Water, Environment and Natural Resources Department annual budget of KSHs 230 million in the current fiscal year There is no mention of the budget set aside from the above- mentioned amount to fully operationalize MARWASCO
	Impact on beneficiaries	0/4	
	Level of implementation	0/4	
	Allocation of finances	0/4	

Isiolo	Degree of gender inclusion	3/4	<ul style="list-style-type: none"> Water Act (2020) Water policy (2020) which lacks: a M and E plan and costed implementation framework Policy and Act are both of which were gender sensitive. They provide for gender related consideration in composition of committees and general water use in the regulations The gender aspects captured include sustainable management of natural resources by all genders, formulate gender- transformative water regulatory frameworks, gendered water resource management and recognition that women are central to the provision, management, and safeguarding of water and sanitation resources, deliberately engaging women in environmental restoration and conservation and getting women involved in the climate change fund to contribute to mitigation efforts. Policy and Act implementation is suboptimal No financing of the policy and the Act No monitoring of the Act and the Policy No resource mobilization for water activities
	Impact on beneficiaries	0/4	
	Level of implementation	0/4	
	Allocation of finances	0/4	

4.2 Access to Water for Drinking and Domestic Use

Overall, 73.8% of the households indicated that they accessed water for drinking and domestic use from improved sources, while 26.2% identified doing so from unimproved sources during the rainy season. The lowest numbers of households accessing water from improved sources for this purpose in the rainy seasons were found in Marsabit County (49.1%), while the highest were found in Wajir County (82.9%)-Figure 4.1. Marsabit County was reported to have many water supply facilities and schemes that were not financially self-sustaining, that had to be subsidized financially from time to time by government, humanitarian organizations and other external partners.¹⁶⁸ Bore hole and tube well water levels in Wajir County, were reported to be high hence the ease in accessing water from improved sources.

From KILs in Wajir County, the Constituency Development Fund (CDF) from various constituencies were being used to develop, repair or upgrade water sources as part of the 2022 pre-election campaigns. In Marsabit town, water supply was said to be on the increase following near completion of a water project (60% completed by end of 2021) by the national government under the Ministry of Water, Sanitation, and Irrigation. The Kenya Shillings 1.7 billion projects, under the ‘Kenya town’s sustainable water supply and sanitation program’ is jointly funded by the African Development Bank (AfDB) and the Kenyan government. The project aims at remodelling the recently created Marsabit Municipality by enhancing the water supply from 255.42 m³ per day to the current demand of 4330 m³ per day is being implemented by the Northern Water Works development Agency (NWDA) which has contracted a Chinese firm Sinohydro Corporation limited. Two other dams being constructed by the National Government (Bakuli 4 dam and the peace dam in Forole) were said to be behind completion schedules. Similarly, in Ambalo (Moyale Sub- County) one of the targeted program sites, PACIDA Kenya has partnered with the German Federal Ministry for Economic Cooperation and Development (BMZ) and Caritas Germany to excavate a 35,000 cubic meters water pan and this too has increased water supply in the County.

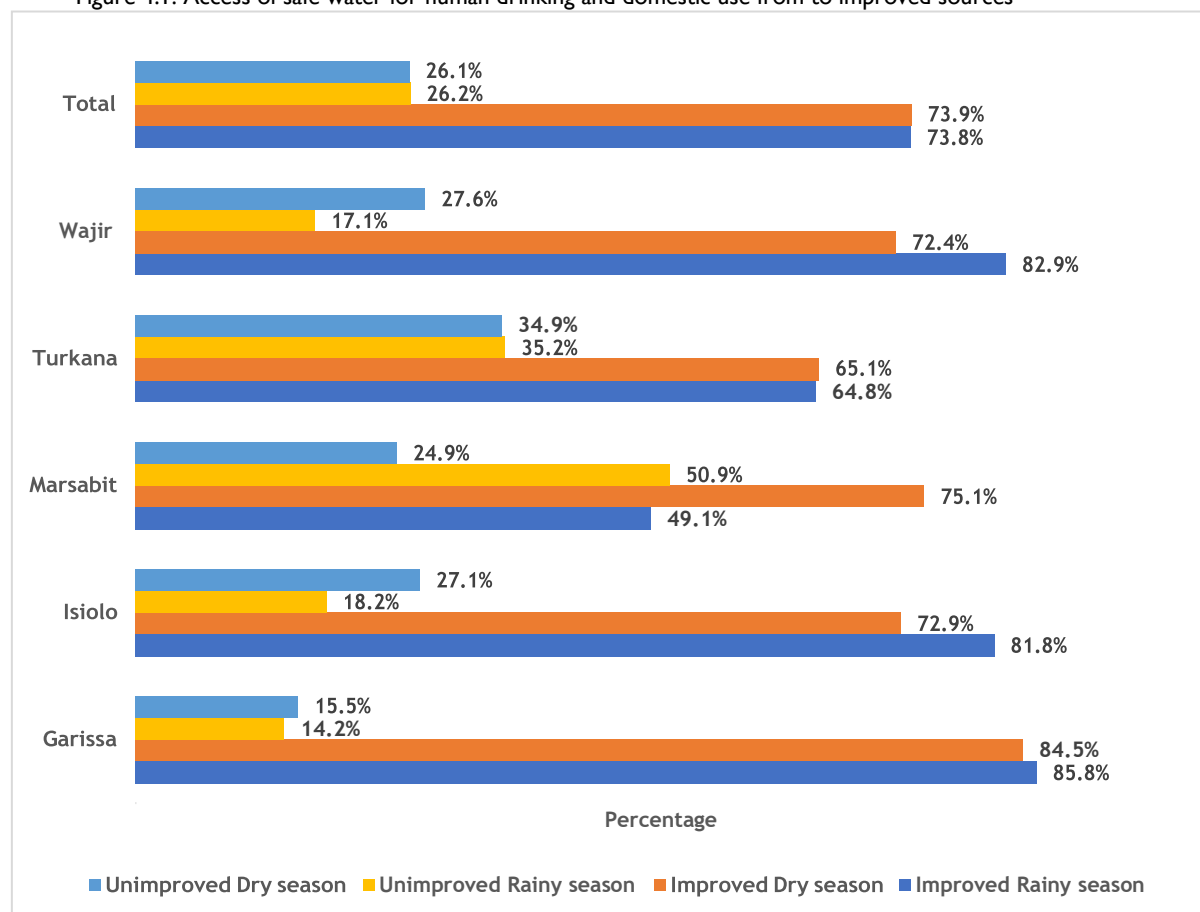
Over the dry seasons, 73.9% of the household’s indicated accessing safe water for drinking and domestic use from improved sources while 26.1% obtained the same from unimproved sources. Across both dry and rainy seasons, 66.2% of the households’ accessed safe water for drinking and domestic use from improved sources while 33.8% of the households did not (Figure 4.1). In the rainy seasons, a considerable number of boreholes were said to be flooded whole ground water availability was high. In addition, in the dry seasons, the coping strategy with water shortage is migration and use

¹⁶⁸Ministry of Agriculture, Livestock and Fisheries (MoALF). 2017. Climate Risk Profile for Marsabit County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

of alternative improved water sources. Whereas the proportion of improved and unimproved sources does not change by a substantial proportion across rainy and dry seasons, FGDs across the five Counties indicated increase in distance covered to access water, increase in the price of water, longer waiting time at source, and reductions in accessible volumes the dry season. Across the five Counties,

there was no limitation in accessible water volume during the rainy season, with every household being allowed to access water for one hour daily but in the dry seasons, each household could only access 20 litres of water per day.

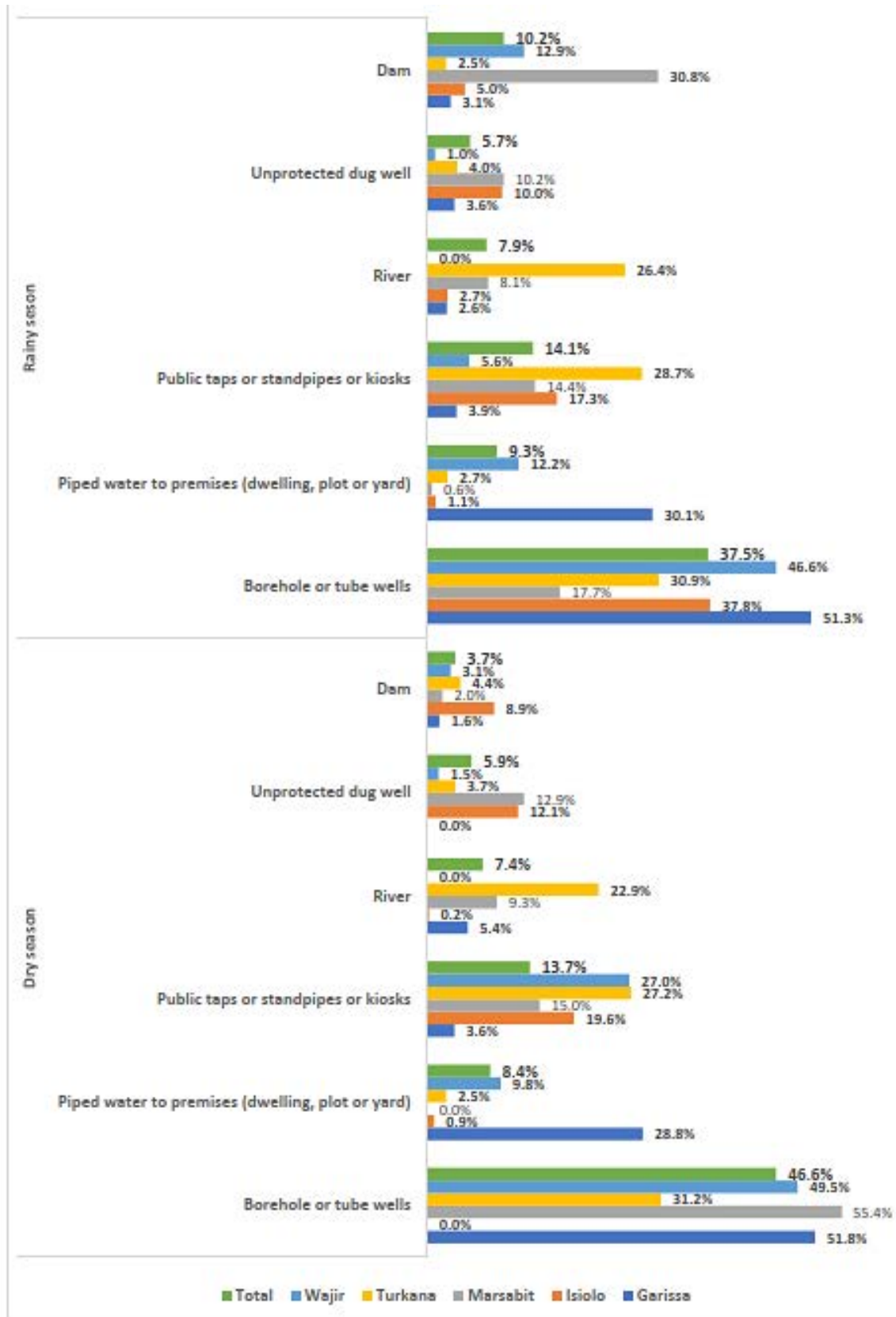
Figure 4.1: Access of safe water for human drinking and domestic use from to improved sources



The top five sources of safe water for drinking and domestic use in the rainy/set seasons were identified as boreholes or tube wells (37.7%), public taps/standpipes/kiosks (14.1%), dams (10.2%), piped water to premises inside dwellings, plots, or yards (9.3%) and all-season Rivers (7.9%). Use of borehole water in the rainy seasons was highest in Garissa County (51.3%) and least in Marsabit County (17.7%) while, use of public taps for water in the rainy seasons was highest in Turkana County (28.7%) and least in Wajir County (5.6%). On the other hand, piped water into premises, yards or plots in the rainy season was highest in Garissa County (30.1%) and least in Isiolo County (1.1%), findings that are consistent with the integrated development plans for the three Counties i.e., Turkana, Garissa, and Wajir Counties (Figure 4.2).

These findings indicate water accessibility in rivers supplying piped homesteads as well as abundant ground water in the rainy seasons while in the dry seasons, there were difficulties in accessing ground water (which is an unimproved source). Similarly, when surface water availability is reduced during the dry seasons, groundwater demand increases. Over the dry season, the top five sources of safe water for drinking and domestic use were named as boreholes or tube wells (46.6%), piped water into premises (8.4%), public taps or standpipes (13.7%), rivers (7.4%), unprotected wells (5.9%). In addition, no household in Garissa County was able to access safe water for drinking and domestic use from pipes in premises during the dry season (0.0%), while in Turkana County, public taps supplied 31.3% of the households' domestic water needs during the dry season.

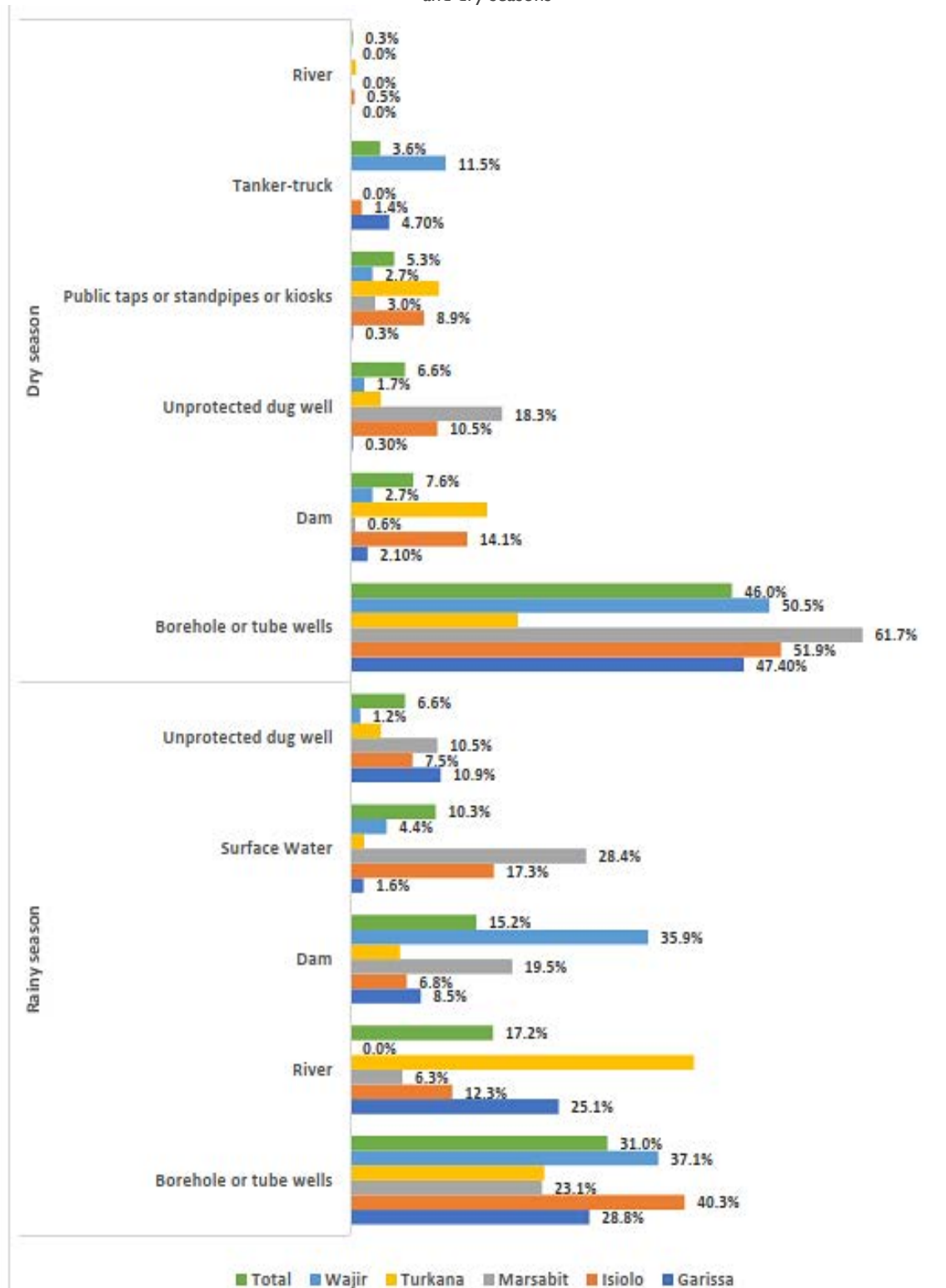
Figure 4.2: Household's main source of safe water for drinking, cooking, and hygiene during wet/rainy and dry seasons



4.3 Access to Water for Livestock Consumption

Across the five Counties, the top five sources of water for livestock consumption in the rainy season were identified as boreholes or tube wells (31.0%), rivers (17.2%), dams (15.2%), and surface water (10.3%). Over the dry seasons, the top five main sources of safe water for livestock consumption were boreholes or tube wells (46.0%), dams (7.6%), unprotected wells (6.6%), public taps or stand pipes or kiosks (5.3%) and trucks (3.6%)-Figure 4.3).

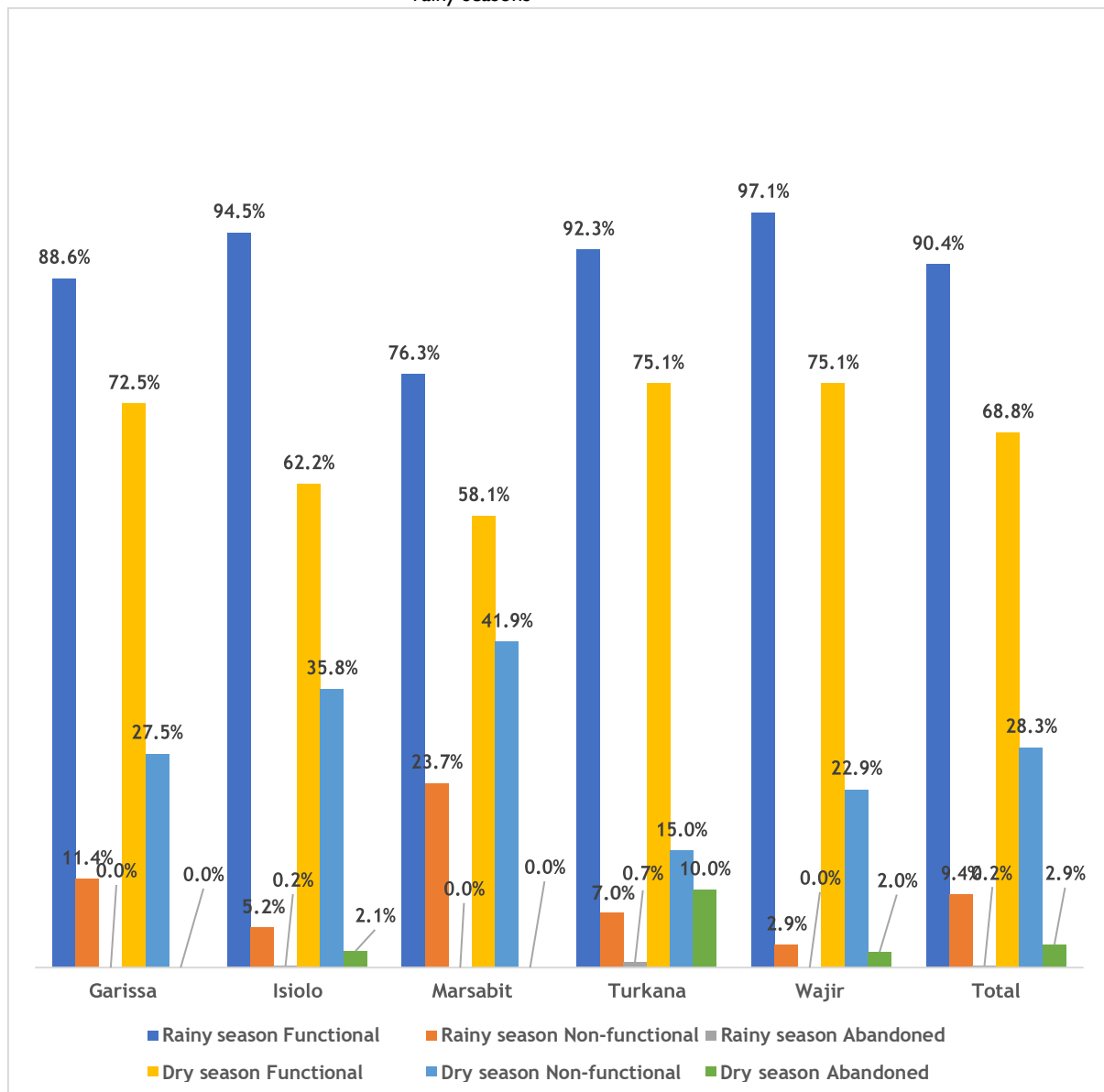
Figure 4.3: Households' main sources of safe water for livestock consumption during the wet/rainy and dry seasons



4.3 Functionality of Water Sources

Sources of safe water for human consumption and domestic use over the rainy/wet seasons were said to be functional by 90.4% of the respondents, non-functional by 9.4% of the respondents and abandoned by 0.2% of the respondents (Figure 4.4). Over the dry season, the main sources of water for drinking and domestic use were identified as functional by 68.8% of the respondents, non-functional by 28.3% and abandoned by 2.9% of the respondents. From the FGDs the main causes of water system breakdowns were salinity, sand blockages in the suction, poor user skills, poor handling by trained operators, tear and wear of the motors, pipe bursts caused by livestock and wildlife (hyenas, giraffes, cows, and donkeys) and pipe bursts caused by heat especially when they were of poor quality.

Figure 4.4: Functionality of safe water sources for human drinking, cooking and household hygiene use during dry and rainy seasons



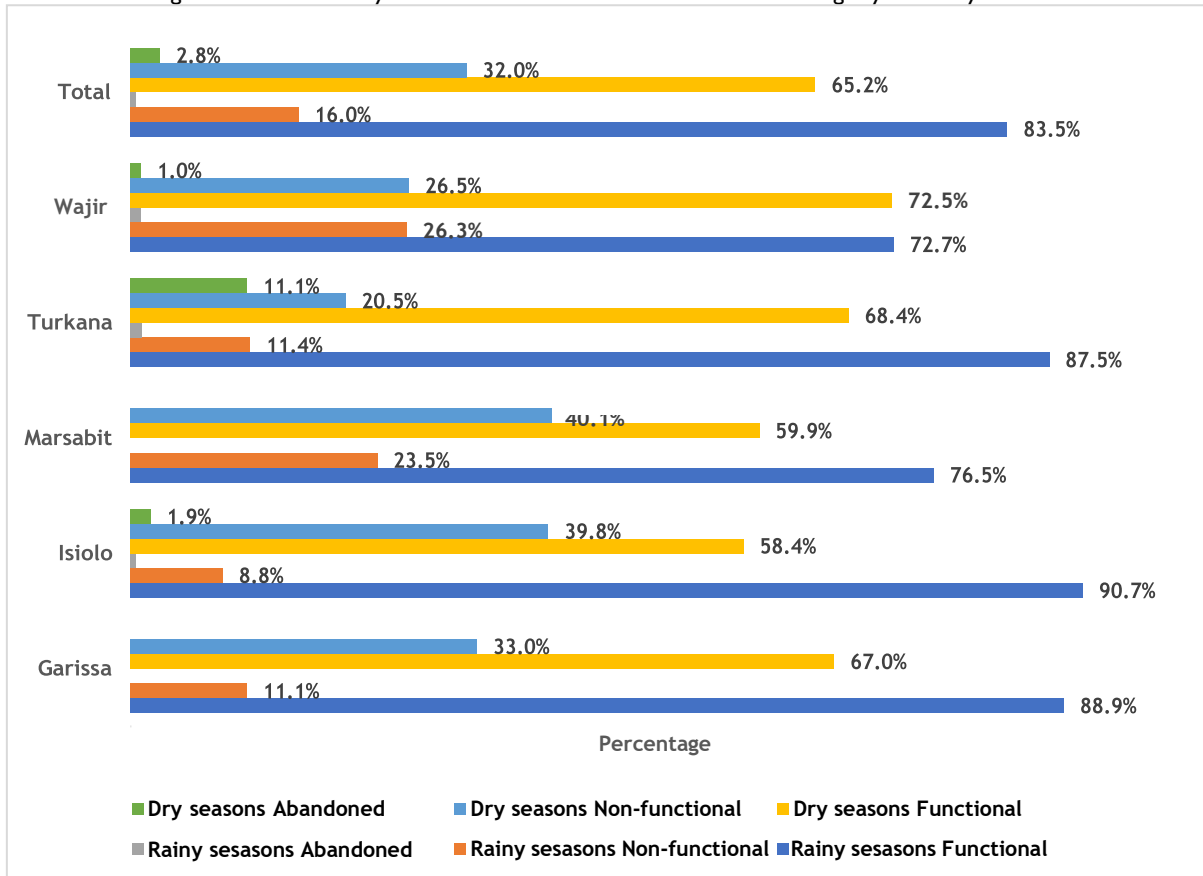
Of the households that indicated there was water abandonment (n=4 in the rainy seasons and n=57 in the dry seasons), reasons for abandonment of the main sources of water for drinking and domestic uses in the rainy seasons were salinity (75.0%), insecurity (25.0%) and low volume (25.0%). In the dry seasons, the reasons for abandonment of water sources were salinity (80.7%), insecurity (28.1%) and drying up of the source (1.8%)-Table 4.3.

Table 4.3: Reasons for abandonment of the water sources

Season	Reason	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Rainy seasons	Salinity	0.0% (0)	100.0% (1)	0.0% (0)	66.7% (2)	0.0% (0)	75.0% (3)
	Insecurity	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)	25.0% (1)
	Low volume	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)	25.0% (1)
	Total	0	1	0	3	0	4
Dry seasons	Salinity	0% (0)	22.2% (2)	0.0% (0)	100.0% (40)	50.0% (4)	80.7% (46)
	Insecurity	0% (0)	11.1% (1)	0.0% (0)	27.5% (11)	50.0% (4)	28.1% (16)
	Drying up of the source	0% (0)	0% (0)	0.0% (0)	2.5% (1)	0% (0)	1.8% (1)
	Total	0	9	0	40	8	57

Sources of safe water for livestock consumption over the rainy season were described as functional by 83.5% of the respondents, non-functional by 16.0% of the respondents and abandoned by 0.5% of the respondents (Figure 4.5). Sources of safe water for livestock consumption over the dry season were described as functional by 65.2% of the respondents, non-functional by 32.0% of the respondents and abandoned by 2.8% of the respondents. As stated above, the main causes of water system breakdowns were salinity, sand blockages in the suction, poor user skills, poor handling by trained operators, tear and wear of the motors, pipe bursts caused by livestock and wildlife (hyenas, giraffes, cows, and donkeys) and pipe bursts caused by heat especially when they were of poor quality hence low heat tolerance.

Figure 4.5: Functionality of main water sources for livestock use during dry and rainy seasons



Once again, of all the respondents indicating abandonment of water sources (n=10 in the wet season and n=52 in the rainy seasons), reasons for abandonment of main water sources for livestock consumption in the rainy season were salinity (50.0%), insecurity (50.0%), government capping (10.0%) and migration (1.0%). In the dry seasons, the reasons for abandonment of the main sources of water for livestock consumption were salinity (75.0%), insecurity (57.7%) and drying up of the sources (5.8%)- Table 4.4

Table 4.4: Reasons for abandoning livestock water source in rainy and dry seasons

Rainy seasons	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Salinity	0.0% (0)	100% (2)	0.0% (0)	75.0% (3)	50.0% (2)	50.0% (5)
Insecurity	0.0% (0)	0.0% (0)	0.0% (0)	75.0% (3)	25.0% (1)	50.0% (5)
Government capping	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	25.0% (1)	10.0% (1)
Migration	0.0% (0)	0.0% (0)	0.0% (0)	0% (0)	0.0% (0)	10.0% (1)
Total	0	2	0	3	4	10
Dry seasons	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Salinity	0.0% (0)	0.0% (0)	0.0% (0)	92.5% (37)	50.0% (2)	75.0% (39)
Insecurity	0.0% (0)	50.0% (4)	0.0% (0)	62.5% (12)	25.0% (1)	57.7% (30)
Drying up	0.0% (0)	25.0% (2)	0.0% (0)	2.5% (1)	0.0% (0)	5.8% (3)
Total	0	8	0	40	4	52

4.4 Operations and Maintenance of Water Sources

The time taken to repair the main water points for drinking and domestic use was less than a day for 4.2% of the respondents, 1 to 3 days for 17.4% of the respondents, 4 to 6 days for 17.8% of the respondents, 7 to 14 days for 19.0% of the respondents, and more than two weeks for 16.9% of the respondents (Table 4.5). From the FGDs and KIIs, reasons for delayed repairs in order were unavailability of finances among water committees, unavailability of spare parts locally, repair teams engaged in work in other sites, delayed response by the County government teams, and insecurity. No correlation was established between O & M and water availability but in isolated instances, delays to undertake repairs despite availability of funds were caused by either engagement of technicians, unavailability of spare parts locally hence sourcing from Nairobi, Insecurity and transport limitations characterized by unpassable roads in the rainy seasons. It was also noted that, breakdown of water points did not necessarily mean unavailability of water since communities' members used unorthodox methods to access water fetching water from leaking pipes and tanks and manual water abstraction as well as access of low volumes of water from the boreholes.

Table 4.5: Time taken to repair main source of drinking when it last broke down

Time	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
<1 day	0.8% (3)	7.5% (33)	1.8% (6)	1.2% (5)	8.5% (35)	4.2% (82)
1-3 days	17.1% (66)	9.6% (42)	28.4% (95)	9.0% (36)	25.4% (104)	17.4% (343)
4-6 days	24.9% (96)	14.1% (62)	9.3% (31)	15.5% (62)	24.1% (99)	17.8% (350)
7-14 days	26.9% (104)	12.3% (54)	20.1% (67)	23.4% (94)	13.7% (56)	19.0% (375)
> 2 weeks (14 days)	19.9% (77)	26.0% (114)	21.0% (70)	11.5% (46)	6.3% (26)	16.9% (333)
Never repaired	6.2% (24)	9.3% (41)	16.5% (55)	6.7% (27)	2.9% (12)	8.1% (159)
Never broken down/river/dam	4.1% (16)	21.2% (93)	3.0% (10)	32.7% (131)	19.0% (78)	16.6% (328)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)

4.5 Distance and time taken to the water points

The distance to the main source of safe water for human consumption and domestic uses was less than 1 kilometre for 48.8% of the households, 1 to 2 kilometres for 35.0% of the households, more than 2 kilometres, but less than 5 kilometres for 11.0% of the respondents, 5 to 10 kilometres for 4.7% of the respondents and more than 10 kilometres for 0.5% of the respondents. In the dry season, the distance to the main source of safe water for domestic use and human consumption was reported as less than 1 kilometre for 37.4% of the respondents, 1 to 2 kilometres for 31.2% of the respondents, more than 2 kilometres but less than 5 kilometres for 17.8% of the respondents, 5 to 10 kilometres for 8.8% of the respondents and more than 10 kilometres for 4.9% of the respondents (Figure 4.6 and Table 4.6). From the FGDs across all sites, the main borehole in the village and other strategic points in the communities experienced declined water volumes in the dry season. In some instances, water from these water sources changed colour, taste and smell thus forcing community members to walk longer distances to alternative sources, where in most cases, they were made to pay for the water, as they were viewed as being from other villages.

Figure 4.6: Distance to main source of safe and clean water for human consumption and domestic use

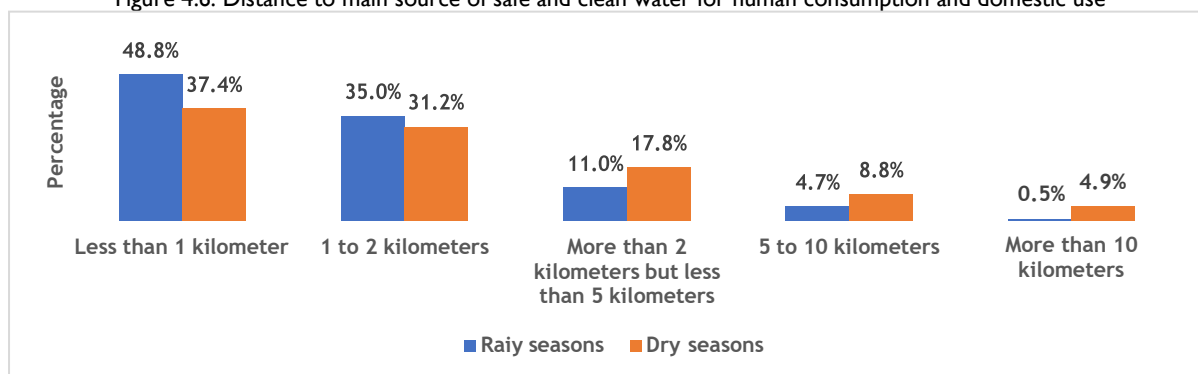


Table: 4.6: Distance from the household's main source of safe water for drinking and domestic use during the rainy/wet season [safe= clean, clear colour without particles, of normal taste and normal smell]

Season	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Rainy seasons						
Less than 1 kilometer	47.4% (183)	61.7% (271)	28.1% (94)	52.6% (211)	49.3% (202)	48.8% (961)
1 kilometer to 2 kilometers	25.6% (99)	23.5% (103)	56.9% (190)	31.7% (127)	41.7% (171)	35.0% (690)
More than 2 kilometers but less than five kilometers	20.5% (79)	6.6% (29)	13.5% (45)	8.2% (33)	7.3% (30)	11.0% (216)
5 to 10 kilometers	4.9% (19)	7.7% (34)	1.5% (5)	7.5% (30)	1.2% (5)	4.7% (93)
More than 10 kilometers	1.6% (6)	0.5% (2)	0.0% (0)	0.0% (0)	0.5% (2)	0.5% (10)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)
Dry seasons						
Less than 1 kilometer	43.0% (166)	28.5% (125)	19.5% (65)	51.6% (207)	42.2% (173)	37.4% (736)
1 kilometer to 2 kilometers	28.2% (109)	29.4% (129)	35.6% (119)	24.4% (98)	39.0% (160)	31.2% (615)
More than 2 kilometers but less than five kilometers	21.8% (84)	17.5% (77)	22.8% (76)	10.7% (43)	17.1% (70)	17.8% (350)
5 to 10 kilometers	4.9% (19)	14.6% (64)	10.5% (35)	12.2% (49)	1.5% (6)	8.8% (173)
More than 10 kilometers	2.1% (8)	10.0% (44)	11.7% (39)	1.0% (4)	0.2% (1)	4.9% (96)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)

In the rainy season, distances to the main water points for livestock consumption were as follows: less than 1 kilometre (26.4%), 1 kilometre to 2 kilometres (36.4%), more than two kilometres but less than 5 kilometres (18.1%), 5 to 10 kilometres (9.5%) and more than 5 kilometres (2.7%) shown in Figure 4.7. In the dry season, the distances were: less than 1 kilometre (19.1%), 1-2 kilometres (24.9%), more than 2 but less than 5 kilometres (19.1%), 5-10 kilometres (16.2%), and more than 5 kilometres (7.0%) (Table 4.7). Across all the five Counties, FGDs indicated that households covered longer distances in search of water during drought and that advance teams of elders went and negotiated access with communities with water.

Figure 4.7: Distance to your household's main source of water for livestock in dry and rainy season

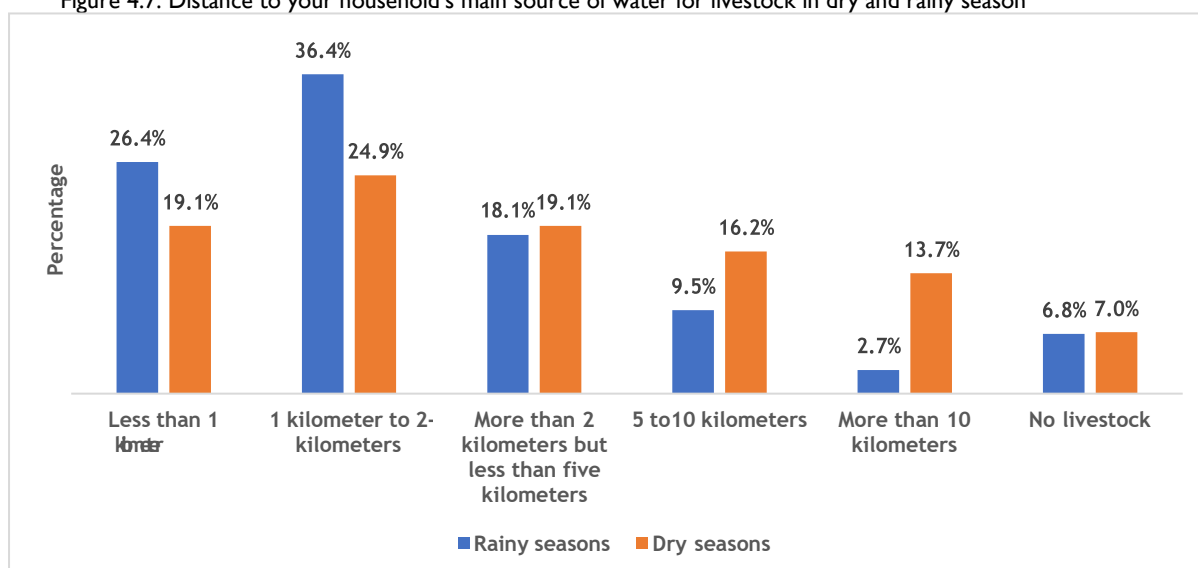


Table 4.7: Distance to your household's main source of water for livestock in dry and rainy season

Rainy seasons	County					
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Less than 1 kilometre	16.8% (65)	41.7% (183)	14.4% (48)	28.9% (116)	26.3% (108)	26.4% (520)
1 kilometre to 2 kilometres	35.2% (136)	32.8% (144)	50.3% (168)	34.9% (140)	31.7% (130)	36.4% (718)
More than 2 kilometres but less than five kilometres	23.1% (89)	12.3% (54)	21.9% (73)	10.2% (41)	24.4% (100)	18.1% (357)
5 to 10 kilometres	14.5% (56)	9.6% (42)	9.3% (31)	6.2% (25)	8.0% (33)	9.5% (187)
More than 10 kilometres	3.1% (12)	1.6% (7)	3.3% (11)	1.7% (7)	4.1% (17)	2.7% (54)
No livestock	7.3% (28)	2.1% (9)	0.9% (3)	18.0% (72)	5.4% (22)	6.8% (134)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)
Dry seasons	County					
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Less than 1 kilometre	11.9% (46)	18.0% (79)	7.5% (25)	27.4% (110)	28.3% (116)	19.1% (376)
1 kilometre to 2 kilometres	28.2% (109)	19.4% (85)	22.8% (76)	27.9% (112)	26.3% (108)	24.9% (490)
More than 2 kilometres but less than five kilometres	29.3% (113)	13.2% (58)	24.0% (80)	7.7% (31)	23.2% (95)	19.1% (377)
5 to 10 kilometres	10.1% (39)	24.4% (107)	18.9% (63)	14.5% (58)	12.7% (52)	16.2% (319)
More than 10 kilometres	12.7% (49)	22.3% (98)	26.0% (87)	4.7% (19)	4.1% (17)	13.7% (270)
No livestock	7.8% (30)	2.7% (12)	0.9% (3)	17.7% (71)	5.4% (22)	7.0% (138)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)

Snapshot: Community members walking nearly 10 kilometers from Malka Galla to Saleti and back (20 kilometers) in Isiolo County to access water. A volume of 20 liters of water is sold at KSHs 10 in the dry season. During the rainy season, water is available in the villages for free in community boreholes.



On time taken to get to the main source of water for drinking and domestic use in the rainy seasons, 45.0% of the households spent less than 30 minutes and 31.9% spent 30 to 60 minutes. In the dry season, time spent to get to the water point was less than 30 minutes for 38.2% of the households, 30 to 60 minutes for 35.1% of the households (Figure 4.8 and Table 4.8). FGDs indicated that with drought, long distances had to be covered to access alternative sources of safe water hence the variability in the distances across the seasons.

Figure 4.8: Time taken by household to get to the main source of safe water for drinking and domestic use in dry and rainy seasons

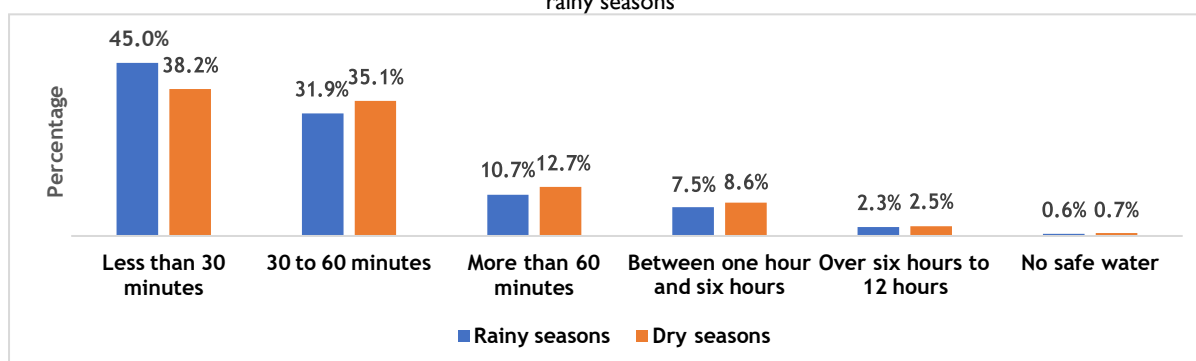


Table 4.8: Time taken by household to get to the main source of safe water for drinking and domestic use in dry and rainy seasons

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Rainy season						
Less than 30 minutes	51.6% (199)	60.4% (265)	22.8% (76)	46.1% (185)	39.3% (161)	45.0% (886)
30 to 60 minutes	30.3% (117)	16.9% (74)	52.7% (176)	22.7% (91)	41.5% (170)	31.9% (628)
More than 60 minutes	8.8% (34)	7.3% (32)	16.5% (55)	13.0% (52)	9.3% (38)	10.7% (211)
Between one hour and six hours	7.5% (29)	8.9% (39)	7.8% (26)	6.0% (24)	7.1% (29)	7.5% (147)
Over six hours to 12 hours	0.8% (3)	5.7% (25)	0.3% (1)	3.7% (15)	0.2% (1)	2.3% (45)
Over 12 hours to 24 hours	0.0% (0)	0.0% (0)	0.0% (0)	0.2% (1)	0.5% (2)	0.2% (3)
More than 24 hours but less than 72 hours	0.0% (0)	0.0% (0)	0.0% (0)	0.2% (1)	0.7% (3)	0.3% (4)
More than 72 hours	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (1)	0.1% (1)
No safe water	1.0% (4)	0.2% (1)	0.0% (0)	1.2% (5)	0.5% (2)	0.6% (12)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)
Dry seasons						
Less than 30 minutes	47.4% (183)	39.4% (173)	17.7% (59)	44.6% (179)	38.5% (158)	38.2% (752)
30 to 60 minutes	27.2% (105)	36.7% (161)	45.2% (151)	27.7% (111)	39.8% (163)	35.1% (691)
More than 60 minutes	11.7% (45)	8.0% (35)	26.6% (89)	8.2% (33)	12.0% (49)	12.7% (251)
Between one hour and six hours	10.9% (42)	8.0% (35)	10.2% (34)	7.2% (29)	7.3% (30)	8.6% (170)
Over six hours to 12 hours	1.6% (6)	6.2% (27)	0.0% (0)	3.5% (14)	0.7% (3)	2.5% (50)
Over 12 hours to 24 hours	0.0% (0)	0.9% (4)	0.0% (0)	0.2% (1)	0.0% (0)	0.3% (5)
More than 24 hours but less than 72 hours	0.0% (0)	0.0% (0)	0.3% (1)	0.2% (1)	0.2% (1)	0.2% (3)
No safe water	1.0% (4)	0.2% (1)	0.0% (0)	1.7% (7)	0.5% (2)	0.7% (14)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)

Time spent at the water points to access water in the rainy seasons, was less than 30 minutes for 31.0% of the respondents and 30 to 60 minutes for 26.0% of the respondents. In the dry seasons, 25.4% of the households spent less than 30 minutes at the water points while 26.1% of the households spent 30 minutes to 1 hour (Figure 4.9 and Table 4.9). FGDs indicated that with drought, water points were shared between many households and between livestock and human beings hence the long waiting times across all water points in all the five Counties with some Counties such as Marsabit, Wajir and Garissa reporting reductions in accessible volumes.

Figure 4.9: Time spent at household's main source of water for drinking and domestic use during wet and dry seasons

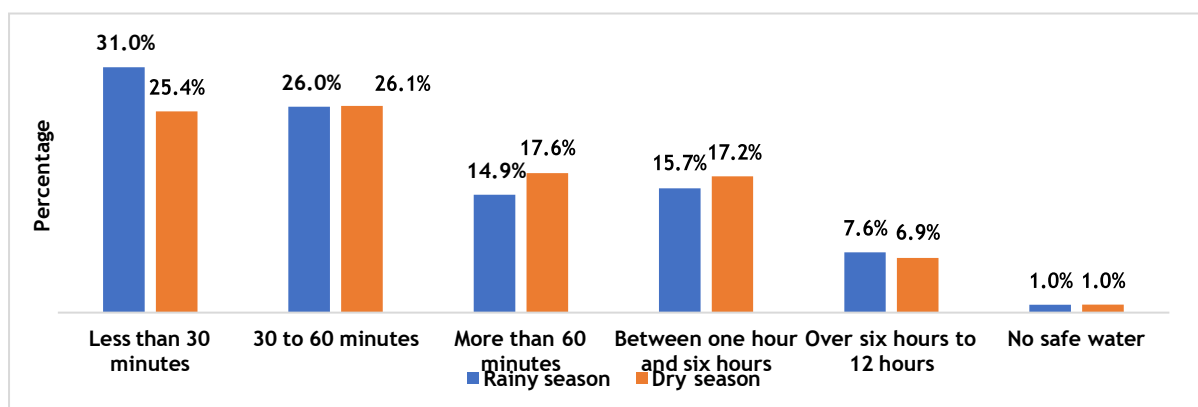


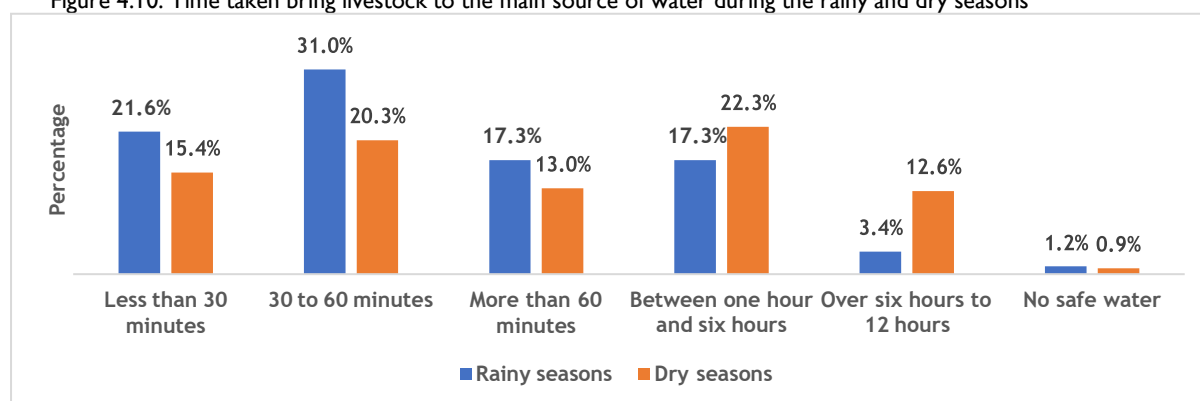
Table 4.9: Time spent at household's main source of water for drinking and domestic use during the wet and dry seasons

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Rainy seasons						
Less than 30 minutes	40.9% (158)	31.0% (136)	6.0% (20)	37.9% (152)	35.4% (145)	31.0% (611)
30 to 60 minutes	19.9% (77)	17.5% (77)	28.1% (94)	22.2% (89)	42.9% (176)	26.0% (513)
More than 60 minutes	15.3% (59)	11.2% (49)	25.7% (86)	12.0% (48)	12.4% (51)	14.9% (293)
Between one hour and six hours	15.3% (59)	19.4% (85)	25.7% (86)	13.5% (54)	6.1% (25)	15.7% (309)
Over six hours to 12 hours	4.7% (18)	17.8% (78)	10.2% (34)	3.7% (15)	1.2% (5)	7.6% (150)
Over 12 hours to 24 hours	2.6% (10)	1.8% (8)	3.3% (11)	1.2% (5)	0.0% (0)	1.7% (34)
More than 24 hours but less than 72 hours	0.0% (0)	0.0% (0)	0.6% (2)	0.5% (2)	0.2% (1)	0.3% (5)
No safe water	1.3% (5)	0.5% (2)	0.3% (1)	2.2% (9)	0.7% (3)	1.0% (20)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)
Dry seasons						
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total

Less than 30 minutes	40.2% (155)	19.6% (86)	3.9% (13)	27.9% (112)	32.9% (135)	25.4% (501)
30 to 60 minutes	15.8% (61)	23.5% (103)	24.0% (80)	28.7% (115)	38.0% (156)	26.1% (515)
More than 60 minutes	16.3% (63)	13.7% (60)	26.0% (87)	18.5% (74)	15.4% (63)	17.6% (347)
Between one hour and six hours	16.8% (65)	20.5% (90)	29.6% (99)	11.0% (44)	10.0% (41)	17.2% (339)
Over six hours to 12 hours	5.2% (20)	13.2% (58)	12.0% (40)	2.7% (11)	1.7% (7)	6.9% (136)
Over 12 hours to 24 hours	1.8% (7)	8.4% (37)	3.3% (11)	1.5% (6)	0.7% (3)	3.2% (64)
More than 24 hours but less than 72 hours	2.6% (10)	0.2% (1)	0.9% (3)	0.2% (1)	0.0% (0)	0.8% (15)
No safe water	1.3% (5)	0.2% (1)	0.3% (1)	2.5% (10)	0.5% (2)	1.0% (19)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1970)

On time to taken to bring the livestock to safe water sources in the rainy season, 21.6% of the households spent less than 30 minutes while 31.0% spent 30 to 60 minutes. In the dry season, only 16.5% of the households spent less than 30 minutes to bring their livestock to the main sources of safe water while 31.7% of the households took 30 to 60 minutes (Figure 4.10 and Table 3.22). FGDs indicated that during intense drought, livestock moved across sub-Counties, and across Counties and countries (Uganda, South Sudan and Ethiopia for Turkana and Somalia for Garissa and Wajir). As such, long distances were traversed and pastoralists who would at times, be away from home for months.

Figure 4.10: Time taken bring livestock to the main source of water during the rainy and dry seasons



The quotes below indicate the long distances to the water source and long waiting time at the water sources:

“You can arrive at the water point 7.00am and wait till 12.00pm to access water” [Female FGD participant, Isiolo County]

“We get water from Griftu where we have to walk. For 3 hours and coming back is another 3 hours” [Female participant in an FGD, Wajir County]

4.6 Quantity of Water Accessed

According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day are needed to meet the most basic health needs.¹⁶⁹ On per capita access, on average each household member accessed 28.73 litres of water every day in the rainy seasons (lowest in Turkana at 19.22 litres per person per day and highest in Isiolo County at 54.22 litres per person per day) and 17.17 litres during the dry season (highest for Garissa at 25.4 litres/day and lowest for Isiolo at 9.28 litres per day-Table 4.10). The differences in per capita water access across the five Counties are influenced by water sources recharge and ground seepages in the rainy seasons; specifically, Isiolo County has one of the best recharge rate (60 to 80% in pastoral zones and 40 to 60% in the other zones) as well as high ground water seepage).¹⁷⁰ On the other hand, Garissa County largely relies on the nine River based water supply schemes along the Tana River, boreholes, water pans or shallow

¹⁶⁹United Nations.2015. The Human Right to Water and Sanitation, media brief. < https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf>
¹⁷⁰Government of Kenya. 2021.The 2021 short rains season assessment report. <<https://reliefweb.int/sites/reliefweb.int/files/resources/SRA%202021%20National%20Assessment%20Report.pdf>>.

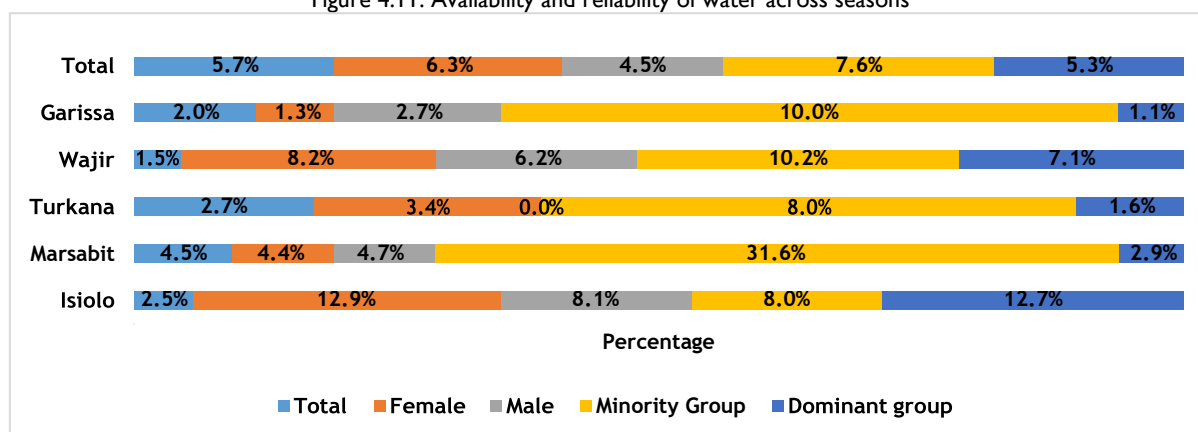
wells: and although the soil in Garissa County has low water retention capacity and Rivers such as Togoweine, Jilango, Maalimin, Afweine and Lagdera are seasonal, River Tana largely experiences normal flows across both seasons thus water availability in the dry seasons. In addition, the surface water sources and shallow wells in Garissa County have a recharge rate of about 90 percent during the long rainfall season in all the two livelihood zones hence water availability in the dry seasons.¹⁷¹ Turkana County has a significant piped water supply (approximately 27,725 households have piped water connections) but this water is largely from seasonal rivers which not only get contaminated but also causes floods and water systems pipes bursts as well as blockage of intakes. Turkana County also has a high evaporation rate undermining the low ground water seepage hence a moderate per capita water access in the dry seasons.¹⁷²

Table 4.10: Volume of water accessed by household and by each household member per day during rainy and dry seasons

Season	Variable	County					All the 5 Counties		
		Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
Rainy seasons	Safe water amount accessible for domestic use daily in each HH in litres	130 Litres	323 Litres	108 Litres	103 Litres	161 Litres	177 Litres	155 Litres	170 Litres
	Safe water amount per person per day in litres	20.97 Litres	54.22 Litres	22.08 Litres	19.39 Litres	23.28 Litres	29.79 Litres	26.39 Litres	28.73 Litres
Dry seasons	Safe water amount accessible for domestic use daily in dry season in each HH in litres	151 Litres	56 Litres	70 Litres	79 Litres	166 Litres	97 Litres	120 Litres	105 Litres
	Safe water amount per person per day in litres	25.40 Litres	9.28 Litres	14.55 Litres	13.78 Litres	23.34 Litres	16.59 Litres	18.46 Litres	17.17 Litres

Respondents were asked to rate water availability (quantity) and reliability on a scale of 1 to 5 with 5 being the highest score and 1 being the lowest score. Overall, only 5.7% rated water availability and reliability 5/5 across both seasons (6.3% females, 4.5% males, 7.6% minority community group members and 5.3% dominant community group members)-Figure 4.11. In the rainy season, the quantity of water available for human consumption and domestic use was rated 3.39/5 while the volume available for livestock use in this period was rated 3.32/5. In the dry seasons, the quantity of water available for human consumption and domestic use was scored 2.75/5 while the volume available for livestock consumption was rated 2.18/5 (Table 4.11).

Figure 4.11: Availability and reliability of water across seasons



¹⁷¹Kenya Food Security Steering Group (KFSSG) and the Garissa County Steering Group (CSG). 2020.Garissa County, 2020, long rains food and nutrition security assessment report. < http://96.31.88.35/Content/Library/Documents/Garissa_LRA_Report-_202020220107084125.pdf>.

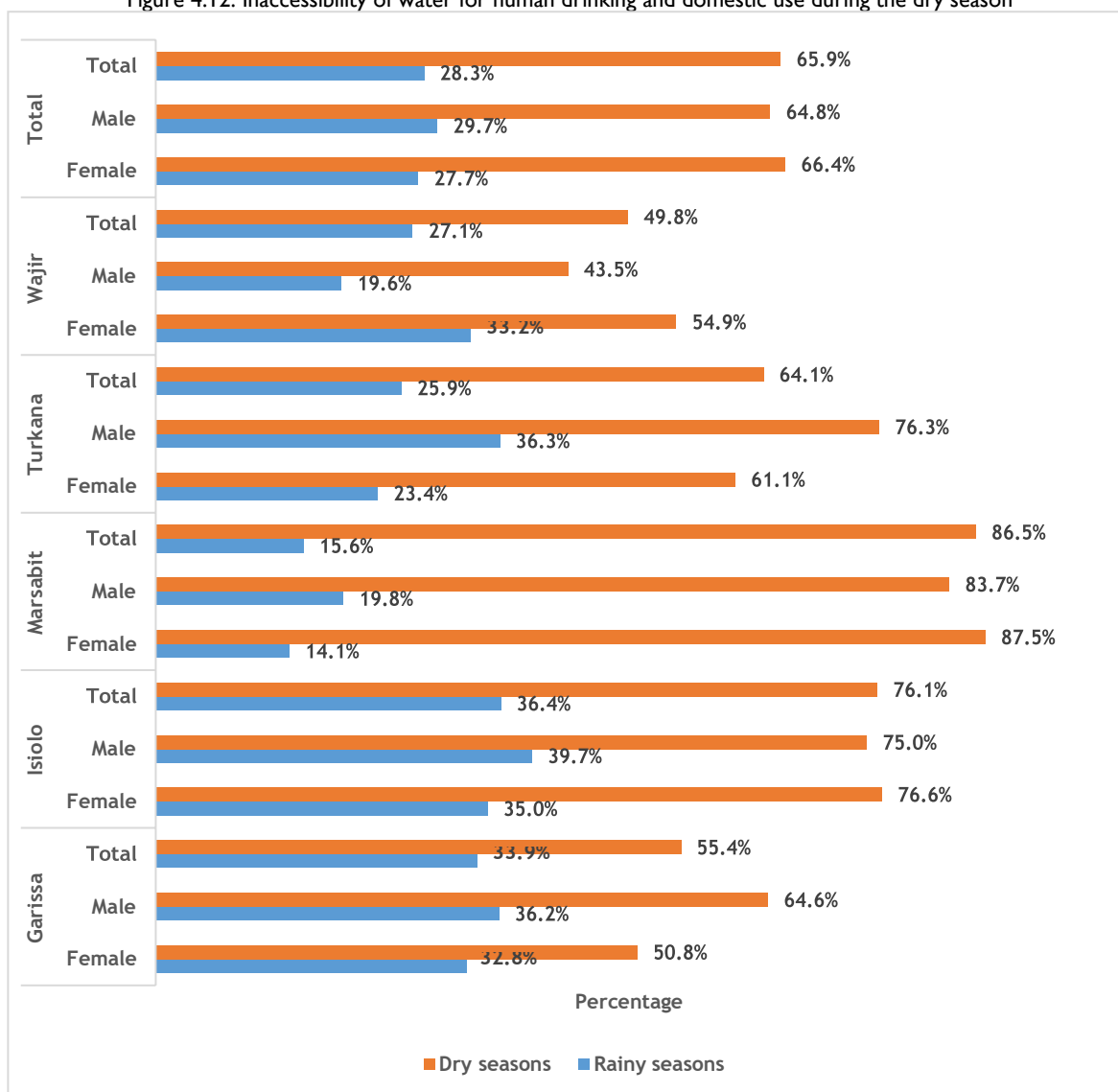
¹⁷²International Ground Water Assessment Center:2013. Review of the Report: Advanced Survey of Groundwater Resources of Northern and Central Turkana County, Kenya (RTI, August 2013). < <https://www.un-igrac.org/sites/default/files/resources/files/IGRAC%20review%20of%20the%20RTI%20Turkana%20Report.pdf>>.

Table 4.11: Availability and reliability of water across seasons

Variable	County					All the 5 Counties		
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
Water quantity wet/rainy season for drinking and domestic use (mean)	2.84	4.00	4.26	2.76	3.68	3.40	3.37	3.39
Water quantity dry season for drinking and domestic use (mean)	3.02	2.65	3.26	2.48	3.30	2.76	2.73	2.75
Water quantity wet/rainy season for livestock consumption(mean)	3.71	3.94	4.05	2.39	3.40	3.31	3.34	3.32
Water quantity dry season for livestock consumption(mean)	1.90	2.22	2.58	2.01	2.75	2.13	2.29	2.18

Additionally, 28.3% of the respondents identified that water was inaccessible at their main sources of safe water at times in the rainy season (15.6%) in Marsabit County and 36.4% in Isiolo County) while in the dry seasons, inaccessibility of water for drinking and domestic use in their main sources of safe water was reported by 65.9% of the respondents (55.4% in Garissa County and 86.5% in Marsabit County)-Figure 4.12.

Figure 4.12: Inaccessibility of water for human drinking and domestic use during the dry season



Reasons for unavailability of water in the rainy seasons were reported as: long queues (40.3%), contamination of water sources (26.5%), unfunctional water sources (24.7%), long distance to the water sources (24.2%), floods (14.9%), insecurity (18.6%), reduced water levels (16.7%), restrictions on daily time and accessible amounts (9.9%), fatigue associated with carrying/transportation of water (8.2%), impassable roads/mud (9.7%), unaffordability (9.3%), busy with other/multiple household chores (3.2%), and illnesses of caregivers and children (1.4%)-Table 4.12. From the FGDs, floods, impassable roads, contamination of rivers and surface water by livestock and wildlife, and blockages of water pipes by objects, were listed as hindrances to water access in the rainy season across all the five Counties.

Reasons for unavailability of water in the dry seasons were cited as long queues (67.4%), low water levels (53.5%), long distances to water points (45.6%), insecurity (23.6%), unaffordability (18.6%), fatigue from carrying/transporting water (17.1%), unfunctional water sources (15.3%), contamination of water (10.2%), breakdown of water systems (11.3%), daily restrictions (12.9%), being busy with other household chores (4.6%) and illnesses of caregivers and children in the households (0.5%)-Table 4.12. From the FGDs, the main barriers to access of water in the dry seasons in all the five Counties were: unavailability, water contamination, reduced levels of water, long queues, and long distances to water points, unaffordability, and conflicts over water. Overall, long queues characterize water access in both seasons which is an indication that human population and livestock herds are increasing hence a need for additional sources of water Counties.

Table 4.12: Top 3 reasons for not accessing water for drinking and domestic use during dry and rainy seasons

County	Rainy seasons	Reasons	Dry seasons	Reasons
Marsabit	Long queues	50.0% (26)	Long queues	87.2% (252)
	Insecurity/conflict	46.2% (24)	Low water levels	56.1% (162)
	Busy with other chores	15.4% (8)	Long distance to the water point	46.4% (134)
Garissa	Long queues	38.9% (51)	Long queues	66.4% (142)
	Unfunctional water source	38.2% (50)	Long distance to the water point	36.9% (79)
	Floods	24.4% (32)	Breakdown (pumps or generators)	25.7% (55)
Isiolo	Long queues	40.3% (225)	Long queues	60.5% (202)
	Contamination of water	26.5% (148)	Low water levels	59.0% (197)
	Unfunctional water source	24.7% (138)	Insecurity/conflict	42.8% (143)
Turkana	Long queues	48.1% (50)	Long queues	77.0% (198)
	Long distance to the water point	48.1% (50)	Low water levels	70.4% (181)
	Contamination of water	40.4% (42)	Fatigue from transportation of water/walking to and from the water source	33.1% (85)
Wajir	Contamination of water	42.3% (47)	Low water levels	56.9% (116)
	Long queues	35.1% (39)	Long queues	39.7% (81)
	Illnesses of caregivers and children	35.1% (39)	Unaffordability	23.5% (48)
All Counties	Long queues	40.3% (225)	Long queues	67.4% (875)
	Contamination of water	24.7% (138)	Low water levels	53.5% (694)
	Unfunctional water source	26.5% (148)	Long distance to the water point	45.6% (592)

Below are some quotes on inaccessibility of water:

“Out of the 170 households in the village only 70, access water in a day, this calls for rotational access to water” [Female FGD participant, Wajir County]

“We pay 500 Kenya shillings per day to hire a donkey to transport water” [Male FGD participant, Marsabit County]

Snapshot: Sericho community members in Isiolo County waiting to access water, the average waiting time is 60 minutes since one of the pumps is not functional. Normally, each one would take about 15 minutes to fetch water from the community boreholes when they are functional. This snapshot indicates that, non-functional water sources disrupt the daily routine of community members necessitating them to use more time accessing water, this time would otherwise be freed for productive livelihoods activities.



Inaccessibility of adequate water for livestock consumption in the rainy seasons was reported by 19.1% of the households (highest in Isiolo County at 24.4% and lowest in Garissa County at 15.8%). Similarly, in the dry season, inaccessibility of adequate water for livestock consumption was reported by 63.9% of the respondents (highest in Marsabit County at 88.9% and lowest in Garissa County at 47.4%)- Figure 4.13.

Reasons for inaccessibility of water for livestock in the rainy seasons were identified as long queues (51.6%), insecurity/conflict (29.8%), long distance to water points (29.6%), contamination of water sources (22.9%), reduced water levels (17.6%), restrictions in volume of water (13.0%), unfunctional water systems (14.6%), unable to walk to sources due to fatigue (8.5%), floods (4.0%) and livestock illnesses (0.8%).

From the FGDs, barriers to water access by livestock in the rainy seasons were due to floods and contamination of water sources. Reasons for inaccessibility of water by livestock in the dry season were long queues (65.6%), long distances to the water points (56.0%), fatigue from walking long distances (15.0%), low water levels (55.3%), insecurity (28.8%), restrictions in accessible volumes (12.2%), contamination of water (8.4%), unaffordability of water (16.8%), unfunctional water sources (13.1%), breakdown of pumps (3.1%) and ill livestock (0.6%)-Table 4.13. The FGDs corroborated these reasons identifying unavailability of water mainly due to insecurity and fatigue for both livestock and humans as the main barriers to water access in the dry seasons.

Figure 4.13: Unavailability of water for livestock consumption during dry and rainy seasons

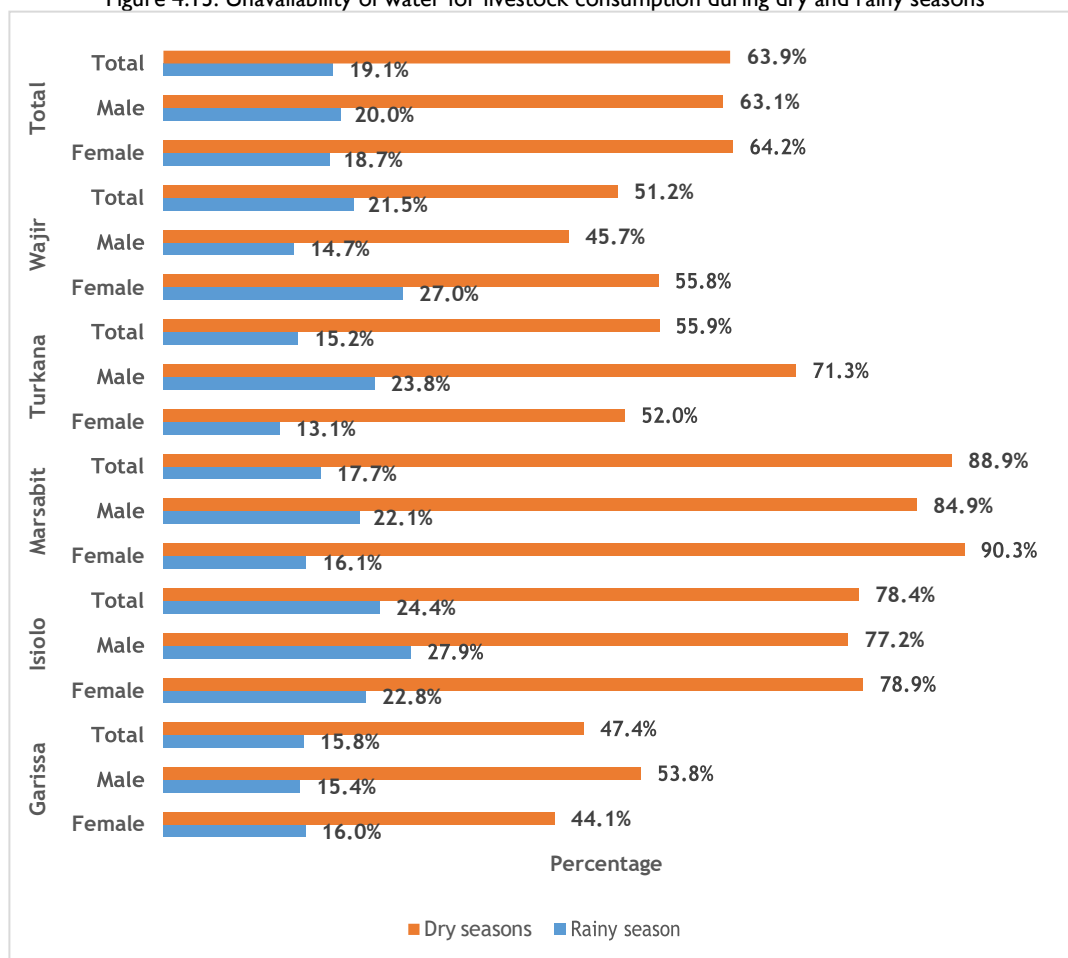


Table 4.13: Top 3 reasons for unavailability of water for livestock consumption in dry and rainy seasons

County	Rainy seasons	Reasons	Dry seasons	Reasons
Marsabit	Long queues	55.9% (33)	Long queues	84.2% (250)
	Insecurity/conflict	49.2% (29)	Long distance to the water point	59.3% (176)
	Reduced water levels	23.7% (14)	Low water levels	54.5% (162)
Garissa	Long queues	49.2% (30)	Long distance to the water point	65.6% (120)
	Long distance to the water point	37.7% (23)	Long queues	66.7% (122)
	Unaffordability	21.3% (13)	Unaffordability	36.6% (67)
Isiolo	Long queues	74.8% (80)	Long distance to the water point	63.4% (218)
	Insecurity/conflict	41.1% (44)	Low water levels	59.9% (206)
	Long distance to the water point	37.4% (40)	Long queues	59.6% (205)
Turkana	Contamination of water	55.7% (34)	Low water levels	71.9% (161)
	Insecurity/conflict	45.9% (28)	Long queues	70.1% (157)
	Long queues	45.9% (28)	Long distance to the water point	58.5% (131)
Wajir	Contamination of water	35.2% (31)	Low water levels	58.1% (122)
	Long queues	26.1% (23)	Long queues	43.3% (91)
	Impassable roads/mad	19.3% (17)	Long distance to the water point	28.1% (59)
All Counties	Long queues	51.6% (194)	Long queues	65.6% (825)
	Insecurity/conflict	29.8% (112)	Long distance to the water point	56.0% (704)
	Contamination of water	22.9% (86)	Low water levels	55.3% (696)

4.7 Water Access Rights

Overall, 73.1% of the respondents indicated that they had equal rights to access of water with other community members, the lowest acknowledgement coming from Turkana County (68.3%)-Table 3.28. Similarly, 75.0% of the respondents felt their clans had same (equal) rights to access water with other clans, the lowest acknowledgement again coming from Turkana County. From the FGDs and the KIs, access to water for agricultural production was limited for some individuals and groups.

The water points in the Kalobeyei settlement and in the Kakuma refugee camps and on private lands around Kakuma town were not accessible for pastoralists. The survey established that 60.2% of the respondents felt welcomed by other communities to access water in times of need (least in Isiolo and Marsabit Counties at 40.1% and 39.5% respectively)-Table 4.14. From the FGDs and KIs, ethnic clan conflicts over water and pasture were perennially high in Marsabit and Isiolo Counties and were even happening during the period of data collection for this survey. In Wajir and Garissa Counties, FGD participants indicated that they could access water in the neighbouring communities as long as there was prior notification by their elders. In Turkana west sub-County, cross boarder access of water and pastures by pastoralists from Turkana and Karamoja regions occurred especially around the Oropoi area.

Table 4.14: Household respondent's perception of water sharing by communities and clan

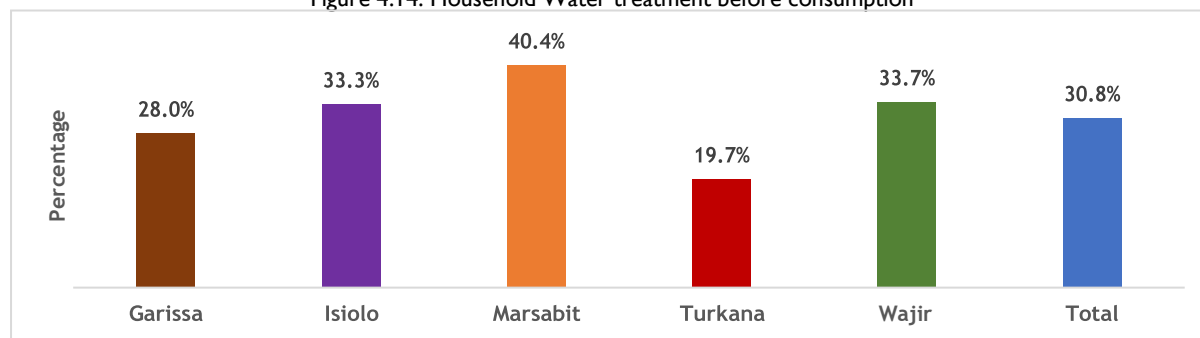
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Equal access of water with other communities	71.8% (277)	79.3% (348)	88.0% (294)	68.3% (274)	60.5% (248)	73.1% (1441)
Equal access of water with other clans	73.1% (282)	81.5% (358)	91.6% (306)	69.6% (279)	61.5% (252)	75.0% (1477)
Household is welcome by neighbouring communities to access water in times of need	96.1% (371)	40.1% (176)	39.5% (132)	43.9% (176)	80.5% (330)	60.2% (1185)

Respondents identifying that they never felt welcome by their neighbouring communities to access water, gave the following reasons: hostility by the neighbouring communities (68.3%); traditional boundaries delimiting natural access (22.9%); fear (1.35%) and attacks in the rivers (0.65%) -(See Annex 7). From the FGDs across all the five Counties, respect for boundaries and natural resources in rival communities' territory was recognized and as such, community members were cautious about trespassing into rival communities' territories as this would likely result in retaliatory attacks, loss of livestock and violence.

4.8 Treatment of Drinking Water

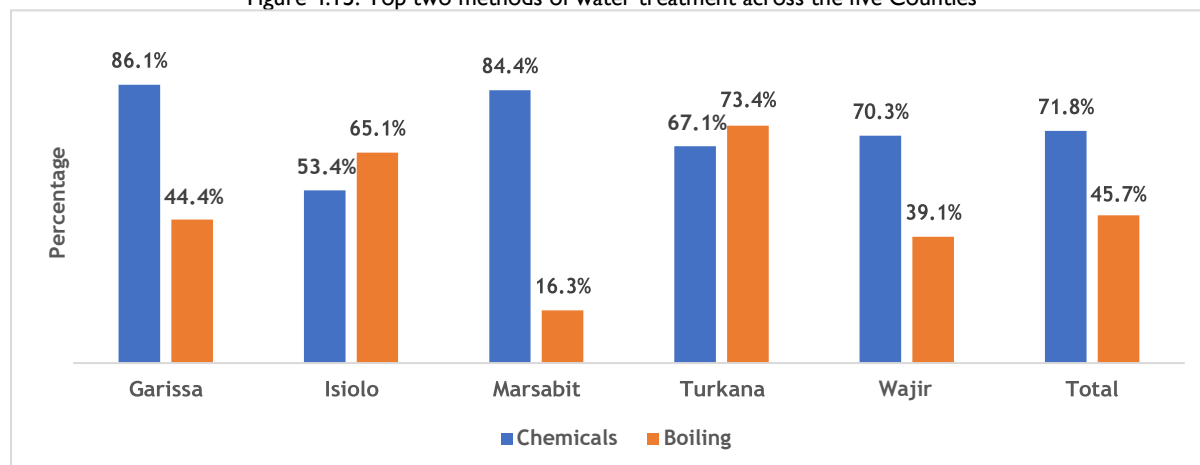
Treatment of water before drinking was reported in only 30.8% of interviewed households with the lowest responses coming from Turkana County (Figure 4.14). From FGDs with water committees and KIs with water suppliers, a considerable number of water suppliers either desalinated, sterilized or treated water before distribution, hence no further treatment was done by households. FGDs across the five Counties on the other hand, indicated that, cost considerations and physical inaccessibility of water treating agents were cited as other barriers to water treatment, as well as low knowledge levels, ignorance by community members, the belief that water from protected springs and wells was safe for drinking. From the KIs and FGDs, in Marsabit County water was largely described as unsafe for drinking without treatment while in Garissa County, water was largely termed as being safe for human consumption without treatment.

Figure 4.14: Household Water treatment before consumption



Among the households treating water before drinking, chemical usage was the main treatment method (71.8%) supported largely by humanitarian organizations, and not often for reasons of cost and geographic unavailability of treatment agents. Other methods used in water treatment before consumption were boiling (45.7%), letting water settle before consumption to get rid of objects (11.2%), sieving with clothes (5.0%), direct sun heating (3.3%), straining (1.3%), ceramic filtration (0.7%) and slow sand filtration (0.7%)-Figure 4.15.

Figure 4.15: Top two methods of water treatment across the five Counties



Case Study: Poor O & M capacities undermine communities' access to adequate and safe water in Turkana West

A persistent drought running nearly 2 years now has combined with low skills in O & M, low knowledge of source protection, and inability or unwillingness to pay for water services to deny the majority of Turkana County Residents access to adequate and safe water for drinking, domestic hygiene, and livestock watering. In Lokore ward of Turkana West sub-County solarized and hand-pumped boreholes built with the support of development partners are unable to meet local demand for multiple water use due to breakages and source pollution.

A weary herdsman standing in wait about 50 meters away from the main community water source, with some 200 goats and sheep remarks, "Sometimes we have to wait up to 2 days to take our turn".

The source of water is a borehole sunk by the catholic church some 17 years ago and operated by an old "Duba" hand pump. At the pump, a young lady being assisted by a young man to turn the pump's wheels complains, "The water level is so low, and the water is too salty, but we have no choice." "It takes nearly 5 minutes to bring the water to the surface", the assisting young man adds.

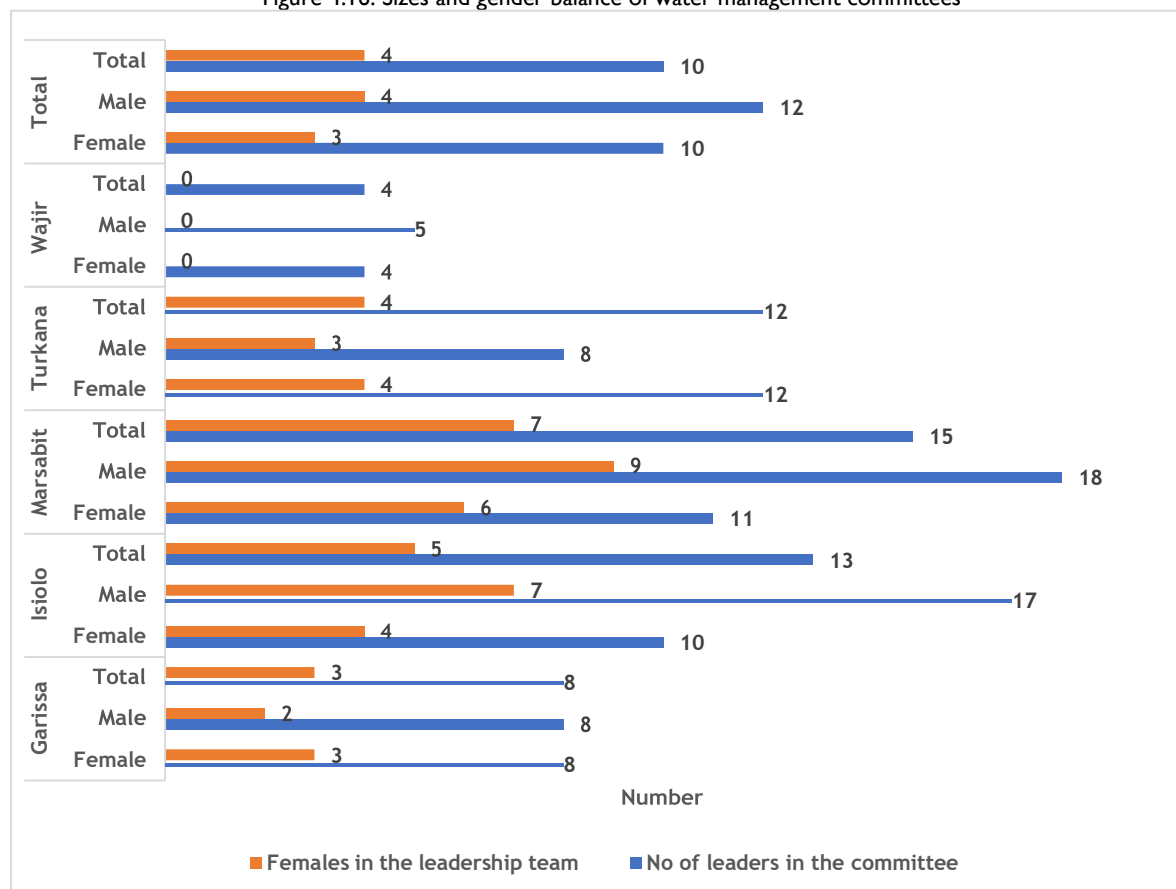
A little further away, about a hundred young women and girls are huddled together, taking their turn off a broken pipeline. One of them remarks that the water has little brown wiggly insects and that for them, staying at the source for an entire day, and sometimes going back without water is not uncommon.

These problems are especially acute during the dry season when the ground water levels are too low, and when neighbouring communities must converge at the same sources to water their animals. The solarized borehole from which the pipeline is extended was built for a near-by mixed primary school by an NGO. The NGO allowed the community to use the water, as long as they built their own extension. Unable to do this, the community approached another NGO, which helped them build the extension to a near-by village and even installed a water kiosk. However, both the water kiosk and the pipeline supplying it have since broken down and the community is looking to new donors again for assistance to repair the extension. A big part of the problem has to do with the lack of effective stewardship of the two water sources. While a water management committee exists for the two sources, it has not been able to rally the community around the need to protect and manage the sources. "We elected a committee, but they are not effective." In the past, each HH paid KSHs 100/month. This was changed to KSHs 5.00 per jerrican, and the community still paid. When the pump and the pipeline broke down and the committee did not have funds to do the needed repairs, the community stopped, to date

4.9 Water Management

An average of 10 officials formed a Water Management Committee (4 in Wajir County, 12 in Turkana County, 18 in Marsabit County, 17 in Isiolo County and 8 in Garissa County). There were at least 4 female members in each committee (0 in Wajir, 6 in Marsabit County, 4 in Isiolo County, 3 in Garissa County and 4 in Turkana County) and at least 6 male members (Figure 4.16). Marsabit and Isiolo Counties had the highest number of committee leaders at 15 and 11, respectively. FGDs with community members indicated that this was necessary in order to accommodate all the clans. Further from the FGDs, Water User Committee officials were elected once every three years by community members. Selection was wide to ensure representation of every clan, community, village, even the water catchment area.

Figure 4.16: Sizes and gender balance of water management committees



FGDs with water user committees indicated that women served as treasurers in most committees while youths served as secretaries as well as water source operators. Different water committees in the five Counties were performing distinct functions but the main cross cutting activities were: water rationing; distributing water to all households; and repair of water systems and in a few instances collecting fees and contributions for water access and use.

The supplied water was largely used for human consumption, domestic use, livestock use except in Wajir and Turkana County where water was used for irrigation purposes. In Wajir County, schools and health facilities were also supplied with water from these water user committees. Across all Counties, during drought, water was only supplied for drinking and domestic use with reduced amounts for livestock consumption. The committees met once a month during the rainy season but in the dry seasons when water unavailability was high, as well as destruction of pipes by heat and wildlife, they met twice or thrice. Communication of information about meetings was done verbally or via mobile phones and although the issue of quorum requirement for meetings to take off was well known, it was not always adhered to (Table 4.15).

Table 4.15: Leadership and operation and management Water Users Committees

County	Name of the water committee	Year of formation	Number of officials/ leaders in the committee	Number of meetings in a month	Training, Record Keeping and Fund raising	Turnaround time for repairs	Charges for water	Technology used	Water uses
Marsabit	El Hadi	2018	Total=6 Male=6 Female=0 (0%) Youth=3 (50.0%)	1	<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • No raising of funds 	10 days	Per livestock Per household	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock
	Kamboe	2015	Total=11 Male=9 Female=2(18.2%) Youths=4(18%) PLWDs=1	4 (all Mondays)	<ul style="list-style-type: none"> • Not trained in the last two years Keeps records • No raising of funds 	7 days	Per household	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock
Isiolo	Lowangalani	2013	Total=17 Male=16 Female=1 (5.9%) Youth=0 (0.0%)	0 (They meet once in 3 months)	<ul style="list-style-type: none"> • Not trained in the last two years • Keeps records Does fund raising 	7 days	Monthly contribution	Hand pump	<ul style="list-style-type: none"> • Human • Domestic • Livestock
	Iresaboru	2007	Total=15 Female=2 (13.2%) Male=13 Youth=7 (13.3%)	4	<ul style="list-style-type: none"> • Not trained in the last two years • Keeps records • Does fund raise 	2 days	Monthly contribution Fines for breaking the by laws	Diesel generators Solar	<ul style="list-style-type: none"> • Human consumption • Domestic use • Livestock
	Maendeleo		Total=13 Male=8 Female=5 (38.5%) Youth=6 (38.5%) PLWDs=2	2	<ul style="list-style-type: none"> • Not trained in the last two years • Keeps records Does fund raising 	7	100 KSHs every month	Pipes from the river to a storage tank (gravity)	<ul style="list-style-type: none"> • Human • Domestic • Livestock
Turkana	Lokichoggio	2012	Total=10 Male=8 Female=2 (20.0%) PLWD=1 Youth=4 (50.0%) Ngikwatela and Ngijie are the dominant clans	4	<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • Does fund raising including grants application 	0 [water can be obtained from the kiosk when pumps fail]	KSHs 5 per 20 litres Jerricans for non-members Household metres which are paid on monthly basis	Solarized boreholes Storage tanks (erected and underground tanks) Water treatment Use of batteries and diesel-run generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock

	Loritit	2020	Total=12 Female=6 (50.0%) Male=6 Youths=6 (50.0%)		<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • Does fund raise 	90	KSHs 10 for every 20 Litters for non-members Members pay a monthly fee	Solar power	<ul style="list-style-type: none"> • Human • Domestic • Livestock • Construction • Irrigation
Wajir	Griftu	2013	Total=6 Male=3 Female=3 (50.0%) Youth=1 (16.7%)	1 in rainy seasons in dry seasons	<ul style="list-style-type: none"> • Not trained in the last two years • No record keeping • No raising of funds 	14 days	Done by WAJASCO through meter systems	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock
	Bulla Hagar	2014	Total=6 Male=4 Female =2 (33.3%) Youth=3 (50.0%)	1	<ul style="list-style-type: none"> • Not trained in the last two years • No record keeping • No raising of funds 	7 days	5 KSHs for 20 liters in the dry season Free water in the rainy seasons	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock
Garissa	Saka	2007	Total=11 Male=7 Female=4 (36.3%) Youth=2 (18.2%)	1	<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • Does fund raising 	4 days	300 KSHs per household every month	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic use • Livestock use • Household consumption
	Balich	2010	Total=11 Male=7 Female=4 (36.3%) Youth=2 (18.2%)	1	<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • Does fund raising 	4 days	300 KSHs per household every month	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock
	Dertu	2018	Total=11 Male=7 Female=4 (36.3%) Youth=2 (18.2%)	1	<ul style="list-style-type: none"> • Trained in the last two years • Keeps records • Does fund raising 	4 days	300 KSHs per household every month	Solar power Diesel generator	<ul style="list-style-type: none"> • Human • Domestic • Livestock

Some quotes on the management of water resources:

“Committee elections are conducted by the community members in the presence of the ward administrator” [Male FGD participant, water user committee, Marsabit County]

“A quorum of 5/6 members is required for the committee to hold a meeting” [Female FGD participant, water committee, Wajir County]

“Women are involved mostly in saving ad resource handling; they also help in decision making. The youth help in performing maintenance works. Minority clan play a role of representation of their communities’ interests in the committee” [Female FGD participant, water committee, Isiolo County]

“We do not feel adequately represented in the committee, Ngikwatela and Ngijie are the dominant clans” [Male FGD participant, water committee, Turkana County]

“The committee was formed to respond to frequent water pipes bursts” [Male FGD participant, Water committee in Wajir County]

“Youths operate the water distribution system; each village has allocated time to access water after which it is directed to other villages” [Female FGD participant, water committee, Marsabit County]

“Women are the pillars of the families; they understand water needs in the households better hence their inclusion in the committees. They ensure that households do not fight over water” [Female FGD participant, water committee, Wajir County]

“We sort disputes in the water committee via voting, the majority take the day” [Male FGD participant, water committee, Wajir County]

“After devolution, WAJASCO took up all activities related to record keeping, metre reading and collection of payments for monthly water Bills, so, we do not keep any records” [Male FGD participant, water committee, Wajir County]

“We used to pay via cards, but WAJASCO collects user money from all households at the end of every month. We pay based on monthly metres which is more expensive” [Female FGD participant, water committee, Wajir County]

“The women do collect contributions when there is need for water repairs” [Female FGD participant, water committee, Garissa County]

“There is no cooperation in payment of the monthly fee, thus we end up denying those who have not paid water hence wrangles in the committee” [Male FGD participant, water user committee, Isiolo County]

“Water usage is not controlled when there is sufficient water. During the dry seasons, water is controlled to ensure sharing of the little available volume” [Male FGD participant, water user committee, Isiolo County]

“Gender is considered in boards and committee composition, women, and other interest groups are at centre of water delivery” [KII respondent, Turkana County]

Breakages of water systems occurred mainly during the dry seasons and were due to many causes. The FGDs with the WUCs identified a number of these- pipe bursts caused by heat, damage of pipes by wildlife and livestock, pipe bursts due to air locks, salinity, poor operator skills, engine breakage, blockage of suction, and unavailability of diesel and inability of solar panels to generate adequate power to pump water. Floods during the rainy season were another cause. Repair works generally took 1 to 3 weeks due to unavailability of funds, unavailability of technicians and spare parts having to be sourced from distant places (usually away from the Counties). Maintenance is largely based on voluntary community-based management (CBM) by WUCs with communities taking on the burden of maintenance themselves, with limited, if any, support from external agencies, Constituency Development Fund (CDF) or County governments. This CBM model is currently struggling to ensure water supply infrastructure are adequately maintained. Related to this was the fact that no WUC reported to undertake preventive maintenance (regular inspection and servicing, including replacement of consumable spare parts, to preserve assets and minimize breakdowns carried out on a regular schedule according to the requirements of components of the scheme) hence waiting till breakdowns to undertake corrective/crisis maintenance (repair and replacement of broken and worn- out parts) implying catastrophic failures, which require unplanned or emergency response to breakdowns and user complaints.

In terms of technologies for pumping water, most water user committees used hand pumps, solar pumps, or diesel generators or both solar pumps and diesel generators. Kils in Turkana County indicated a plan to use sensors for boreholes but the same had not been actualized due to unavailability of dedicated budgets, limited skills to use the data, and the absence of a formal “work procedure” with defined roles, responsibilities, and processes — for sub-County and rapid response staff to regularly check sensor status, update information, and use the system.

Control of water was done either through volume limits per day or time (minutes or hours per day) while in some committees’ valve control systems were used to direct water to different villages or sections of users as well as schools and health facilities. Only one committee (Loritit in Turkana County) was found to be engaged in water catchment protection and regeneration activities, which included tree planting around the boreholes, riverine protection, community sensitization on protection of water sources, fencing and protection of springs, planting and nurturing of fruit and other trees, Prosopis management, soil and water conservation measures such as terracing, gabion construction, gully control and flooding management (community early warning, flooding vulnerability mapping, training of communities in drought mitigation and management, planting of drought resistant crops)-Table 4.16.

On multiple water use, there is no evidence available on productive uses of water by households apart from isolated cases of women groups using water for small scale irrigation and kitchen gardens. Thus, the non-productive uses of water (for sanitation, hygiene, and domestic chores) remain the main forms in addition to livestock production. FGDs however indicate that with improved water supply there is potential for women to be engaged in pasture production, cultivation of land around their households, value addition for fruits and vegetables and conversion of milk when in glut to long lasting milk products for use in dry seasons. Currently these viable options are limited by inadequate skills, inaccessibility of capital, lack of assets, limited decision making on land and livestock matters.

Table 4.16: Strengths and weaknesses of water user committees and challenges faced by water user committees

County	Committee name	Strengths of the committees	Weaknesses in the committees	Challenges facing the committees
Marsabit	El Hadi	<ul style="list-style-type: none"> • Community acceptability • Supportive clan leaders • Record keeping • Raising of funds from members 	<ul style="list-style-type: none"> • Inadequate trainings • Inadequate contributions by community members 	<ul style="list-style-type: none"> • Large herd sizes with 48 hours of waiting • Geographical inaccessibility of diesel • Frequent breakage of the generator engine
	Kamboe	<ul style="list-style-type: none"> • It is able to manage the cash flow • It is able to run the daily borehole routine management • They are able to hold meetings weekly for smooth running of the borehole activities • Record keeping • Acceptability by community members and local leaders 	<ul style="list-style-type: none"> • They lack skills for current technology • They lack capacity in repairing the borehole generator, water pump and motor in the fastest way possible • Lack of capacity in constructing more storage tanks • No water catchment protection 	<ul style="list-style-type: none"> • Small storage tanks • Poor operator skills • Frequent breakages
Isiolo	Lowangalani	<ul style="list-style-type: none"> • Acceptability by community members • High number of members representing all clans and community groups • Record keeping 	<ul style="list-style-type: none"> • No frequent meetings • Low women representation • Some members do not make monthly contributions/no enforcement of rules • Use of obsolete technology • No water catchment protection 	<ul style="list-style-type: none"> • Long queues to access drinking water • Limited water resources especially during dry seasons • Increasing population (both human and livestock) • Wildlife human conflict (destruction of water infrastructure by elephants) • Conflict among the communities (mostly from neighbouring Counties) • Literacy levels are low
	Iresaboru	<ul style="list-style-type: none"> • By laws • Fines for breaking by laws • Record keeping 	<ul style="list-style-type: none"> • Low representation of females • No water catchment protection 	<ul style="list-style-type: none"> • Noncompliance with by laws • Encroachment of the water point by non-members • Limited water resources especially during dry seasons • Increasing population (both human and livestock) • Wildlife human conflict (destruction of water infrastructure by elephants) • Conflict among the communities (mostly from neighbouring Counties) • Literacy levels are low
	Maendeleo	<ul style="list-style-type: none"> • High representation of women • Inclusivity (minority clans) • Record keeping 	<ul style="list-style-type: none"> • Low attendance of meetings • No water catchment protection • Salinity of water 	<ul style="list-style-type: none"> • Small storage tanks • Poor operator skills • Frequent breakages

			<ul style="list-style-type: none"> • Delays in payment of monthly fees • Limited water resources especially during dry seasons • Increasing population (both human and livestock) • Wildlife human conflict (destruction of water infrastructure by elephants) • Conflict among the communities (mostly from neighbouring Counties) • Literacy levels are low 	
Turkana	<ul style="list-style-type: none"> • Lokichoggio 	<ul style="list-style-type: none"> • String management • 'Rotation of meetings across villages • Requirement of 2/3 quorum for meetings to kick off • Has a bank account • Auditing is done biannually • Applies for grants from humanitarian organizations for expansion and repair works • Teamwork • High number of members • Record keeping 	<ul style="list-style-type: none"> • Inadequate collections • Wide coverage 	<ul style="list-style-type: none"> • Unavailability of spare parts • High cost of fuel • Aging pumps
	<ul style="list-style-type: none"> • Loritit 	<ul style="list-style-type: none"> • Water catchments protection • Youthful leadership • Gender equity in the leadership • Record keeping • Backup plan for water system breakage • Regular meetings 	<ul style="list-style-type: none"> • Inadequate management skills (communication, finances management and partnerships development) 	<ul style="list-style-type: none"> • Challenges in payment of monthly fees • Overworked committee with no compensation
	<ul style="list-style-type: none"> • Griftu 	<ul style="list-style-type: none"> • Availability of members ready to serve the community • Community members support • Knowledge of water points • Knowledge of water quality 	<ul style="list-style-type: none"> • No income for repair works • Frequent breakdowns • Many members in need of water • No training • No record keeping • No by-laws/rules • Low storage capacity/small tanks • No water catchment protection • Illiteracy • They serve for three years and cannot be just replaces as this can cause conflicts 	<ul style="list-style-type: none"> • Frequent destruction of water pipes by wildlife and livestock • High catchment area for water supply • Low quality water pipes • Weak/old solar panel • Financial inaccessibility of diesel

			<ul style="list-style-type: none"> • Poor governance • Poor finance management skills 	
	<ul style="list-style-type: none"> • Bulla Hagar 	<ul style="list-style-type: none"> • Unity of members • Efficient communication • Knowledge of water points • Knowledge of water quality 	<ul style="list-style-type: none"> • No water catchment protection • No training • Water is inadequate • No money for repairs • Illiteracy • They serve for three years and cannot be just replaces as this can cause conflicts • Poor governance • Poor finance management skills 	<ul style="list-style-type: none"> • Water is not enough • Pipe burs area very frequent • No money for repairs
Garissa	<ul style="list-style-type: none"> • Saka 	<ul style="list-style-type: none"> • Equitable water distribution • Record keeping • Contributions from members 	<ul style="list-style-type: none"> • Contributions, are not enough • Inadequate training/skills • No water catchment protection 	<ul style="list-style-type: none"> • Inadequate solar power/diesel to pump water • Unaffordability of spare parts • High costs of maintenance including security services
	<ul style="list-style-type: none"> • Balich 	<ul style="list-style-type: none"> • Acceptability of the committee • Record keeping • Contributions from members 	<ul style="list-style-type: none"> • Inadequate training/skills • No water catchment protection 	<ul style="list-style-type: none"> • Frequent break downs
	<ul style="list-style-type: none"> • Dertu 	<ul style="list-style-type: none"> • Acceptability of the committee • Record keeping • Contributions from members 	<ul style="list-style-type: none"> • Inadequate training/skills • No water catchment protection 	<ul style="list-style-type: none"> • High costs of maintenance • Inadequate solar power/diesel to pump water

Case study: Attir Water User Committee



This WUC water infrastructure is in Attir village of Isiolo County. The project was implemented in 2017 by Kenya RAPID program and serves two villages with a population of about 350 households. Being in semi-arid area, the residents were used to long distances to fetch water about (10-12 kilometres) thus residents spent many hours to get the precious commodity. The project has a borehole whose water is piped to an elevated tank and then distributed to water points in two villages, (Attir and Maendeleo) covering about 4 kilometres using for supply lines. The pump is solar powered meaning that the usage is limited mostly during the day. Water is used for human consumption, domestic use, livestock consumption and farming. Being a pastoralist community, they have large numbers of animals that use this water. They allow about 120 liters of water per household for domestic use (this is based on average usage trends but and some use less volumes). When the levels of water are high, they allow farming on lands near the bore (up to 10 acres). However, this is not on fulltime basis as during the dry seasons, priority is given to domestic, and livestock uses. During this time, rationing is done, where animal watering points are supplied with water up to about 3.00pm and closed thereafter for households to fetch water for drinking and domestic use. It was noted that households are allowed to have small kitchen even during dry season for a small fee. The management of the water infrastructure and the system is left to Water Users Association Committee elected by the community to coordinate the distribution, use and maintenance of this water point. To ensure continued supply of water, the community charges manageable usage fees of 100 Kenya Shillings per month for water intended for domestic use. Monthly charges for livestock consumption are as follows: 5 KSHs for a goat or a sheep, 10 KSHs for a cow and 20 KSHs for camels (though camels are not many in the village). This collected revenue is used for repair and maintenance of the water point. Since the launch of the project, repairs undertaken have been replacement of rusty pipes as a pre-emptive measure an indication that they have not had any major breakdowns. Thus, surplus revenue collected so far has been saved in a Bank account. When farming is allowed, the charges are Kenya Shillings 250 per season for every $\frac{1}{2}$ an acre of land. The benefits of the water points have been described as: reduced distance to the water points to an average 100 to 400 meters; reduced distance covered by livestock herders in search for water; supply of vegetables and onions for families and for sale; and improved hygiene among household members; income from the larger farming ventures; improved nutrition from consumption of fruits like watermelons and paw paws; and discarding of deforestation for charcoal and firewood sale as sources of livelihoods to take up vegetables production as an alternative source of livelihood. Gaps noted in the water point that may require future interventions include fencing of the water point to secure the same from destruction by wild animals; additional storage tanks to increase the volume of water stored and distributed due to increased human and livestock population; agronomy skills; and water treatment trainings.

WRUAs enjoyed dedicated support from the County water departments and the community members but lacked technical expertise (in catchment protection) and finances and were faced with a range of governance challenges resulting largely from high illiteracy levels, and poor record keeping. They also lacked logistical capacities to perform their oversight mandate (See Annex 3).

Snapshot: Destruction of the Daaba water tank support structures by Elephants in Isiolo County. In the dry seasons when water is unavailable for wildlife, elephants, hyenas, and giraffes destroy water systems in order to access water.



Water supplied by water user committees was used for drinking and domestic purposes (84.4%), livestock consumption (56.3%), small scale irrigation (27.3%), large scale irrigation (7.8%), washing of motor vehicles (2.3%), vending/sale (3.1%), and washing of motor bikes (Table 3.37). FGDs with water user committees confirmed these, noting the role of women groups in small-scale irrigation especially in Turkana west sub-County and Wajir County. The low uptake of irrigation points to limited multiple use of water resources. In some exceptional cases such as in Wajir, water user committees supplied water to schools and health facilities. Water user committees were reported to undertake the following activities: roof top water harvesting (21.2%), central water treatment (25.8%), water treatment in villages (32.0%), water storage (46.1%), management of use of solar power for pumping waters (48.4%), management of use of petrol or diesel to pump water (16.4%), management of water lifting technologies (4.7%), management of multiple water access points in the villages (5.5%), guiding water distribution for multi-use -irrigation, domestic and livestock use (3.1%), ensuring fair spread of water taps (4.7%), building cattle troughs (17.2%), management of multiple water tanks/intermittent flow systems (0.8%), management of boreholes with hand pumps (4.7%), management of holding pens for livestock (2.3%) and repair of hand pumps (2.3%)-Table 3.38.

Klls in Turkana County documented the use of the following additional technologies; boreholes on solar, generator, and national power grids (hybrid pumping systems), fitting of boreholes with sensors (for location mapping, checking yield and functionality of the pumps remotely), and water Kiosks fitted with ATMs (15 installed within Lodwar Municipality), water management databases/Management Information Systems (MIS)- e.g. the CODuSYS¹⁷³ system currently being piloted by the County water department to capture and consolidate data on borehole location, yields, depth, and functionality). In Marsabit Klls captured the use of the following water technologies: prepaid water meters; bulk prepaid meters for water bourses to support water tracking; solarisation of water pumps; sensors for monitoring borehole functions; dashboards for monitoring water use remotely; reverse osmosis to desalinate water in private water supplies. In Isiolo County, the water technologies reported by Klls

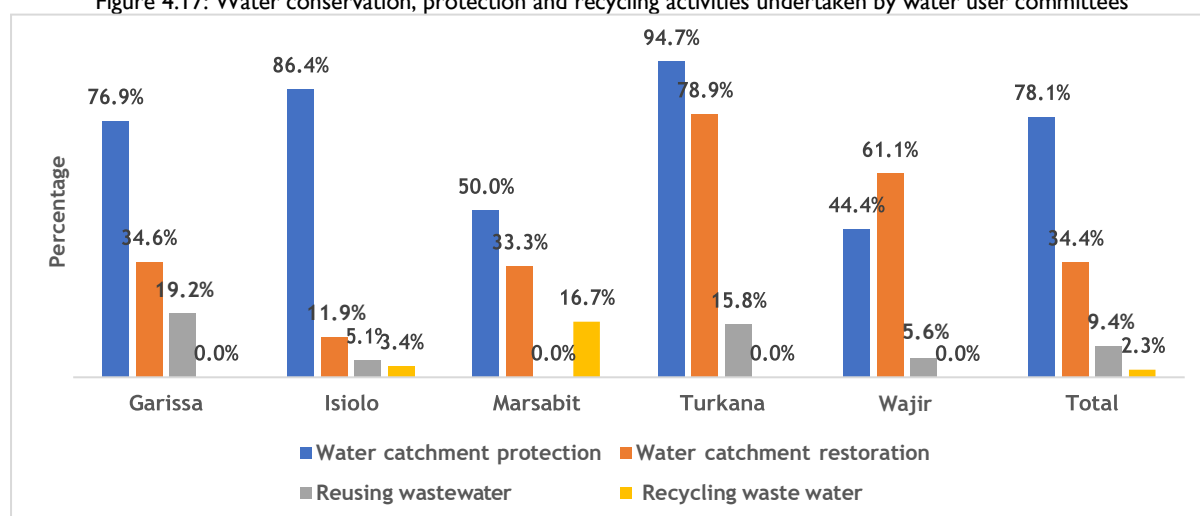
¹⁷³<https://www.partnerbase.com/codisys>. CoduSYS is acronym for Continuous updating System-It is a borehole database created by JICA for Turkana County Water Department Services. CoduSYS enables the department to locate the boreholes and assess their functionality

and FGDs participants were solar powered pumps, diesel generators, and pre-paid water meter and borehole sensors.

4.10 Water Conservation

Household survey respondents in water user committees reported that their committee were engaged in water catchment protection (78.1%), water catchment restoration (34.4%), reuse of wastewater (99.4%) and recycling of wastewater (2.3%)-Figure 4.17. However, from the FGDs, respondents seemed to confuse water catchment protection with protective measures around the water points such as generators, tanks, and pumps. Indeed, water catchment protection was not undertaken by community members or by water user committees in the five Counties, with the exception of some parts of Turkana West. Further, physical observations revealed over extraction of water in most catchment areas in the Counties of Wajir, Turkana and Garissa for sale and construction purposes.

Figure 4.17: Water conservation, protection and recycling activities undertaken by water user committees



4.11 Payment for Water Accessed

Household payments for water access were as follows: irrigation (291.47 KSHs) per household, human consumption, and domestic use (554.77 KSHs) per household, consumption by a goat or a sheep (0.33 KSHs each day), consumption by camels (0.36 KSHs each day) and consumption by a cow (0.11 KSHs each day)-Table 4.17. Several outliers are noted in these payment; Water in Marsabit County is a gem that is treasured due to poor weak water governance and partial operationalization of MARWASCO and thus has the potential to cause conflicts hence it is largely provide for free by the County government of humanitarian agencies as well as through prepaid meters which only charge a minimal fee for maintenance of water kiosks and water systems.¹⁷⁴ In Isiolo County, WASREB is well organized and most WUCs are well organized and have benchmarked among successful groups (on irrigation and water systems maintenance), thus, charges for water are higher than the other Counties. In Wajir, Turkana and Garissa systems different water sources exist including rivers, community dams and piped water hence minimal variations in water costs.

Table 4.17: Payment for water accessed from the water committees (source: HH survey)

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Irrigation	4.09 KSHs per HH/month	1,218.18KSHs /Month	50.00 KSHs/month	62.50 KSHs/month	24.44 KSHs/month	291.47 KSHs/month
Human consumption and domestic use	323.58 KSHs per HH/month	801.07 KSHs/month	40.00 KSHs/month	215.95 KSHs/month	624.33 KSHs/month	554.77 KSHs/month
Per goat/sheep in KSHs	0.27 KSHs/day	0.44 KSHs/day	0.17 KSHs/day	0.21 KSHs/day	0.22 KSHs/day	0.33 KSHs/day
Per camel in KSHs	0.31 KSHs/day	0.37 KSHs/day	0.50 KSHs/day	0.16 KSHs/day	0.56 KSHs/day	0.36 KSHs/day
Per cattle in KSHs	0.04 KSHs/day	0.19 KSHs/day	0.00 KSHs/day	0.05 KSHs/day	0.06 KSHs/day	0.11 KSHs/day

¹⁷⁴PACIDA.2020. Marsabit first prepaid water meters. < <https://pacida.org/marsabit-first-pre-paid-water-meters/> >

The survey also probed household incomes from usage of water for the various purposes-human consumption, domestic use, livestock production and irrigated crop farming. Reported incomes were 7,477.05 Kenya Shillings and 9,816.16 Kenya Shillings per year from agricultural and livestock production activities, respectively. However, these responses may not be very accurate due to recall biases (Table 4.18). FGDs identified limited record keeping of financial transactions largely due to high illiteracy levels.

Table 4.18: Income associated with water access from water user committees/associations

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Agricultural production income in KSHs	7788.46	13105.73	2040.00	684.21	1000.00	7477.05
Livestock production income in KSHs	8923.08	12074.03	6733.33	89.47	15000.00	9816.16

4.12 Water Private Sector Engagement

Several private water sector players were interviewed through the KIIIs in the five Counties. Nearly all of them, identified that they did not participate in dialogues on water with the public sector or communities, did not have budgets for and did not undertake water catchment restoration, preservation, and protection activities, as they were mainly commercial entities (see Annex 4). In Turkana County, Davis and Shirtliff, EPICENTER and the Catholic Diocese of Lodwar were the main private sector water purveyors in the County. All were involved in installation and servicing and maintenance of water points, mainly boreholes, with Lodwar Catholic Diocese also involved in drilling of boreholes.

In addition, Davis and Epicenter were involved in sale and installation of solar panels, engine diesels, and related spare parts and were on contract to a number of clients including the County Water department to repair water systems breakages. They also undertook limited desalination and chlorination of water sources. In Wajir County, Solargen installed solar panels and water desalination units, in addition to drilling boreholes, selling spare parts and irrigation equipment, prompting climate smart agriculture, and providing agronomy and marker access (linkage) services. From their main plant, Solargen desalinated nearly one-third (about 3,000 litres/per hour) of water of the plant's installed capacity of 9,000 litres per hour and made tis available for sale. Boreal was the other private sector provider in the County, managing the County water kiosks under a public private partnership (PPP) model with WAJWASCO, and desalinating an additional 10,000 litres of water every day.

Davis and Shirtliff was present in all five Counties, installing solar panels, drilling, and servicing boreholes, selling spare parts, and providing annual training services to County water departments, in addition to engaging in a range of CSR services. The company indicated that their turnaround time for undertaking repair works for boreholes was 2 days under valid sale contracts, and up to 6 days for non-contracted clients. Turnaround time was influenced by availability of spare parts (sometimes obtained from Nairobi), availability of technicians, and accessibility of water points (insecurity and rains were barriers), while water point breakages were largely due to poor operator skills, water salinity and normal wear and tear of engines. In Wajir County WUCs were supported by the Eldas Constituency Development Fund (CDF) to undertake repair works and expand water systems annually, a practice that should perhaps be replicated in other Constituencies.

In Kenya, PPPs are governed by the Public Private Partnerships (PPP) Directorate, a technical arm under the National Treasury. The functions of the PPP Directorate include: originating, guiding and coordinating selection, ranking and prioritization of public private partnership projects within the public budget framework; overseeing project appraisal and development activities of contracting authorities, including providing technical expertise in the implementation of projects; leading contracting authorities in project structuring, procurement, tender evaluation, contract negotiation and deal closure; originating and leading in project structuring and procurement, in liaison with a contracting authority; supporting the development of public private partnership programs in the country; overseeing contract management frameworks for PPP projects; and monitoring fiscal risks.¹⁷⁵

¹⁷⁵The National Treasury and Planning. 2022. Directorate of Public Private Partnership. < <https://www.treasury.go.ke/directorate-public-private-partnerships/>>.

The recently enacted Public-Private Partnerships Act, 2021 accords devolved units a bigger role in policy formulation and in identification, development, and implementation of PPPs. Under the old Act, policy formulation and oversight over public-private partnerships projects was largely a function of the national government, through a committee comprised largely of appointees of the national government. The new Act gives power to County Governments, through the Council of Governors, to nominate members for appointment to the PPP Committee.¹⁷⁶ The key role of the County governments, however, is limited to identifying and proposing viable projects to the national government for feasibility assessments.

Several County Government PPP projects are currently in plan, as pilots, with a number at the project feasibility stage, among them, the development of model water distribution, bulk storage, wastewater, and solid waste management systems. This is in line with the national policy to devolve power to and empower sub-national institutions to procure local infrastructure projects. Whilst opening new sources of investment for infrastructure and providing a potential solution to overcome the funding hurdles faced by County Governments, the implementation of such PPP projects raises key considerations for both the public and private sector entities. These include small balance sheets of local governments; the cyclic transition of leaderships every five years, and the creditworthiness of County governments, among others.¹⁷⁷ Semi-Autonomous Government Agencies (SAGAs) such as the water and sewerage companies may therefore provide more sustainable and minimal risk entry point for PPPs and therefore worth considering by the new Kenya RAPID+ program.

Snapshot: A demonstration farm by Solargen in Wajir town, using shade nets and drip irrigation for production of vegetables and fruits. Solargen installs solar powered water desalination units which are payable in instalments over a 12-month period. They also provide agricultural extension services and linkages to markets. They are an energy, water, and irrigation solutions provider, offering a combination of products integration and knowledge services mostly to individuals. In Wajir however, they have installed a project at the Wajir County Referral Hospital and another at the Wajir Farmers' Cooperative.



¹⁷⁶Kenya Law Reforms.2021.The Public Private Partnership Act.,2022.< http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2021/ThePublicPrivatePartnershipsBill_2021.pdf>

¹⁷⁷Brufal Jand Gray T.2017. Kenya: Kenya County Government PPPs. <<https://www.mondaq.com/government-contracts-procurement-ppp/631532/kenya-County-government-ppps>>

Degraded rangelands in Habaswein village, Wajir County



SECTION FIVE: BASELINE EVALUATION FINDINGS ON RANGELANDS RESOURCES MANAGEMENT

5.1 Summary Findings on Pastoralist Communities' Access to Safe and Ecologically Healthy Rangeland Resources that Promote Greater Integrity, Social Cohesion and Gender Equity

Only 15.9% of the pastoral communities managed their rangelands resources sustainably. On SGBV, 11.0% of the women reported that they or other members of their households had experienced GBV while accessing rangelands resources; overall knowledge and practice of sustainable rangelands resources management were low, at 35.7% and 21.0% respectively. 23.0% of women and 14.6% of Youth reported actively participating in rangeland resource planning and management activities, while only 20.1% of the households reported accessing fodder in the dry season. Only 23.7% (477 out of 1970) reported accessing concrete climate change measures. Baseline annual income from agricultural production were 7,926.36 KSHs for women, and 6,612.13 KSHs for men from crop production and 10,685.78 KSHs for females and 8,317.45 KSHs for males, for livestock production (Table 5.1).

Table 5.1: Summary of the indicators related to access to safe and ecologically healthy rangeland resources

Indicators	Baseline values for the five Counties	Isiolo County	Marsabit County	Turkana County	Garissa County	Wajir County	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties	15.9%	9.2%	0.6%	72.9%	8.9%	10.1%	
% Of people in the target area report their trust in members of communities they are in in conflict has increased	2.8%	0.3%	2.2%	4.8%	7.0%	4.3%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses. (Baseline Average in KES)	16,358.66 KSHs	3,800.80 KSHs	35,000.00 KSHs	1,569.86 KSHs	24,907.41 KSHs	113,500.00 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs.	60.2%	40.1%	39.5%	43.9%	96.1%	80.5%	
% Of women reporting GBV related to access to water and rangeland resources	11.0%	7.3%	0.9%	14.2%	9.3%	21.5%	
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)	35.7%	26.7%	18.9%	83.3%	28.8%	19.3%	
% Of community members reporting increased practice in sustainable rangeland management (Mentioned practicing>=3practices)	21.0%	10.7%	0.6%	71.6%	8.3%	11.2%	
% Of women and youth actively participating in rangeland resource planning and management activities	Women= (23.0%) Youth= (14.6%)	Women= (9.6%) Youth= (13.7%)	Women= (0.8%) Youth= (4.9%)	Women= (71.7%) Youth= (80.0%)	Women= (8.6%) Youth= (4.8%)	Women= (12.8%) Youth= (5.6%)	
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities. (Those who reported no shortage in pasture in dry seasons)	20.1%	12.5%	7.8%	11.5%	19.4%	15.1%	
# Of persons benefiting from concrete climate change measures	23.7% 477/1970	14.8% 65/439	9.6% 32/334	56.4% 226/ 401	12.4% 48/386	23.4% 96/410	
Output level indicators							
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=7,926.36 KSHs M=6,612.13 KSHs	F=13,964.55 KSHs M=11,216.33 KSHs	F=0.00 KSHs M=4,080.00 KSHs	F=812.50 KSHs M=0.00 KSHs	F=7,0727.78 KSHs M=9,500.00 KSHs	F=1,428.57 KSHs M=727.27 KSHs
	Livestock production	F=10,685.78 KSHs M=8,317.45 KSHs	F=13,964.55 KSHs M=11,216.33 KSHs	F=5,133.33 KSHs M=8,333.33 KSHs	F=106.25 KSHs M=0.00 KSHs	F=10,166.67 KSHs M=6,125.00 KSHs	F=16,714.29 KSHs M=13,909.09 KSHs

5.2 Livestock Production

There are three main sources of livestock in the five Counties: local breeding, local purchase and social donations given either as wedding gifts, or by wealthy Muslims to more vulnerable families to balance social inequality. Other sources include donations from humanitarian agencies, or inheritance from parents. Local breeding was identified to improve breeds or promote genetic diversity of sheep (23.8%), cows (17.6%) and camels (4.6%)-Table 5.2. From the FGDs, livestock structure in all Counties was dominated by female livestock kept purely for milk. The most common camel breed kept in the Counties was the one-hump Somali camel, while goats were largely of the local Somali breed. The local breeds were preferred due to their tolerance of the local climatic, water and pasture dynamics. On average every household had 22 cows, 41 goats, 21 sheep and 12 camels. Households in Marsabit County had the largest herds of goats (62), while those in Wajir County had the largest herds of cows (32), those in Garissa County, the largest herds of sheep (30) and the largest herds of camels were also in Wajir County (15)-Figure 5.1. Camels are mostly used for transport, cows for milk production, goats for both meat and milk purposes, while sheep are generally kept for meat purposes.

From the FGDs, livestock marketing was understood as the process through which live animals changed ownership and was increasingly accepted as an important source of pastoral household income. However, financial need, rather than profit-making, was the major trigger for selling livestock in the pastoralist household. In non-drought times livestock marketing decision was largely driven by the type and size of expense(s) that the pastoralist household needed to cover with the cash from the sale of the livestock. The need for water or treatment (and vaccination) of livestock were not triggers for sale of livestock in dry seasons, hence the high mortalities due to lack of adequate water and pastures.

Figure 5.1: Average number of livestock per household

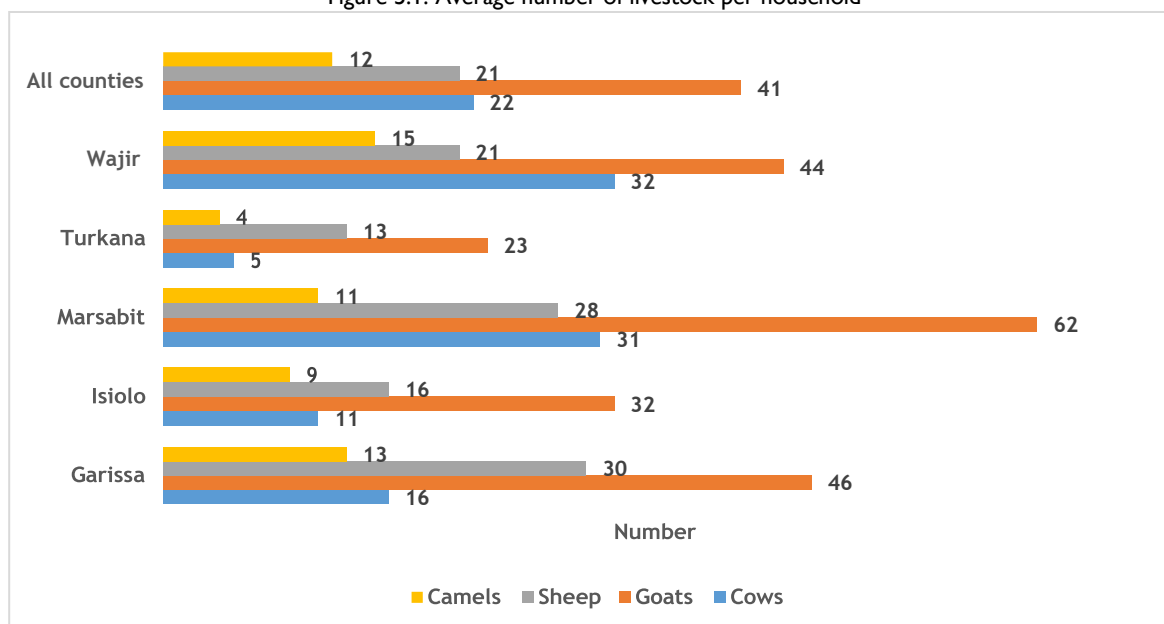


Table 5.2: Livestock distribution

Livestock	Measure	Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
Cows	Sum	3289	2986	7694	159	7347	11792	9683	21475
	Proportion	11.9%	14.0%	22.4%	1.9%	25.1%	14.4%	24.9%	17.8%
Goats	Sum	14783	12098	18033	5674	14464	46739	18313	65052
	Proportion	53.6%	56.7%	52.5%	67.5%	49.5%	57.0%	47.1%	53.8%
Sheep	Sum	8088	5855	6958	2482	5448	20223	8608	28831
	Proportion	29.3%	27.5%	20.3%	29.5%	18.6%	24.7%	22.2%	23.8%
Camel	Sum	1441	381	1655	88	1965	3273	2257	5530
	Proportion	5.2%	1.8%	4.8%	1.0%	6.7%	4.0%	5.8%	4.6%
Total	Totals	27601	21320	34340	8403	29224	82027	38861	120888
	Proportion	100%	100%	100%	100%	100%	100%	100%	100%

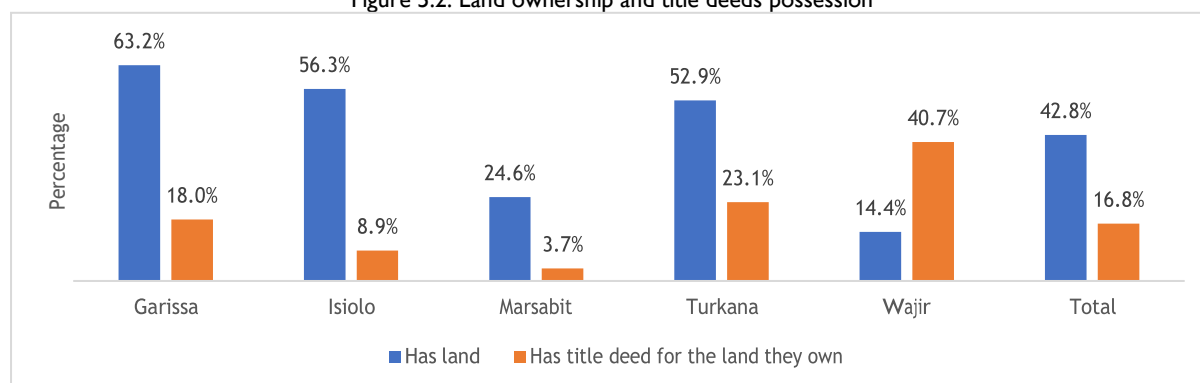
Below is a quote on livestock herd in Garissa County:

“We have been in a drought for 4 years, so we have lost so many goats, sheep, and camels. Our herd sizes are significantly reduced” [Male FGD participant, Garissa County]

5.3 Land Ownership and Use

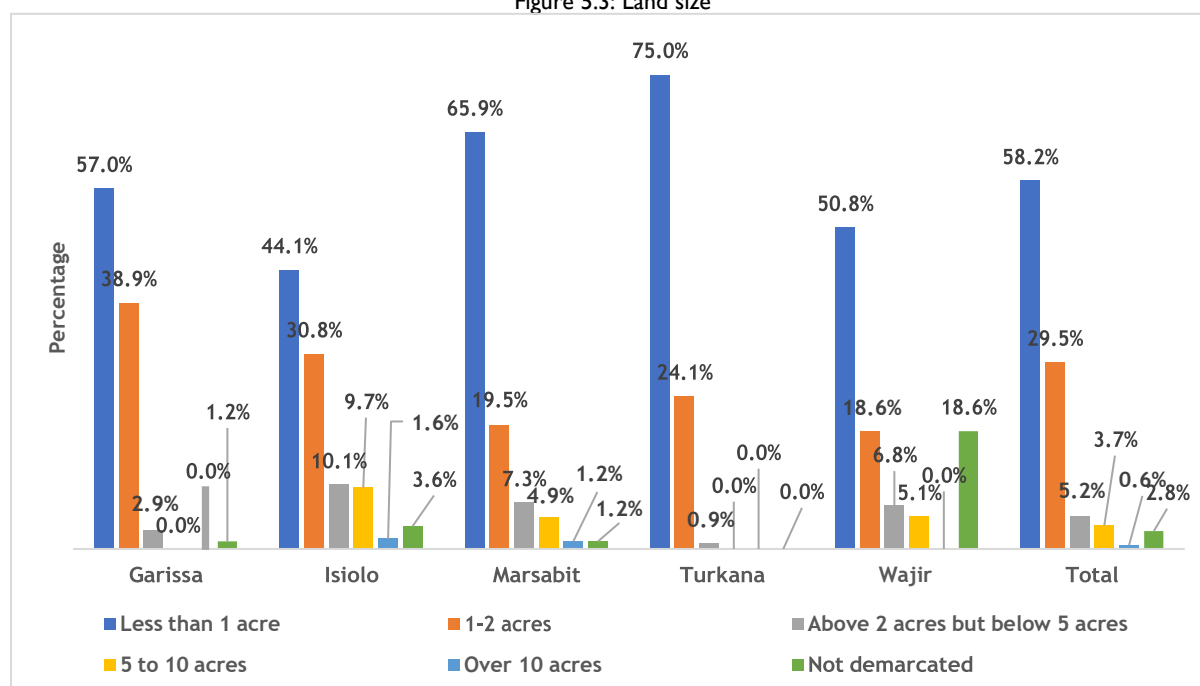
From the visited households only 42.8% of the respondents reported owning land, the lowest levels reported in Wajir County (14.4%). Of those reporting land ownership, only 16.8% of them had title deeds for the piece(s) they owned with the lowest levels reported for Marsabit County (3.7%)-Figure 5.2.

Figure 5.2: Land ownership and title deeds possession



The survey established that 58.2% of the respondents who reported owning land had less than one acre, 29.5% had 1 to 2 acres, 5.2% had above 2 but less than 5 acres, 3.7% had 5 to 10 acres, while 0.6% owned more than 10 acres (Figure 5.3). Further, 2.8% of the respondents indicated that their land was not demarcated, pointing to the dominant communal nature of land ownership in the ASAL regions.¹⁷⁸

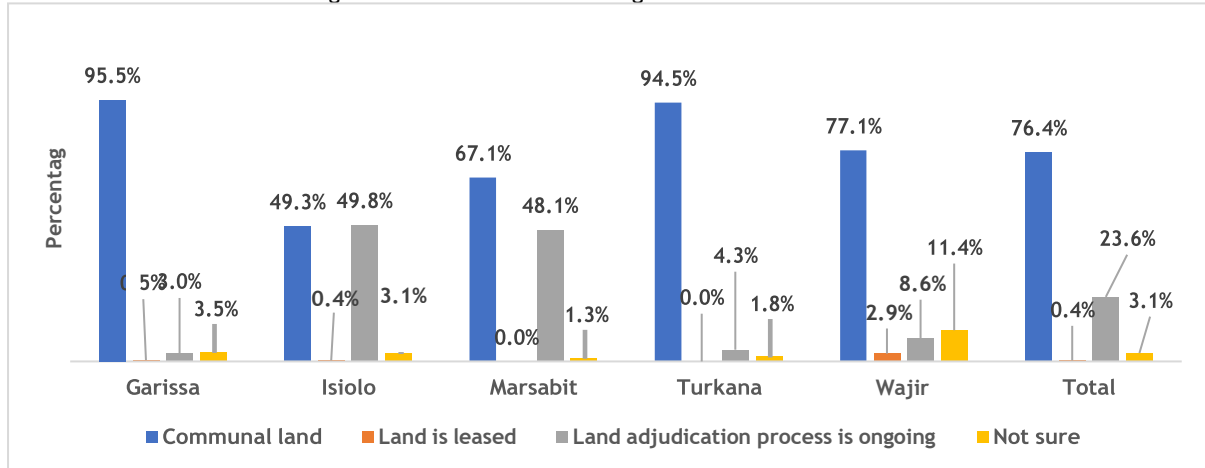
Figure 5.3: Land size



¹⁷⁸ Akuja and Kandagor, J. Appl. Biosci. 2019 A review of policies and agricultural productivity in the arid and semi-arid lands (ASALS), Kenya: the case of Turkana County.

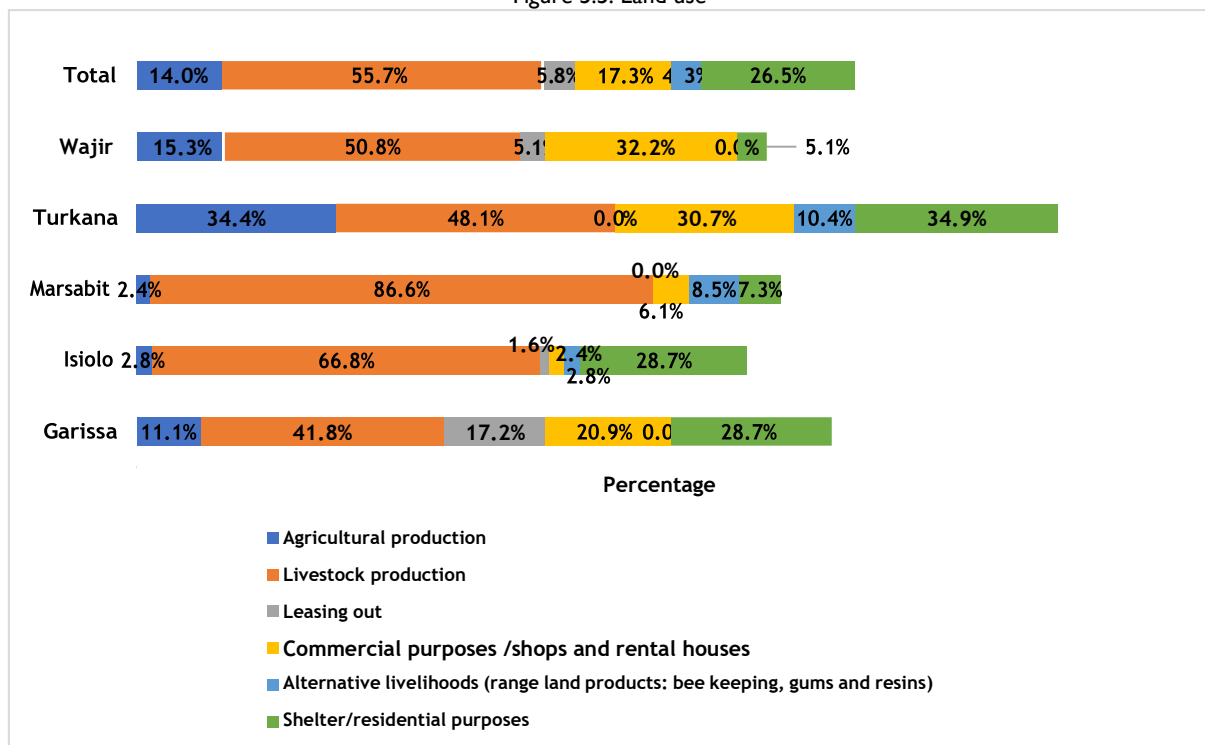
As noted above communal land tenure systems predominate the ASAL regions and may be the reason behind the high number of respondents 'with' land but without title deeds. 76.4% of the survey reported not having title, while another 23.6% had their land going through the land adjudication process. A small proportion of the respondents (0.4%) had leased their land, with another 3% not sure why they did not have land titles. (Figure 5.4).

Figure 5.4: Reasons for not having title deeds for land owned



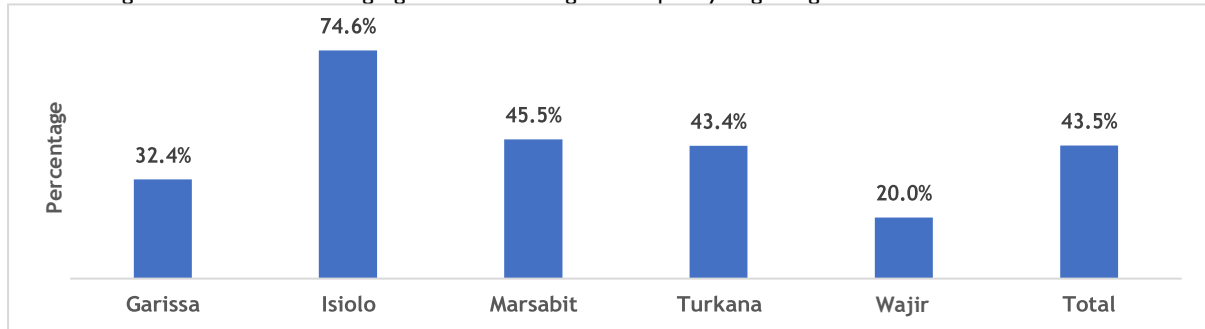
Of those reporting having land, only 14.0% were utilizing it for agricultural production. This was largely in Turkana County (34.4%). 55.7% of the respondents used their land for livestock production, 26.5% for settlement (residential), 17.3% for commercial purposes, in urban and peri urban areas, while 5.8% had leased out their land. 4.3% of the respondents identified using their land for alternative livelihood activities, such as resin and gum production, apiculture, and production of other rangeland products (Figure 5.5). The proportion of respondents using their land for residential and commercial purposes (44.8%) is notable, and points to changing settlement patterns in the ASAL regions, as devolution deepens, accompanied by growing urbanization as more people relocate into the Counties and into urban centres in the belief of growing livelihood options in both places.

Figure 5.5: Land use



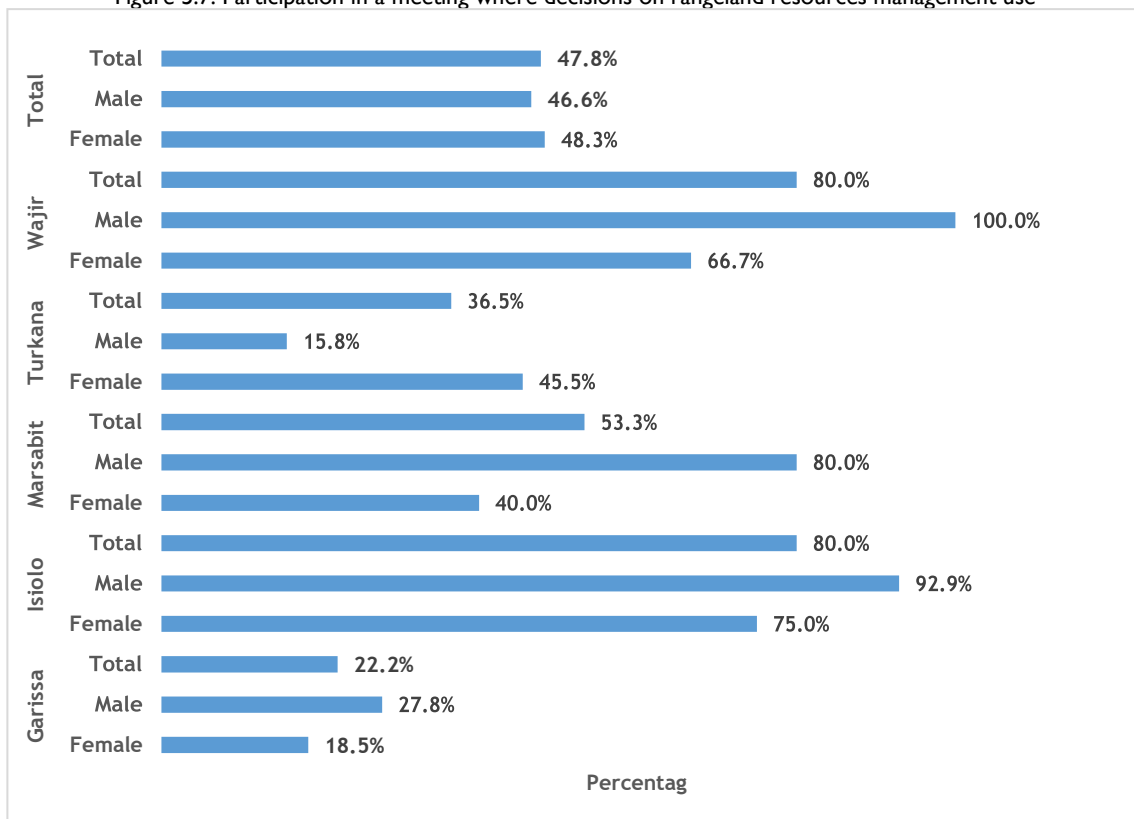
Among the respondents who indicated not owning land titles on account of living on communal land, 43.5% of them identified that they had decision making rights on timing and frequency of grazing in the land that they used (Figure 5.6). The high proportion of persons without land titles point to low awareness among the ASAL populations of the importance of registering land and the new communal lands Act (2016) which requires and enables local communities to legally register and own their communal lands. It is noted at the same time that Indigenous and other marginalized groups are facing stiff challenges in the exercise of their right to land.¹⁷⁹

Figure 5.6: Decision making rights around timing and frequency of grazing access in the communal lands



5.4 Participation in Community Rangelands Resources Management Activities Participation in meetings on rangeland resources management, specifically to decide on frequency and timing of grazing of communal lands was reported by 47.8% of the households surveyed, indicating, and perhaps explaining the low levels of community awareness of rangelands matters (Figure 5.7). A higher proportion of females participated in these meetings because of their involvement in irrigated crop production.

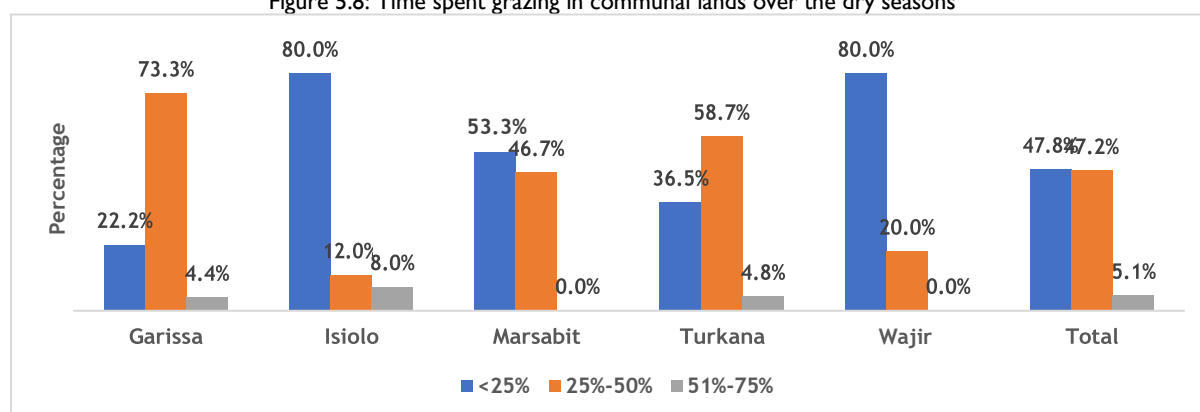
Figure 5.7: Participation in a meeting where decisions on rangeland resources management use



¹⁷⁹Republic of Kenya.2016. Communal Land Act of 2016. < http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/CommunityLandAct_27of2016.pdf >

The survey reveals that 42.2% (100%-47.8%) of the households spent more than three quarter of the of the dry seasons herding and grazing livestock away from communal lands, while another 47.2% split their time between grazing on communal land (25.0% to 50.0%) and grazing away from communal during the dry season. Only 5.1% of the respondents identified that they spent more than 50.0% of the dry seasons herding on the communal lands (Figure 5.8). This points to a remarkably high degree of migration of pastoral communities during the dry season in search of both water and pasture. FGDs across all Counties indicated that where such migration occurred, access to water and pastures in the new lands had to be negotiated in advance with the elders of the host communities and clans, otherwise there would be conflict between the migrating and the host communities.

Figure 5.8: Time spent grazing in communal lands over the dry seasons



5.5. Land use for Agriculture Production

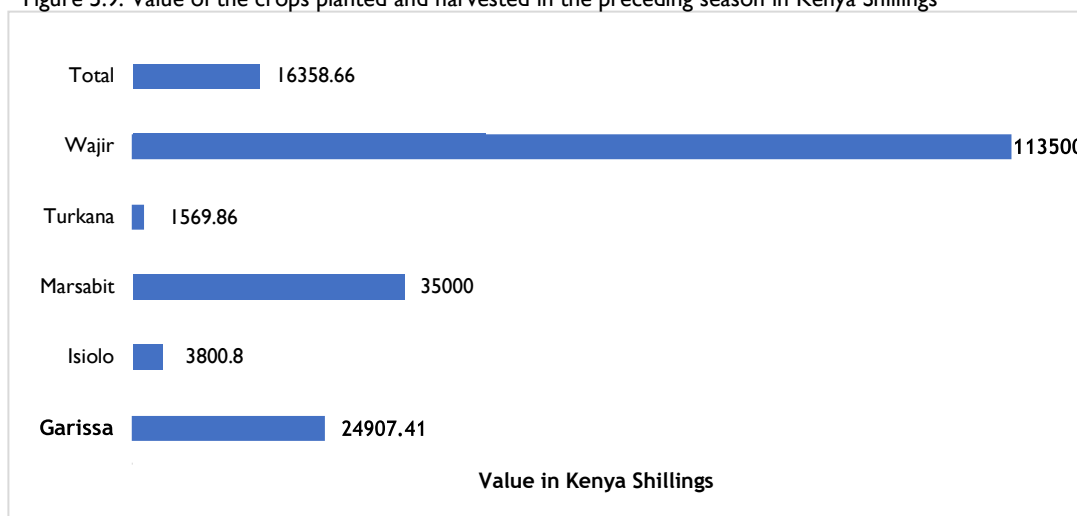
Crops produced on the pieces of farmed land were packaged and quantified in stacks, bales, and bags. Surveyed households provided the following responses in respect to total production per season from their lands: 3145 stacks of hay, 1890 bales of hay, 1849 bags of hay, 1433 stacks of husks, 1281 bales of husks, 1433 bags of husks, 872 stacks of Acacia pods, 357 bales of acacia pods, 390 bags of acacia pods, 254 stacks of Prosopis juliflora seedpods, 234 bales of Prosopis juliflora seedpods and 285 bags of Prosopis juliflora seedpods (Table 5.3). Respondents in Marsabit were least engaged in crop production as evidenced by only 10 bales of husk and 5 bales of hay produced.

Table 5.3: Approximate yields from the previous seasons

		Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Yield of grass/hay in heaps/stacks	Sum	75.0	9.0	0.0	130.0	2931.0	3145.0
Yield of grass/hay in bales	Sum	50.0	8.0	5.0	99.0	1728.0	1890.0
Yield of grass/hay in bags	Sum	112.0	8.0	0.0	101.0	1628.0	1849.0
Yield of husks/stalks in heaps/stacks	Sum	0.0	5.0	0.0	123.0	1305.0	1433.0
Yield of husks/stalks in bales	Sum	0.0	4.0	10.0	72.0	1195.0	1281.0
Yield of husks/stalks in bags	Sum	0.0	3.0	0.0	76.0	1354.0	1433.0
Yield of Acacia pods in heaps/stacks	Sum	12.0	4.0	0.0	53.0	803.0	872.0
Yield of Acacia pods in bales	Sum	12.0	4.0	0.0	34.0	307.0	357.0
Yield of Acacia pods in bags	Sum	22.0	4.0	0.0	59.0	305.0	390.0
Yield of Prosopis pods in heaps/stacks	Sum	0.0	1.0	0.0	53.0	200.0	254.0
Yield of Prosopis Pods in bales	Sum	0.0	2.0	0.0	32.0	200.0	234.0
Yield of Prosopis Pods in bags	Sum	3.0	3.0	0.0	79.0	200.0	285.0

On the value of the crops planted and harvested in the previous seasons, across all Counties the average income per household was 16,358.66 Kenya Shillings (4,000 Kenya Shillings in Garissa County, 3,800 Kenya Shillings in Isiolo County, 35,000 Kenya Shillings in Marsabit, 1,810 Kenya Shillings in Turkana County and 113,500 Kenya Shillings in Wajir County)-Figure 5.9. In Marsabit County where production and supply were low, the demand for the products was high and hence the high income from the sold crops. In Wajir County, demand for pasture for livestock was high. Women Groups, who were the main traders in pasture, either produced the pastures themselves, or sourced them from communities producing them under the furrow irrigation schemes along the riverbanks, hence their high incomes.

Figure 5.9: Value of the crops planted and harvested in the preceding season in Kenya Shillings



Asked if they practiced irrigation, only 3.3% of all the respondents identified doing so (0.0% in Marsabit County and 9.5% in Turkana County) as illustrated in Figure 5.10. From the KIIs and FGDs in Turkana west sub-County, several humanitarian agencies collaborating with refugees and host communities were supporting irrigation-based crop farming. The County government of Turkana has embarked on reviving staled irrigation schemes across various sub-Counties including in Turkana west.^{180,181,182,183 & 184}

In Garissa County, improvement in production was attributed to collaboration among a number of stakeholders, including the Kenya Climate Smart Agriculture Project (KCSAP) and the World Food Programme (WFP) sustainable food systems. Together, these entities participated in capacity building in crop diversification and in the promotion of adoption and of use of hybrid crop varieties while the County Government supported with pump sets for irrigation.¹⁸⁵

In Wajir County, women groups largely practiced furrow irrigation for production of pastures while the County government of Wajir had embarked on supporting community members in agribusiness and irrigation.¹⁸⁶ In Isiolo County the national government had undertaken measures to revive Rapsu, Kilimani Game Galana, Burat and Gubadida irrigation schemes¹⁸⁷, while individual households used water from the rivers and other existing water points for crop production in areas such as Attir^{188,189,190 & 191}

In Marsabit, minimal irrigation was practiced due to water shortage. Organizations such as Epicenter Africa and the Kenya Red Cross have however partnered to design and install solar powered borehole systems for irrigation. They have rehabilitated existing boreholes and set up irrigation farms, and communities are now able to produce food crops throughout the year in places such as the Waldaa area.¹⁹²

¹⁸⁰County government of Turkana.2022. County government to revive stalled irrigation schemes. < <https://www.turkana.go.ke/index.php/2020/06/21/County-government-to-revive-stalled-irrigation-schemes/>>

¹⁸¹County government of Turkana.2021. Development of Kalodukunyuk drip irrigation project in Lokichoggio ward, Turkana west sub-County tender no: TCG/MOAPEF/036/2021-2022 <<https://www.turkana.go.ke/index.php/documents/development-of-kalodukunyuk-drip-irrigation-project-in-lokichoggio-ward-turkana-west-sub-County-tender-no-tcg-moapef-036-2021-2022/>>.

¹⁸² <https://www.the-star.co.ke/Counties/rift-valley/2021-10-27-nanok-blames-residents-for-failed-napuu-irrigation-scheme/>

¹⁸³ <https://kvda.go.ke/wp-content/uploads/2021/04/KVDA-Strategic-Plan-2021-2025-WVIP-12-4-2021.pdf>

¹⁸⁴ <https://kvda.go.ke/investment-areas/#1572818838943-2cbcb796-c945>

¹⁸⁵Government of Kenya.2021. The 2021 short rains season assessment report Kenya Food Security Steering Group (KFSSG) <<https://reliefweb.int/sites/reliefweb.int/files/resources/SRA%202021%20National%20Assessment%20Report.pdf>>.

¹⁸⁶County government of Wajir. 2022. Agribusiness & Irrigation. < <https://www.wajir.go.ke/data/services.htm?catid=4&Ppage=Agribusiness> >.

¹⁸⁷ <https://www.kenyanews.go.ke/isiolo-farmers-benefit-from-145million-kilimani-galana-buttrass-dam/>

¹⁸⁸National Irrigation Authority.2022. Irrigation bears peace fruit in Isiolo County. < <https://www.irrigation.go.ke/2022/02/25/irrigation-bears-peace-fruit-in-isiolo-County/>>

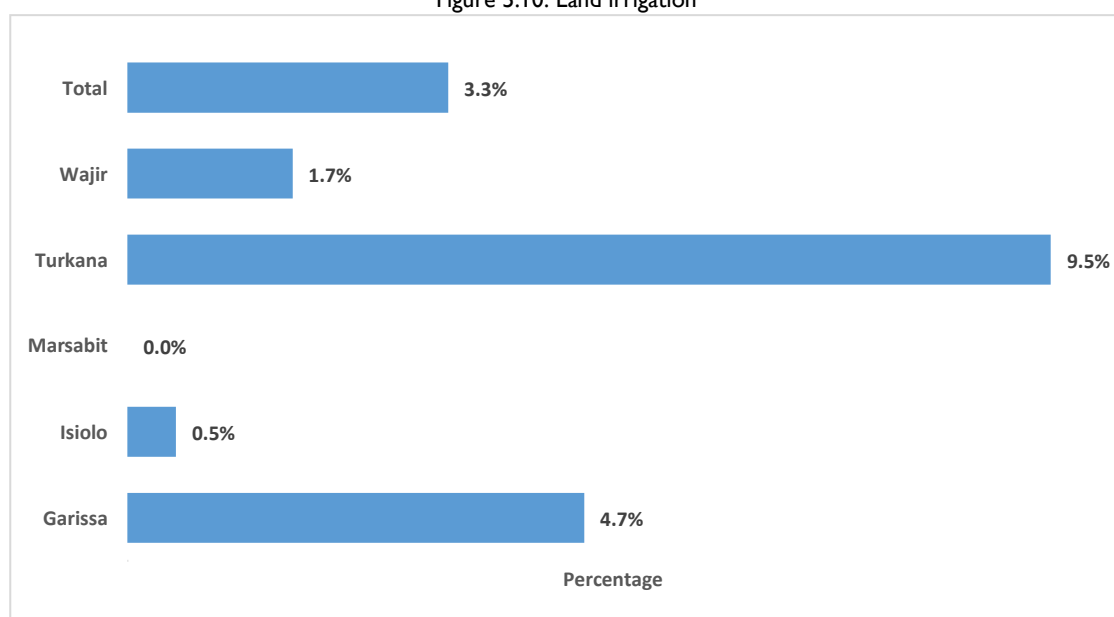
¹⁸⁹AfDB.2021. Kenya - Proposed Gubadida Irrigation Scheme in Kinna Ward, Garbatulla Sub- County in Isiolo County - DRSLP II - P-Z1-C00-073 - ESIA Executive Summary. < <https://www.afdb.org/fr/documents/kenya-proposed-gubadida-irrigation-scheme-kinna-ward-garbatulla-sub-County-isiolo-County-drslp-ii-p-z1-c00-073-esia-executive-summary>>

¹⁹⁰Farms Trend. 2020.From charcoal burning to making a kill in bulb onion farming in Isiolo. < <https://farmerstrend.co.ke/crops/from-charcoal-burning-to-making-a-kill-in-bulb-onion-farming-in-isiolo/> >.

¹⁹¹Daily Nation.2020. Former charcoal burners find profitable business in farming. < <https://nation.africa/kenya/business/seeds-of-gold/former-charcoal-burners-find-profitable-business-in-farming-3019602> >.

¹⁹²Epicenter Africa. 2022.Solar irrigation in Marsabit. <<http://epicenterafrica.com/solar-irrigation-marsabit/>>.

Figure 5.10: Land irrigation



From the household survey, the main irrigation practices on the farms were drip irrigation (49.2%),¹⁹³ localized irrigation (47.7%),¹⁹⁴ manual irrigation (43.1%),¹⁹⁵ surface/furrow irrigation (38.5%),¹⁹⁶ sprinkler irrigation (12.3%),¹⁹⁷ flood irrigation (12.3%)¹⁹⁸ and rain fed irrigation (10.8%)¹⁹⁹-Table 5.4. As identified already, no respondents practiced crop irrigation among the interviewed households in Marsabit County due to unavailability of adequate water.

Table 5.4: Type of irrigation practiced on the land

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Surface/furrow irrigation)	72.2%	100.0% (2)	0% (0)	13.2% (5)	71.4% (5)	38.5% (25)
Localized irrigation	11.1%	50.0% (1)	0% (0)	63.2% (24)	57.1% (4)	47.7% (31)
Drip Irrigation	11.1%	0% (0)	0% (0)	68.4% (26)	57.1% (4)	49.2% (32)
Sprinkler irrigation	0% (0)	0% (0)	0% (0)	15.8% (6)	28.6% (2)	12.3% (8)
Flood irrigation	5.6%	0% (0)	0% (0)	15.8% (6)	14.3% (1)	12.3% (8)
Manual irrigation	0% (0)	0% (0)	0% (0)	65.8% (25)	42.9% (3)	43.1% (28)
Rain fed irrigation	16.7%	0% (0)	0% (0)	10.5% (4)	0% (0)	10.8% (7)
Total	18	2	0	38	7	65

Case Study: A solarized mini-irrigation scheme-NAKOT FGCK Community Farm Project
 Located 8km (10-15 minutes' drive) South of Lodwar town, in Kanam, Kemer Ward, and Natoot Community farm is a 5-acre community-owned mini-irrigation project started in February 2019 following consultations between the Full Gospel Church and the ward residents. The idea to establish the farm was mooted following the devastation brought on the community by the drought of 2011 and was given more force by subsequent droughts. The farm is registered with the Department of Social services as FGCK Natoot Farmers Self-help Group.

The main feature of the farm is a new upscaled solar powered pumping system which has increased the waterpumping capacity of the source borehole, providing enough water for (drip) irrigation and domestic use.

¹⁹³Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers.

¹⁹⁴Localized irrigation is a method of applying water that results in wetting only a small area of the soil surface and sometimes only part of the root zone.

¹⁹⁵Manual irrigation system involves hand watering with hoses, nozzles, or sprinklers.

¹⁹⁶Furrow irrigation avoids flooding the entire field surface by channelling the flow along the primary direction of the field using 'furrows,' 'creases,' or 'corrugations'.

¹⁹⁷Sprinkler/spray irrigation is the method of applying water to a controlled manner in that is similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers. Irrigation sprinklers can be used for residential, industrial, and agricultural usage.

¹⁹⁸Flood irrigation is most common form of irrigation where water is applied and distributed over the soil surface by gravity.

¹⁹⁹Rainfed crop production depends solely on rainfall and farmers cultivate their crops at the beginning of the rainy season with the aim of ensuring establishment by using only the water that the soil is able to retain.

borehole is one of only 2 boreholes found in the entire ward. The main technology is a solar installation comprising 18540-Watt modelled PV Panels, a controller, a pumping unit (pump and mortar) and a water tower, together capable of pushing more than 40 cubic meters of water per hour. To ensure uninterrupted supply of water, the system runs on a hybrid model that includes a diesel generator and a connection to the national grid. A borehole sensor has been installed to provide vital data and alert on pump functionality.

Currently the project supports 80 households who grow a range of crops, fruits, and vegetables, including maize and sorghum, watermelon, butternut, tomatoes, kales, and pawpaw, which are sold locally and in neighbouring Lodwar Town and Kalokol towns. The farmers, majority of them women (more than 80%) are divided into groups of seven households, and each household allocated a 6*28M plot to grow and manage a crop of their choice. Farming inputs such as seeds and fertilizers are provided by the farm management and the cost defrayed from the sale of harvested produce. The farm sponsors/management retains 25.0% of each farmer's produce which is used to subsidize operation and management costs such as basic system repairs, purchase of fuel, procurement of inputs, and other management costs. Overall farm management is provided by a team comprising one farm manager, one farm assistant, one farm clerk and one security officer. In addition, the farm runs an adult literacy activity for community members, supported by 3 recruited teachers. Once every month, experts from Furrows of the Desert (FID), a Turkana-based Agricultural development Project visit to assess farm performance and provide extension services.

With more water now available (borehole capacity estimated at 60,000 cubic meters /h), it is planned to extend the number of beneficiaries to cover the entire village of estimated 350-400 households and the total acreage under production to 14 acres. The community has already given the additional 9 acres to the project. The local community is well-versed with irrigation matters, having participated in the Napuu drip irrigation scheme, a county government irrigation scheme established along the Turkwel River in 2014, and which has since collapsed as a result of mismanagement.

In terms of investment, an estimated USD 10million have so far been invested in the development of the farm, covering borehole drilling and solarization activities (about 3 million), fencing, bush-clearing, provision of drip equipment, training of community members/farmers and farm administration. The bulk of the support for the project has been provided by a partnership of a number of organizations, including the Full Gospel Church of Kenya (FGCK), Bright Hope international, and the IEEE group [<https://www.ieee.org>].





[More details can be obtained using this link: <<https://youtu.be/fambqXYbykg>>].

5.6 Pasture Availability

Poor access to pastures in the rainy seasons was reported by 18.9% of the respondents (Figure 3.14), the reasons for unavailability being poor rains (57.9%), long distances to the grazing fields (40.2%), insecurity (41.0%), flooding (16.4%), and restricted access to traditional grazing areas (14.2%)-Figure 5.11 and Table 5.5.

Figure 5.11: Inaccessibility of pastures in the wet/rainy seasons

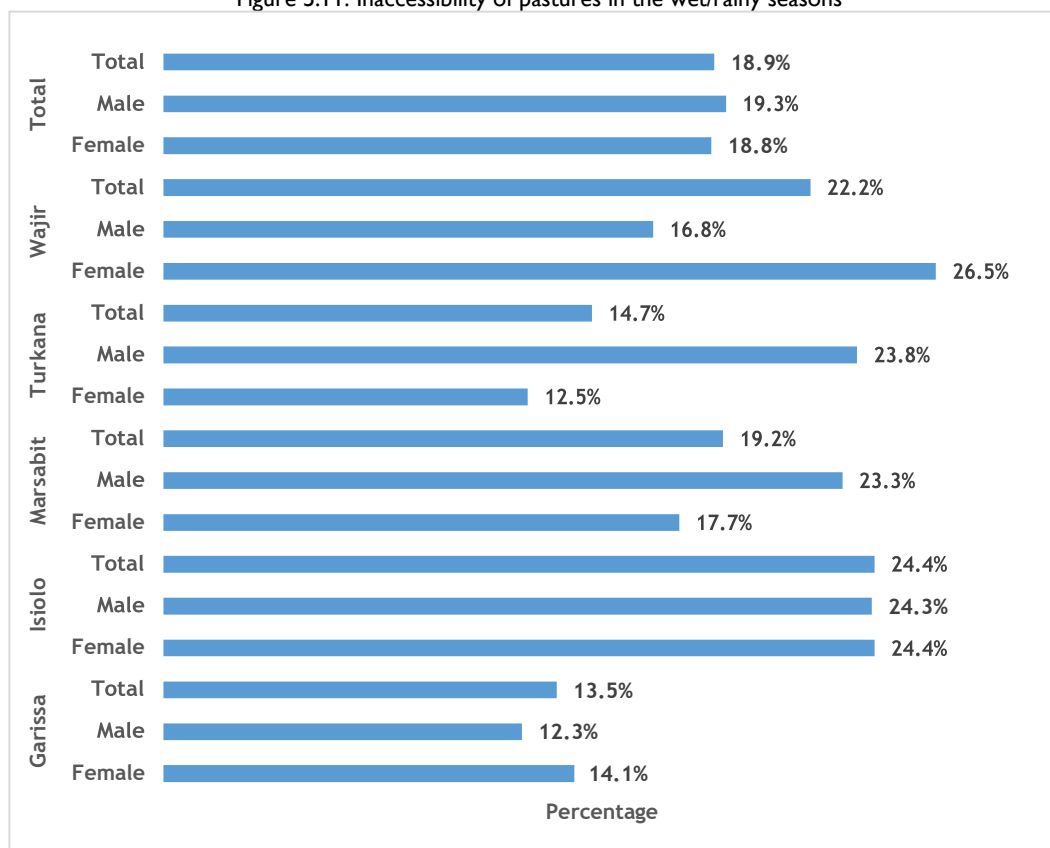


Table 5.5: Reasons for unavailability of pasture

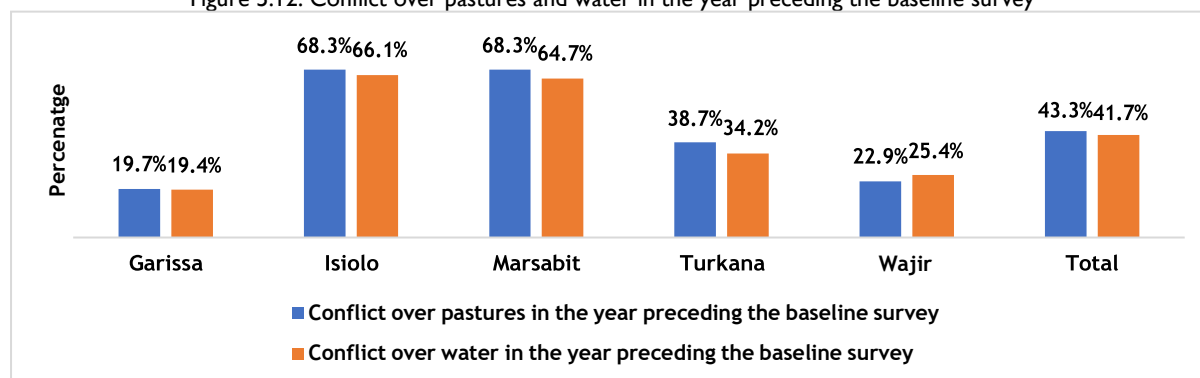
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Little or no pasture in traditional grazing areas	65.4% (34)	59.8% (64)	32.8% (21)	64.4% (38)	64.8% (59)	57.9% (216)
Long distance to grazing access points	57.7% (30)	50.5% (54)	35.9% (23)	42.4% (25)	19.8% (18)	40.2% (150)
Restricted access to traditional grazing areas	1.9% (1)	11.2% (12)	14.1% (9)	40.7% (24)	7.7% (7)	14.2% (53)
Insecurity/ conflict	17.3% (9)	41.1% (44)	64.1% (41)	61.0% (36)	25.3% (23)	41.0% (153)
Floods	17.3% (9)	8.4% (9)	0.0% (0)	47.5% (28)	16.5% (15)	16.4% (61)
No livestock	0.0% (0)	0.0% (0)	0.0% (0)	1.7% (1)	0.0% (0)	0.3% (1)
Total	52	107	64	59	91	373

Pasture production and sale was common across all the Counties, practiced mainly by women groups, although individual pasture plots were also found. In a number of Counties, Turkana, Wajir and Isiolo in particular, the government (in partnership with development partners-research institutions, international agencies) was piloting and promoting this practice, along with other new forms of rangeland resources-based activities to boost household incomes and as a climate change adaptation and mitigation measure. In Garissa pasture growing is being piloted again mainly by women groups, along the river Tana.

5.7 Resources Access and related Conflicts and SGBV

Conflicts over pastures and access to grazing lands in the year preceding the survey were reported by 43.3% of the respondents, the highest incidences being in Isiolo and Marsabit Counties (68.3% in both Counties). Similarly, conflicts over water and water access in the year preceding the baseline survey were reported by 41.7% of the respondents, the highest incidences again being in Isiolo and Marsabit Counties (66.1% and 64.7%)-Figure 5.12. From the FGDs, across all five Counties, negotiations among clans and communities enabled access by communities in need. However, perennial clan rivalries over boundaries, cultural and traditional raids especially among the youth as a rite of passage, and political instigations were cited as contributors of conflict.

Figure 5.12: Conflict over pastures and water in the year preceding the baseline survey



Regarding the nature of conflicts experienced in the preceding year, respondents identified intercommunal (54.8%) and inter-ethnic (55.9%) conflicts as the main forms of conflict. Intra-communal and domestic violence over water and pasture were only identified by 27.6% and 14.2% of the respondents, respectively. Specifically, Marsabit and Isiolo Counties recorded the highest levels of inter-ethnic conflicts (72.7% and 78.5%) while Wajir country recorded the highest levels of inter-communal conflicts (81.9%)-Table 5.6.

Table 5.6: Nature of conflicts over water and pastures

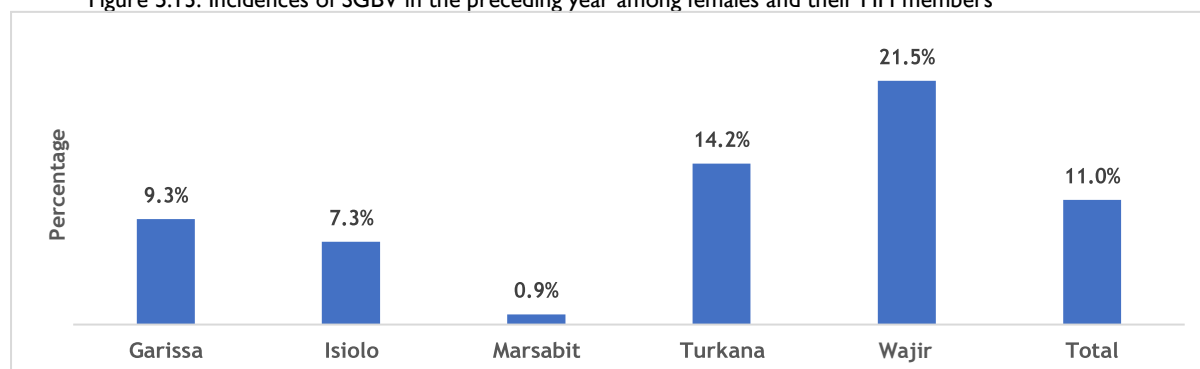
	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Intra communal (one community)	80.2% (69)	14.5% (44)	8.7% (20)	63.5% (106)	8.6% (10)	27.6% (249)
Inter-communal (hostilities, raids, and theft)	27.9% (24)	50.5% (153)	48.1% (111)	67.1% (112)	81.9% (95)	54.8% (495)
Inter-ethnic (hostilities, raids, and theft)	5.8% (5)	78.5% (238)	72.7% (168)	50.9% (85)	7.8% (9)	55.9% (505)
Domestic conflicts	18.6% (16)	8.6% (26)	4.3% (10)	37.7% (63)	11.2% (13)	14.2% (128)
Total	86	303	231	167	116	903

Below is a quote on procedures for accessing communal water and graze lands:

“We send advance teams of elders to negotiate water and graze lands access”
[Male FGD participant Wajir County]

Incidences of sexual and gender-based violence perpetrated on the respondent or a member of the respondent’s household at the water points in the year preceding the survey were reported by 11.0% of the interviewed females. The highest number of cases were reported in Turkana County (14.2%) and Wajir County (21.5%)-Figure 5.13. Secondary literature indicates that the Counties of Turkana, Wajir, Isiolo, Garissa and Marsabit are more prone to water and other natural resources related SGBV than other ASAL Counties.^{200,201,202}

Figure 5.13: Incidences of SGBV in the preceding year among females and their HH members



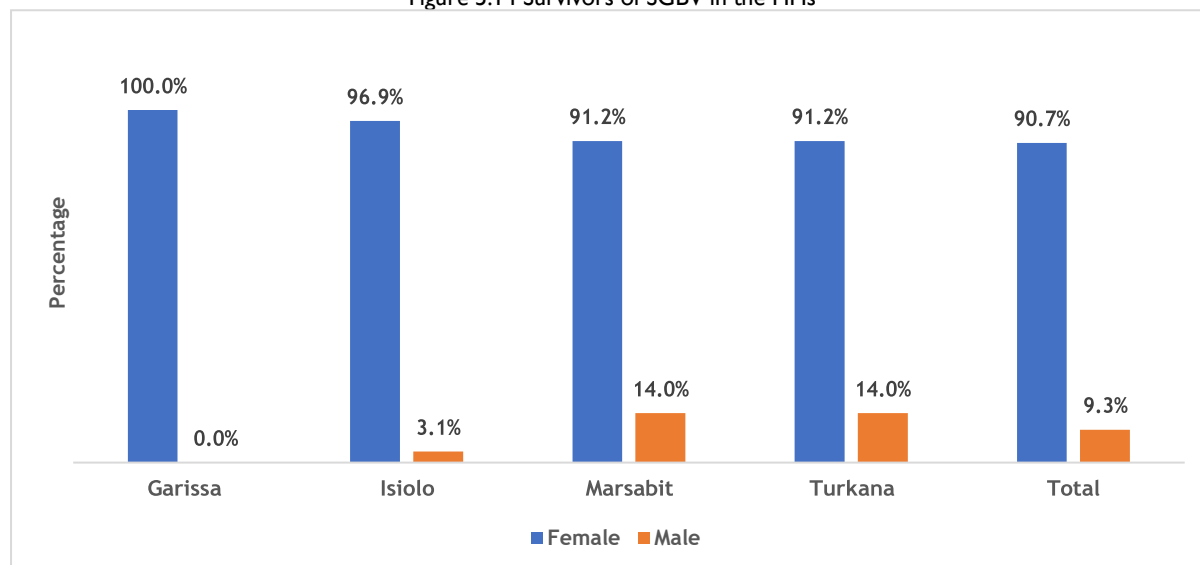
²⁰⁰OCHA.2020. KENYA Situation Report, 2020. <<https://reliefweb.int/sites/reliefweb.int/files/resources/Situation%20Report%20-%20Kenya%20-%202017%20Jun%202020%20%281%29.pdf>>.

²⁰¹World Bank.2019. Rapid Assessment of the Institutional Architecture for Conflict Mitigation, Isiolo County, Kenya. <<https://documents1.worldbank.org/curated/ar/131951587730959660/pdf/Rapid-Assessment-on-Institutional-Architecture-for-Conflict-Mitigation-Isiolo.pdf>>

²⁰²Minority Rights Groups international.2022. Peace or into pieces, Conflict Analysis and Mapping for Isiolo and Marsabit Counties Conflict Analysis and Mapping for Isiolo and Marsabit Counties. <<https://minorityrights.org/wp-content/uploads/2021/04/Peace-or-into-pieces.pdf>>.

Further asked who was affected the most by these cases of SGBV acts, interviewed females identified females as the main victims (90.7% %). In addition, 11.1 % of these respondents however identified males as victims as well (Figure 5.14). From the FGDs SGBV happened when women and girls went to water sources that were far away from their villages or in the forests. In Wajir County FGDs identified that pastoralists with livestock at the water points did not give priority to women fetchers, often abusing them sexually and physically, especially if they were not known to them. Asked about the frequency of SGBV cases, FGD participants of all genders in Wajir County reported 1 case in the rainy seasons and up to 2 cases in the dry season.

Figure 5.14 Survivors of SGBV in the HHs



Below are some quotes on SGBV:

“Every month we have a reported case of SGBV” [Female FGD participant, Isiolo County]
“Herders with livestock are the ones who commit these cases of rape and defilement”
[Male FGD participant, Wajir County]

“Rape and defilements occur when women and girls walk far off from their villages in search of water; this occurs a lot in the nearby forest” [Female youth FGD participant, Turkana County]

In the households identifying incidences of SGBV, 86.6% of them took actions to mitigate or remedy the acts (Figure 5.15). Mitigative/remedial actions taken included arbitration by clan elders (87.2%), legal redress in courts of law (37.4%), and use of Kadhi courts (16.6%), medical treatment (36.4%), psychosocial services (14.4%), and forced marriage (11.8%)-Table 5.7. From the FGDs in all the five Counties, SGBV cases were largely managed by elders and clan leaders who settled them through either arbitration, fines or forced marriages in cases where the victims were impregnated. Where the elders could not agree, the matters were referred to the chiefs and further to the local police and the courts if a settlement were not reached.

The criminal justice system was identified to be inefficient in dealing with SGBV cases due to intimidation of survivors, late presentation in health facilities, compromised chiefs and police officers issuing biased supportive court documents, long distances to the courts, unavailability of transport services, and lengthy trial periods during which complainants were not notified in good time hence missing the court sessions. Kills with the County Gender department revealed that that medical and psychosocial services, as well as dignity kits were available in health facilities, but often inaccessible due to some of the reasons identified above. The commonest forms of violence in the Counties were rape, defilement, sodomy, and intimate partner violence.

Figure 5.15: Households that acted following SGBV cases

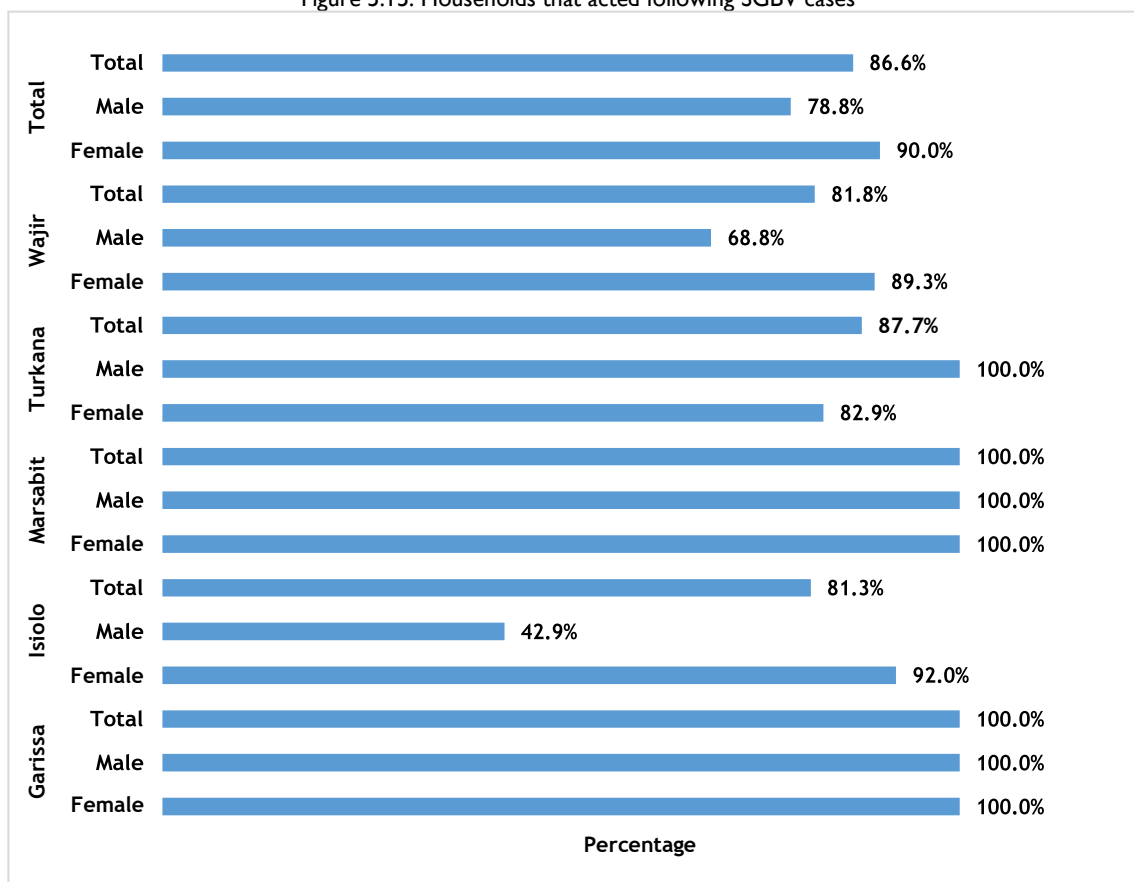


Table 5.7: Actions taken following SGBV cases

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Arbitration by clan leaders	94.4% (34)	73.1% (19)	100.0% (3)	94.0% (47)	83.3% (60)	87.2% (163)
Legal remedies (criminal courts)	5.6% (2)	100.0% (26)	33.3% (1)	60.0% (30)	15.3% (11)	37.4% (70)
Kadhi courts	44.4% (16)	3.8% (1)	0.0% (0)	2.0% (1)	18.1% (13)	16.6% (31)
Medical treatment	25.0% (9)	46.2% (12)	0.0% (0)	60.0% (30)	22.2% (16)	36.4% (68)
Psychosocial services	5.6% (2)	19.2% (5)	33.3% (1)	32.0% (16)	5.6% (4)	14.4% (27)
Forced marriage	0.0% (0)	61.5% (16)	0.0% (0)	4.0% (2)	5.6% (4)	11.8% (22)
Total	36	26	3	50	72	187

Reasons for not taking actions following SGBV were identified as unawareness of the redress options (55.2%), fear of repercussions (24.1%), fear of community shame (27.8%), redress measures being expensive (6.9%), the community being silent on SGBV cases (27.6%), and the Maslaha system²⁰³ encouraged by the elders (3.4%)-Table 5.8. FGDs in all five Counties further pointed to low levels of awareness of SGBV prevention and response measures and long distances to justice centres.

Table 5.8: Reasons for not taking actions on SGBV cases

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
We did not know what steps to take to address the violence	0.0% (0)	50.0% (3)	0.0% (0)	85.7% (6)	43.8% (7)	55.2% (16)
Afraid of repercussion	0.0% (0)	16.7% (1)	0.0% (0)	28.6% (2)	25.0% (4)	24.1% (7)
We were ashamed about what had happened	0.0% (0)	16.7% (1)	0.0% (0)	71.4% (5)	12.5% (2)	27.6% (8)
The redress measures are expensive	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (2)	6.9% (2)
There is community silence/non-action on acts of SGBV	0.0% (0)	33.3% (2)	0.0% (0)	0.0% (0)	18.8% (3)	27.6% (8)
Maslaha system was proposed by the elders	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	6.3% (1)	3.4% (1)
Total	0	6	0	7	16	29

²⁰³Mohamed ZK and Muriithi PM.2020. Acritical analysis of Maslaha a traditional dispute resolution mechanism in northeastern Kenya. Journal of cmsd, volume 5(1).

5.8 Gender Technical Working Groups (TWGs), Policies and Laws in the Five Counties

Across all five Counties there are gender technical working groups promoting gender equality. Wajir County has a gender Bill developed in 2019 and validated by the stakeholders but is yet to be approved by the County assembly. While gender equality is mainstreamed across all departments, the County lacks the capacity to promote and operationalize it as the gender department is not facilitated to conduct its role effectively. Turkana County on the other hand has a draft County SGBV policy and a zero draft gender policy. A budget of 40 million Kenya shillings was allocated under the current budget year to support the activities of the Gender and Youth Directorate. Further, the directorate is managing a 154 million Youth and Women Empowerment Fund (2021-2022) whose aim is to expand access to finances for youth, women, and persons with disability in promotion of their business interests. At the time of the evaluation some 1000 potential beneficiaries (mainly groups) had applied for the fund and some 660 of them funded to undertake various business activities. Of the 660 recipients some 300- 350 were women groups, representing more than 50.0% of the total grantees. The next phase of the fund is set to begin in May 2022 and will disburse an additional KSHs 120 million.

In Garissa County, the gender policy was approved by the County Assembly on 14th April 2022 and is yet to be disseminated. In Isiolo County there is a gender policy (2021-2025) that provides a sound institutional and legal framework for fast-tracking initiatives that seek to promote gender equality and inclusion in local development. The policy recognizes and seeks to secure the important role of women in a wide range of local community development efforts, among them:- environmental restoration and conservation; climate change adaptation, mitigation and resilience building; deliberate and inclusive community land administration, management and use, community and County level peace-building, conflict resolution and security efforts; sustainable water resources development and management; the strengthening of inclusive local development structures and institutions such as the Water Resource Users Associations (WRUA), the Water Users Associations, and the Isiolo Water and Sewerage Company; and the development of an effective gender-inclusive institutional framework for natural resources management for sustainable development.²⁰⁴ The policy is however not costed and lacks a clear and comprehensive implementation and management framework, including an effective monitoring, evaluation and learning system. Further, it remains unfunded by the County Government, its formulation having been driven largely by civil society groups.

In Marsabit County, a gender policy was formulated in October 2021, along with a social protection policy. A related child protection policy is also in the process of being formulated. The gender policy underlines the equal value of all persons regardless of their sex, with equal rights to lead, and participate in decision-making and societal development. The policy is designed to address specific and unique challenges facing the County such as the existing discrimination and patriarchal violence against girls and women, as well as many other customs and practices that discriminate against and harm girls and women, including sexual and gender-based violence, female genital mutilation, and marital abuse. While the policy is still nascent, and unfunded, Gender seems well mainstreamed in all the country departments such as food security, education, as well as governance. The County has endeavoured to bridge the gender disparities, especially in the appointment of senior County government officials and seems compliant with the 1/3 gender rule. For example, 3 out of 10 CEC Members are women (30%); 5 out of 15 Chief Officers (33.0%) are women; 4 of the County directorates are headed by women; in total the County has 9 women at the level of Assistant to full Directors across the 10 County Departments.²⁰⁵ The policy aims to run through the County's economic empowerment program; education and entrepreneurship programs; access to health services, as well as governance and other decision-making processes, and will guide gender-based violence and all forms of gender-related malpractices that are prevalent within the communities.²⁰⁶

²⁰⁴ County government of Isiolo. 2021. Gender Policy (2021-2025), Abridged Version. <https://home.creaw.org/wp-content/uploads/2022/03/Isiolo-County-Gender-policy-Abridged-f2_compressed.pdf>

²⁰⁵ Marsabit County Governor's speech at the launch of the County Gender inclusion and Social Protection Policies-Thursdays 21st October 2021. - <https://pages.facebook.com/angafradio/photos/a.1437406652938810/4811935965485845/?type=3&source=48>

²⁰⁶ ibid

FGDs with women in the communities identified a lack of links between women’s activism at community level and the County governments’ gender departments and units. Further, a deficit of research and analytical work relating to translating gender equality principles into ongoing activities and reforms by the various departments, including clear qualitative and quantitative indicators for monitoring gender-related gaps and changes, appeared evident across all the five Counties. Also evident is a siloed sectoral and departmental approach in the processes of generating community participation in gender equity activities which seems to limit the impact of community empowerment in upholding gender balance in County programming.

Below are some quotes on gender policy related subjects in the Counties:

“We therefore need a direct support for the gender department to take the lead in addressing GBV in communities”[KII respondents, Wajir County]

“At the departmental level, gender is not clear, or adequately integrated we don’t disaggregated data by gender” [KII respondent, Turkana County]

“When there is water scarcity, breast feeding women struggle to breastfeed due to hunger, the milk is not sufficient for the toddler. Lack of water also predisposes children to WASH related infections thus contributing to the malnutrition pathway” [KII respondents, Garissa County]

5.9 Rangelands Resources Management Practices in the Five Counties

The major gaps in rangelands resources management policies were the unavailability of policies and legal frameworks for rangeland resources development. Where available they were not costed, financed, or monitored hence their suboptimal implementation. Turkana County had a rangelands resources management unit, but the other four Counties had rangelands resources management activities being undertaken within the various departments- livestock extension services, agriculture, lands, and natural resources, with no resolute officers or offices and no funding, hence their low visibility and impact. There was no active engagement of private sector players and no active resource mobilization to implement rangeland development interventions.

There was no rangelands management policy in Wajir County although the County government was in the process of producing pilot rangeland management plans in Bute, Hadado and Habaswein wards. Further the County government was following up 7 Rangeland Management Committees established under the first phase of the RAPID Program, in Bute, Hadado, Eldas, Tarbaj, Banane and Habaswein wards established under the first phase of RAPID program. These committees have since been trained by Mercy Corps Kenya.

While the County does not have a unit or division dedicated to rangelands management, a number of rangeland activities are being promoted by the department of livestock extension services including rangeland reseeding, capacity building of rangeland management committees and capacity building of community members through outreaches by humanitarian organizations. The department is also promoting the use Indigenous traditional knowledge (ITK) and locally adaptable livestock breeds, as well as introducing grass/pasture seeds and providing beehives to support alternative livelihoods, and vaccination and treatment of livestock. KII respondents identified that fodder production and bulking was actively taking place in the County, led by Women group around Wajir town and Habaswein and Bute wards with the support of the Blue Band Aviation Group under the Wajir South Development Association (WASDA). Two associations were encountered in Wajir County namely the Wajir livestock association and the Wajir farmers’ association both engaged in the production and marketing of fodder and seeds.

The budget for the department of livestock services in Wajir in the current fiscal year was 1.2 billion Kenya Shillings with 827 million Kenya shillings expected from development partners. Budgets were drawn by the relevant department and then forwarded to the County Executive and Assembly

for review and adoption. The County Assembly has the final decision on the budget, hence the need to lobby them. Another important County department was that of Agriculture. The department had an annual budget of 16 million Kenya Shillings which went towards field extension activities, purchase of seeds, solar panels and tools, and capacity building for farmers. The department is also involved in the promotion of climate change mitigation measures which include provision of relevant advisory services to farmers, promotion of early planting, promotion of drought resistant and early maturing crops and promotion of zero/minimal tillage to avoid moisture loss/evaporation. A departmental draft Bill assessed to be gender-sensitive has been in the County Assembly for close to three years now.

Turkana County has no policy on rangelands management and relies on the existing national livestock policy (2019) and the national rangelands strategic plan (2021-2021-2031) to guide its activities. In addition, there is a County Climate Change Policy, and several County specific Bills pending enactment by parliament, among them the County livestock Bill and the County livestock sales yards Bill. There is a directorate of Livestock Management, under which a division of Rangeland Management is domiciled. KII interviews with the directorate team revealed that while both the 1st and the 2nd generation CIDPs had budgeted components of rangeland management, there was no budgetary allocation to the division during both terms, beyond the allocations to salaries and basic office running costs. The KII revealed further that the County had only one graduate Range Officer. County Rangeland development has therefore been funded and spearheaded largely by international organizations through targeted projects.

The rangeland improvement activities and practices supported across the County, include: seeding and reseeding, fodder and pasture production (production, baling, harvesting, storage and sale of pasture/fodder, including pods from local acacia trees and Prosopis), grazing management and management of grazing corridors, forestry and afforestation, water resource development and management (water pans, rock dams, boreholes, water troughs), catchment protection, rangeland planning, including transboundary resource planning, capacity building in rangeland development and management, establishment of abattoirs, livestock holding grounds and livestock sales yards, research on rangeland improvement, and the promotion of alternative livelihoods (crop irrigation, beekeeping, basketry, tourism, among other pursuits). The EKWAR pastoral management system²⁰⁷ is a traditional catchment management system practiced among riverine communities in Turkana County, based on the usufruct management of particular types of acacia species and other types of fruit bearing trees, ensuring browse (leaves and pods) for livestock during the dry season and food for human use across all seasons.

Several institutions have been established at County and sub-County levels to guide the usage and management of Rangeland resources. At the County level, the County Livestock Management Council is an umbrella organization, for some 54 Livestock Marketing Associations (LMAs) distributed across the entire County. The mandate of the LMC is to advocate for enabling policies for pastoralists and to lobby for support to LMAs from the County Government and from relevant local and international development organizations. At the sub-County and ward level are several Range Management Committees (RMCs), charged with the responsibility of ensuring the sustainable use and management of range land resources at the community level. There are a number of these in Turkana West, including Songot, Kaikor and Todonyang.²⁰⁸

Private sector engagement in rangeland management was limited in the County. In a bid to attract private investors, the County Government had invested in several interesting turnkey²⁰⁹ projects that draw on the resources available within the County. Among these include a slaughterhouse in Lokichogio, Turkana Tannery, fish factories on lake Turkana, Loropio Feeds (chicken, ice, fish), livestock holding grounds-for fattening livestock before sale (Napei Lilim) and the Kerio breeding centre. The interest in and uptake of these projects however remains low, resulting in their sub-optimal operation. Pasture producing groups are also increasingly important private sector players in the management of rangeland resources. Composed predominantly of women, these groups are

²⁰⁷Akall, G. Effects of development interventions on pastoral livelihoods in Turkana County, Kenya. *Pastoralism* 11, 23 (2021). <https://doi.org/10.1186/s13570-021-00197-2>

²⁰⁹A turnkey project is a delivery method in which a single entity—a contractor—works with a project owner under a single contract to complete all stages of a project from detail engineering through construction.

engaged in the production, baling, storage and sale of pasture and fodder for livestock, especially during the dry season. There are a number of these groups (and individual farmers) in Turkana west Sub County Development partners have also been keen to promote peaceful co-existence through sharing of inter-ethnic and cross-border rangeland resources. Towards this, transboundary resource sharing plans have been developed enabling peaceful movement and sharing of resources such as water and pasture among pastoral communities across the common borders (Kenya, Uganda, Ethiopia, and South Sudan). The plans create transhumance corridors, stock routes and grazing blocks that are protected and grazed in a deferred manner. An example of such a plan is the one recently developed through the collaboration of GiZ and IGAD- covering Turkana West and Loima and replicated in Uganda.

Isiolo County was the other County that seemed on track towards developing a sound policy, legal and institutional framework for effective rangelands development, with several policies, strategic plans, and laws either completed or in the process of being completed. The following documents relating to rangelands management were at different stages of development and completion- a Isiolo County Rangeland Management Policy (2021) in draft form, Isiolo County Range Management Bill (in draft form), Isiolo County Natural Resources Management Bill (2016), Isiolo County Conservancies Bill (2021), Isiolo County Livestock Strategy (2021) in draft form, Isiolo Agriculture Sector plan (2018-2021 in draft form, Isiolo Livestock Bill (draft under development) and Isiolo Livestock Sales Yard Bill (2016) together with accompanying regulations (drafts). The County also has Climate Change Act (2018) and a Gender Policy (2021-2025). An analysis of these policy and legal documents in terms of their gender inclusiveness, status of implementation and overall impact is provided in Table 5.9 below and in Annex 6. Overall, while the documents mention gender inclusivity, the pathways towards its achievement are unclear. For example, the Isiolo County Customary Resources Management Bill (2016) established a Council of Elders to assist the County government in managing its functions at the Olla, Artha and Dedha levels. However, the elders are all male.²⁰⁹ Further, judged from the number of pending Bills, some dating back to 2016, it does appear that the good will to finalize and/legislate the Bills is lacking.

In Marsabit County most of the relevant policies and legislations were in draft form-County Livestock Trade and Markets Bill, 2019, County Livestock Bill, County Rangelands Management bill (zero draft), implying rangeland management activities were not receiving County government funding and indicating a lack of good will to pass the bills into law (Acts). The County was unable to mobilize funds from the private sector for rangelands management activities Garissa County did not have an explicit rangeland Management policy or Act, but had a number of allied policies and legislations either already in place or in pipeline for passage into law- Garissa County Environmental Management and Co-ordination Act (2018) providing a framework for sustainable coordination and management of the environment in the County; Garissa County Livestock Policy and Bill (2019), Garissa County Climate Change Fund Bill (2018) unlocking the potential of the County and local communities and organizations to access climate change funding; Garissa County Gender policy and Disaster Risk Management Policy (2022), both yet to be operationalized. Further analytic details of these policies and laws are provide in table 5.9 below and in Annex 5. In Garissa County an annual budget of KSHs 80 million was allocated to the livestock department in the 2021-2022 fiscal year to be spent largely in securing veterinary services, supporting livestock production activities, and facilitating administration.

Table 5.9 below provides an analysis of the status of legislative and policy frameworks for the rangelands and livestock sectors by County for the five program Counties. The analysis was based on a perception score of 0-4 which was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of policies and legal frameworks' 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. Based on the scoring: 0 denotes 'Not at all Achieved'; 1 denotes 'Marginally Achieved; 2 denotes 'Partially Achieved'; 3 denotes 'Largely Achieved'; and 4 denotes 'Fully Achieved'. The total score is then divided by 4 to obtain effectiveness score of policy / legal framework.²¹⁰

²⁰⁹County government of Isiolo.2016. Isiolo County customary resources management Bill (2016). <
<http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2016/2016/IsioloCountyCustomaryNaturalResourceManagementBill2016.pdf>>

²¹⁰https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdccontext/Documents/SDC_indicators_AFS_TRI_2.pdf

Table 5.9: Policy and legal frameworks on rangelands resources management and livestock production

County	Department	Policy and legal framework	Comments
Wajir	Livestock extension services	<ul style="list-style-type: none"> Degree of gender inclusion=0/4 Impact on beneficiaries =0/4 Level of implementation= 0/4 Allocation of finances=0/4 	<ul style="list-style-type: none"> No Rangelands Resources Management Policy No Livestock Development Policy No impact on the beneficiaries No financing yet The County government was in the process of producing pilot rangelands resources management plans in Bute, Hadado and Habaswein were being developed Draft Livestock Sales Yard Bill was advanced, but the role of women was not well pronounced No segregation of data by gender Involvement of females in livestock field extension services noted No active engagement of women groups producing fodder in the County was noted but engagement of the Wajir livestock association and the Wajir Farmers' Association was documented The Department of Livestock has an annual budget of 1.2 million Kenya Shillings with 827 million Kenya Shillings being indirect support to livestock activities by humanitarian organizations (no active mobilization of resources from the development partners but rather, partners needed to implement the livestock related activities in collaboration with the department) No active engagement of women groups No participation of women in agricultural forums
	Agriculture	<ul style="list-style-type: none"> Degree of gender inclusion=1/4 Impact on beneficiaries =0/4 Level of implementation= 0/4 Allocation of finances= 0/4 	<ul style="list-style-type: none"> Draft Agricultural Bill developed with gender considered The Department has a budget of 16 million Kenya Shillings exclusive of salaries with no support from development partners No resource mobilization activities No segregation of data by gender No active engagement of women groups Participation of women in agricultural forums reported
Marsabit	Livestock	<ul style="list-style-type: none"> Degree of gender inclusion=2/4 Impact on beneficiaries =0/4 Level of implementation= 0/4 Allocation of finances=0/4 	<ul style="list-style-type: none"> Livestock Bill in place Rangelands Resources Management Policy (zero draft) requires improvement; it lacks a costed implementation framework and a M and E plan Rangelands Resources Management Bill (zero draft) Market and Trade Bill (not complete) No mobilization of funds from the private sector for rangelands management activities
Turkana	Agriculture	<ul style="list-style-type: none"> Degree of gender inclusion=0/4 Impact on beneficiaries =0/4 	<ul style="list-style-type: none"> The Turkana County Livestock Sale Yard Bill is awaiting adoption No Rangelands Resources Management Policy or Bill

		<ul style="list-style-type: none"> • Level of implementation=0/4 • Allocation of finances=0/4 	<ul style="list-style-type: none"> • The County Integrated Management Plan captures rangelands resources management but vaguely • Budget of 1.6 million Kenya Shillings every year but no funds for rangelands management • No direct resource mobilization • Indirect technical support by development partners was available • Women were engaged in sale of livestock products • No disaggregation of data by gender • Support for women groups documented
Garissa	Livestock & Agriculture	<ul style="list-style-type: none"> • Degree of gender inclusion=2/4 • Impact on beneficiaries=0/4 • Level of implementation=0/4 • Allocation of finances= 0/4 	<ul style="list-style-type: none"> • Policy and Bill yet to be finalized • Gender mainstreaming included in the two documents • No financing of the policy and Bill • Low prioritization of rangelands management • Low financing of rangelands resources management activities • Gender Policy (2021) • Disaster Risk Management Policy (2022) • Garissa County Climate Change Fund Bill (2018)-unlocking the potential of the County and local communities and organizations to access climate change funding
	Environment and natural Resource management	☐	<ul style="list-style-type: none"> • Garissa County Environmental Management and Co-ordination Act (2018) provides the legal and institutional framework for the sustainable coordination and management of the environment within the County-as a result NEMA and several NGO projects (e.g., Horn Aid Kenya) are able to work effectively in the County on compliance of projects with stipulated Env. standards, and on building food resilience through construction of Dams and green zones in wards like Daad Bulle and Sankuri (Balambala constituency) traditionally prone to drought and flooding during dry and wet seasons respectively • Disaster Risk Management policy formulated in 2022
Isiolo County	Livestock and Agriculture	<ul style="list-style-type: none"> • Degree of gender inclusion=2/4 • Impact on beneficiaries =0/4 • Level of implementation=0/4 • Allocation of finances=1/4 	<ul style="list-style-type: none"> • Rangeland Resources Management Policy (2021) but lacks a costed implementation framework and a M and E plan • Livestock Strategy (2021) but lacks a costed implementation framework and a M and E plan • Agriculture Sector Plans (2018-2021) but lack costed implementation frameworks and M and E plans • Rangelands Resources Management Bill (draft yet to be presented to the County Assembly) • Livestock Bill (draft under development) • The documents mention gender inclusivity but the pathways to the same were lacking • Good will to finalize and/or implement these documents was lacking • Policies and strategy not fully financed • Policies and strategy implementation is suboptimal

Below are some quotes on rangeland policy and legal related subjects:

“We are yet to come up with a livestock policy, but we hope to adopt the national livestock policy (2021) to the local dynamics. We also have the Livestock Sales Yard Bill that is yet to be passed by the County assembly” [KII respondent, Wajir County]

“There was a rangeland management division in the department of livestock, but it has since collapsed. Without a structured unit dedicated to rangeland management it will be difficult to change the current practices” [KII respondent, Wajir County]

“Of late the business community is keeping off tenders to supply seeds, solar panels, and tools due to delayed payments by the County government. Thus, the bidet ends up not being fully absorbed” [KII respondent, Wajir County]

“County Livestock Management Council (CLMC) is involved in monitoring of the use of rangelands and other transboundary resources” [KII respondent in Turkana County]

*“Our draft livestock sale yard Bill mentions no gender or inclusivity and makes no reference to the 1/3 gender rule”
[KII respondent in Turkana County]*

“Due to drought, fodder production and reseeding has not been possible in most parts of the County except in Kalacha within north Horr where irrigation water is available” [KII respondent, Marsabit County]

“We had an intersectoral review of the livestock policy and Bill two weeks ago to ensure that gender was mainstreamed.” [KII respondent, Garissa County]

5.10 Stakeholders in Rangelands Resources Management

The range of stakeholders working Rangeland Resource Management in the Counties included Cooperatives and farmers associations were existent in Wajir and Turkana County were largely weak and had not managed to pull up the economies of scale. Institutions working in rangelands resources management activities in the Counties were largely humanitarian organizations, both local/national and international. However, there were several local cooperatives and farmers’ organizations and associations also involved, especially in Wajir and Turkana Counties. Many of them were however weak, suffering a wide range of technical, organizational, and financial challenges and therefore not operating at their optimum. The upsurge of women groups undertaking a wide range of rangeland resource management activities as alternative livelihood sources and as businesses was noted in Turkana and Wajir Counties (Table 5.10).

Table 5.10: Stakeholders in rangelands resources management across the five Counties

County	Private stakeholders in rangelands management	Associations and cooperatives	Challenges facing associations and cooperatives
Wajir County	<ul style="list-style-type: none"> International Livestock Research Institute (ILRI) Kenya Society for Agricultural Professionals (KESAP) Blue band aviation Mercy Corps Kenya NDMA Arid Lands Development Focus (ALDEF) 	<ul style="list-style-type: none"> Wajir livestock association Wajir farmers’ association These two are engaged in production, and marketing of fodder and seeds 	<ul style="list-style-type: none"> Low finances and inability to access loans Recurrent droughts Low adoption of technology/slow to take up technological advances Poor governance Poor fiscal management skills
Turkana County	<ul style="list-style-type: none"> Oxfam Mercy Corps Catholic Relief Services 	<ul style="list-style-type: none"> Poultry cooperatives- Nateleng’ poultry cooperative Fisheries self-help groups 	<ul style="list-style-type: none"> Low uptake by community members Illiteracy

	<ul style="list-style-type: none"> • VSF Belgium • ADF/USAID • Practical Action • NAWIRI • Catholic Diocese of Lodwar • Agro vets • NDMA 	<ul style="list-style-type: none"> • Beekeeping cooperatives • Pasture production groups • Nariemeto pasture producing group • Pelekech pasture producing group • Turkwel-Pastoral Field School • Lokor/Kalalio pasture groups (Loima) • Losuru marketing association 	<ul style="list-style-type: none"> • Difficulties in opening and operating bank accounts
Garissa County	<ul style="list-style-type: none"> • NDMA • NEMA • KEFRI • Kenya Forest Service • Frontier Counties Development Council (FCDC) 	<ul style="list-style-type: none"> • 8 Cooperatives • SACCOS 	
Marsabit County	<ul style="list-style-type: none"> • CONCERN Worldwide • PACIDA 		
Isiolo	<ul style="list-style-type: none"> • NDMA • CARITAS Isiolo • Catholic Relief Services • RACIDA 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Humanitarian agencies only with no private sector player

Case study: Frontier Counties Development Council (FCDC) The Frontier Counties Development Council (FCDC) offers a potent entrypoint for influencing country, as well as national level policy and regulatory frameworks in favour of County governments. This coordinating body seeks to ensure equitable resource allocation within member Counties and well-coordinated management of shared transboundary resources, livestock management, and disease control. FCDC is primarily responsible for coordinating livestock interventions in the 14 sub-Counties making up Garissa County. It is a policy lobby group for livestock and agriculture sector stakeholders, with a sector forum for these stakeholders, where they analyze sector budgets allocated to the sub-Counties and lobby for allocations well matched with the needs of the populations in the respective sub-Counties. While initially intended only as a platform for lobbying County Governments on livestock and agricultural policies and budgets, the FCDC has now evolved into a platform for lobbying donors as well in this regard. This, in part, is why Garissa County now has a livestock support systems program supported by a consortium of donors. FCDC has successfully advocated for effective coordination of agricultural sector programs and is currently lobbying for the strengthening of the infrastructure for the effective and efficient delivery of veterinary services across the FDC region,²¹¹ primarily Garissa, South Tana River, Mandera, and Wajir. MWA's support for the FCDC to galvanize a shared vision for water and rangelands resources management in the five target Counties would certainly be good value for money for the program.

²¹¹ https://www.academia.edu/es/41995765/Common_Programme_Framework_Livestock_Disease_Control_FCDC_Region_Kenya

5.11 Community Knowledge and Practices in Rangeland Resources Management

None of the rangeland resources management practices was known by more than 50.0% of the respondents, water harvesting being the most known practice among (48.1%). The following were the main rangeland management practices known to the respondents: water harvesting (48.1%), destocking (38.5%), fodder production and conservation (27.8%), grazing management (22.4%), climate change adaptation and mitigation (19.0%), seeding and reseeding (15.6%), pests and diseases control (13.7%), development of markets (11.0%), alternative livelihoods practices (10.4%)- Figure 5.16. From the KILs, there were limited rangelands education activities by the five County governments. Rangeland development and improvement stakeholders were also few, and this explains the limited awareness and knowledge of rangeland development and improvement practices and the limited priority accorded to this sub-sector across all five program Counties. Indeed, rangelands management offices/units/departments/divisions/focal officers were inexistent in all the five Counties, except in Turkana County where an unfunded division was domiciled within the directorate of livestock. In Wajir County, the directorate seems to have collapsed five years ago. As such rangelands resources management activities were left to either the agriculture and livestock services or the environment and natural resources departments, hence the sub-sector's low visibility, low prioritization by County governments and low knowledge among community members.

Figure 5.16: Knowledge of rangelands resources management practices

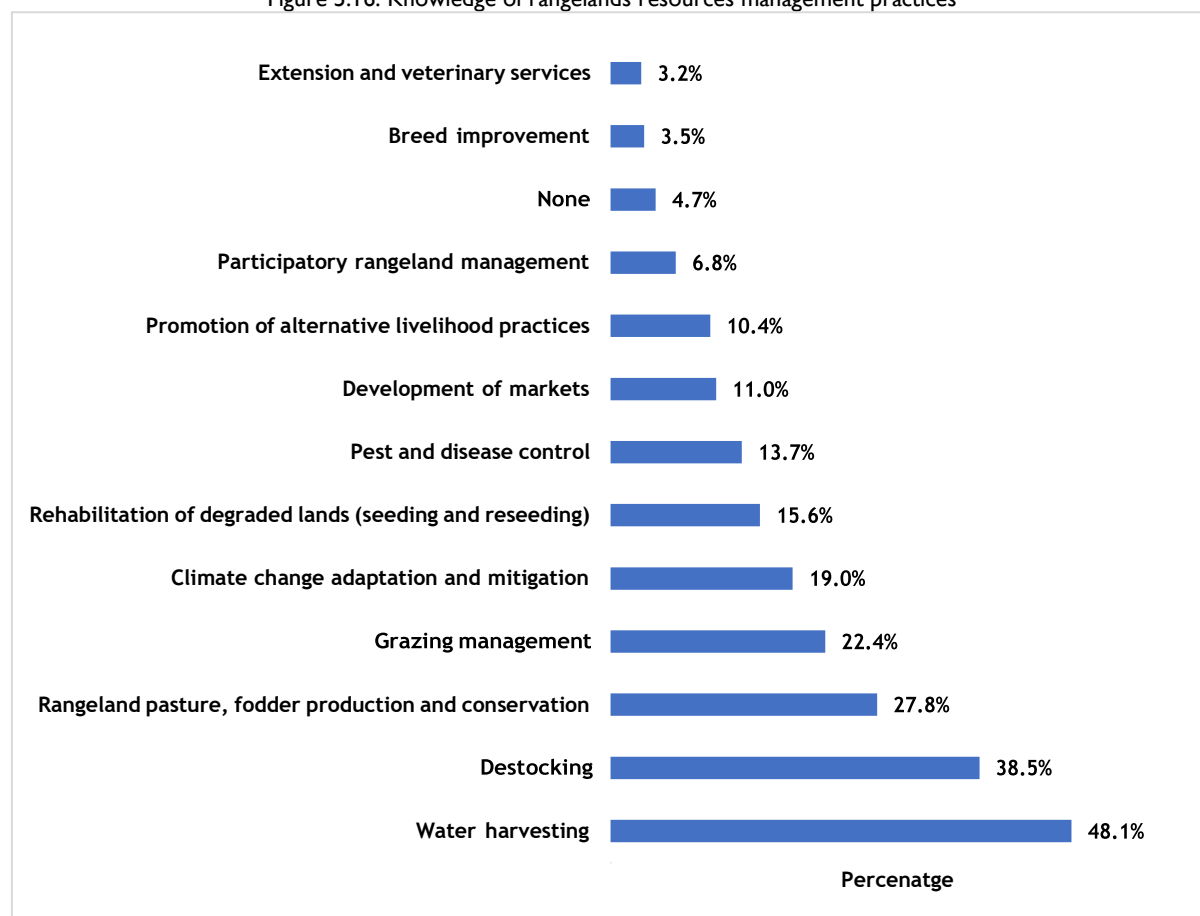


Table 5.11: Known rangeland resource management practices

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Water harvesting	48.2% (186)	48.5% (213)	25.1% (84)	64.3% (258)	50.2% (206)	48.1% (947)
Destocking	56.7% (219)	32.1% (141)	49.7% (166)	19.2% (77)	38.0% (156)	38.5% (759)
Rangeland pasture, fodder production and conservation	25.4% (98)	26.0% (114)	15.0% (50)	43.9% (176)	26.6% (109)	27.8% (547)
Grazing management	2.1% (8)	27.3% (120)	48.2% (161)	30.7% (123)	7.3% (30)	22.4% (442)
Climate change adaptation and mitigation	6.7% (26)	10.0% (44)	15.6% (52)	50.9% (204)	11.7% (48)	19.0% (374)
Rehabilitation of degraded lands (seeding and reseeding)	2.3% (9)	10.0% (44)	0.6% (2)	44.9% (180)	17.8% (73)	15.6% (308)

Pest and disease control	28.5% (110)	9.8% (43)	2.4% (8)	13.3% (30)	14.9% (61)	13.7% (270)
Development of markets	0.5% (2)	16.4% (72)	3.6% (12)	25.9% (104)	6.6% (27)	11.0% (217)
Promotion of alternative livelihood practices	9.1% (35)	3.0% (13)	1.8% (6)	32.2% (129)	5.1% (21)	10.4% (204)
Participatory rangeland management	1.0% (4)	2.1% (9)	1.2% (4)	27.7% (111)	1.2% (5)	6.8% (133)
None	0.8% (3)	6.8% (30)	17.1% (57)	0.2% (1)	0.5% (2)	4.7% (93)
Breed improvement	8.8% (34)	2.1% (9)	0.3% (1)	5.7% (23)	0.2% (1)	3.5% (68)
Extension and veterinary services	13.5% (52)	0.2% (1)	0.0% (0)	2.5% (10)	0.0% (0)	3.2% (63)
Total	386	439	334	401	410	1,970

Six main rangeland resource management practices were reported by households namely: destocking (58.9%), fodder production (26.5%), fodder bulking (16.0%), seed bulking (12.3%), seed multiplication (11.3%) and voluntary off-taking (11.1%)-Figure 5.17 and Table 5.12. From the FGDs and field observations, the main rangeland management practices noted were production, conservation and sale of fodder and pastures, seeding and reseeding, goats breed improvement in Turkana County, alternative livelihoods adoption (resin production, Aloe Vera production and juice processing, and apiculture), irrigation along shallow wells and rivers and grazing management in parts of Turkana and Wajir Counties.

Destocking and voluntary-off taking were new practices given the prestige attached to large herd sizes. In fact, at the time of the baseline evaluation, dead livestock were encountered across all the five Counties, despite an ongoing destocking and voluntary off-taking campaign by the national government to cushion pastoralists. In Wajir County, fodder production was noted around Wajir town as well as in Habaswein and Bute wards, practiced mainly by women groups.

Figure 5.17: Rangelands resources management practices in the visited HHs

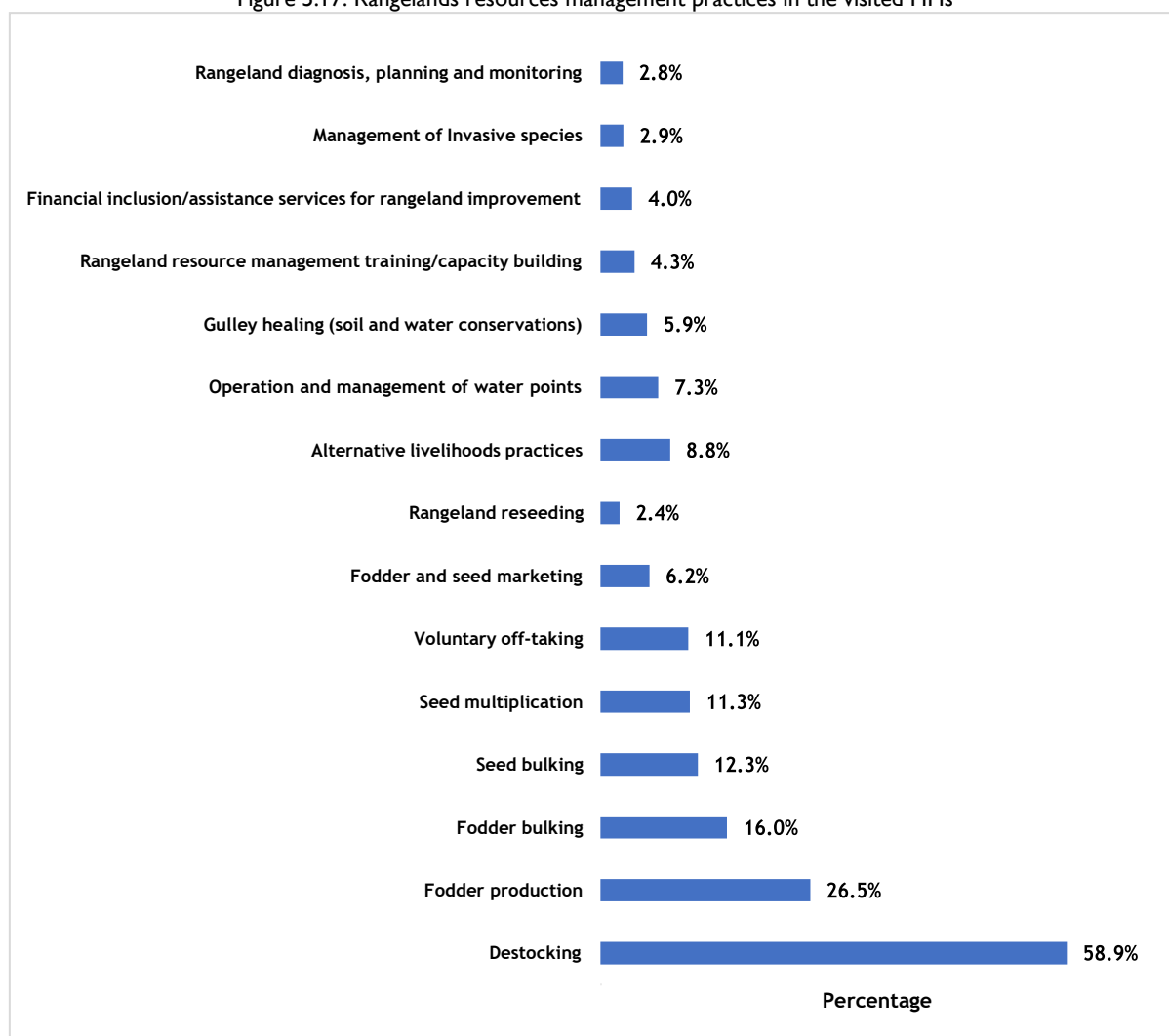


Table 5.12: Rangeland resource management practices in the visited households

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Destocking	79.5% (307)	52.8% (232)	68.3% (228)	33.9% (136)	62.9% (258)	58.9% (1161)
Fodder production	16.1% (62)	14.1% (62)	12.3% (41)	60.8% (244)	27.6% (113)	26.5% (522)
Fodder bulking	9.6% (37)	2.7% (12)	0% (0)	48.4% (194)	17.8% (73)	16.0% (316)
Seed bulking	7.8% (30)	1.1% (5)	0% (0)	43.6% (175)	7.8% (32)	12.3% (242)
Seed multiplication	3.4% (13)	1.4% (6)	0.3% (1)	46.9% (188)	3.4% (14)	11.3% (222)
Voluntary off-taking	12.7% (49)	28.7% (126)	3.3% (11)	3.5% (14)	4.4% (18)	11.1% (218)
Fodder and seed marketing	2.8% (11)	1.8% (8)	0.3% (1)	22.2% (89)	3.4% (14)	6.2% (123)
Rangeland reseeding	0.8% (3)	1.8% (8)	0% (0)	6.0% (24)	3.2% (13)	2.4% (48)
Alternative livelihoods practices	6.5% (25)	16.2% (71)	17.7% (59)	0.5% (2)	4.1% (17)	8.8% (174)
Operation and management of water points	1.0% (4)	10.3% (45)	3.3% (11)	19.2% (77)	1.7% (7)	7.3% (144)
Gully healing (soil and water conservations)	0.8% (3)	15.9% (70)	1.5% (5)	9.2% (37)	0.5% (2)	5.9% (117)
Rangeland resource management training/capacity building	0.8% (3)	4.1% (18)	0.9% (3)	13.7% (55)	1.2% (5)	4.3% (84)
Financial inclusion/assistance services for rangeland improvement	0% (0)	4.1% (18)	0% (0)	15.0% (60)	0% (0)	4.0% (78)
Management of Invasive species	4.9% (19)	0.2% (1)	3.6% (12)	4.0% (16)	2.2% (9)	2.9% (57)
Rangeland diagnosis, planning and monitoring	0% (0)	3.2% (14)	0% (0)	10.2% (41)	0.2% (1)	2.8% (56)
Total	386	439	334	401	410	1970

There was limited access to rangelands management resources and practices in the five Counties, largely on account of the low investments in the same. The accessible rangelands management resources and practices in the five Counties were identified as water harvesting (49.0%), destocking (38.4%), rangeland pasture, fodder production and conservation (31.7%), grazing management (21.9%), climate change adaptation and mitigation (21.5%), rehabilitation of degraded lands through seeding and reseeding (14.7%), pests and diseases control (14.5%), development of markets (10.1%), alternative livelihoods (6.5%), participatory rangelands management (6.5%), extension and veterinary services (3.6%), breeds improvement (3.2%), rangelands diagnosis, planning, implementation and monitoring (1.7%), trans boundaries collaborative improvements (0.6%), and irrigated forages (0.6%)-Figure 5.18 and Table 5.13.

Figure 5.18: Access to rangelands resources management services

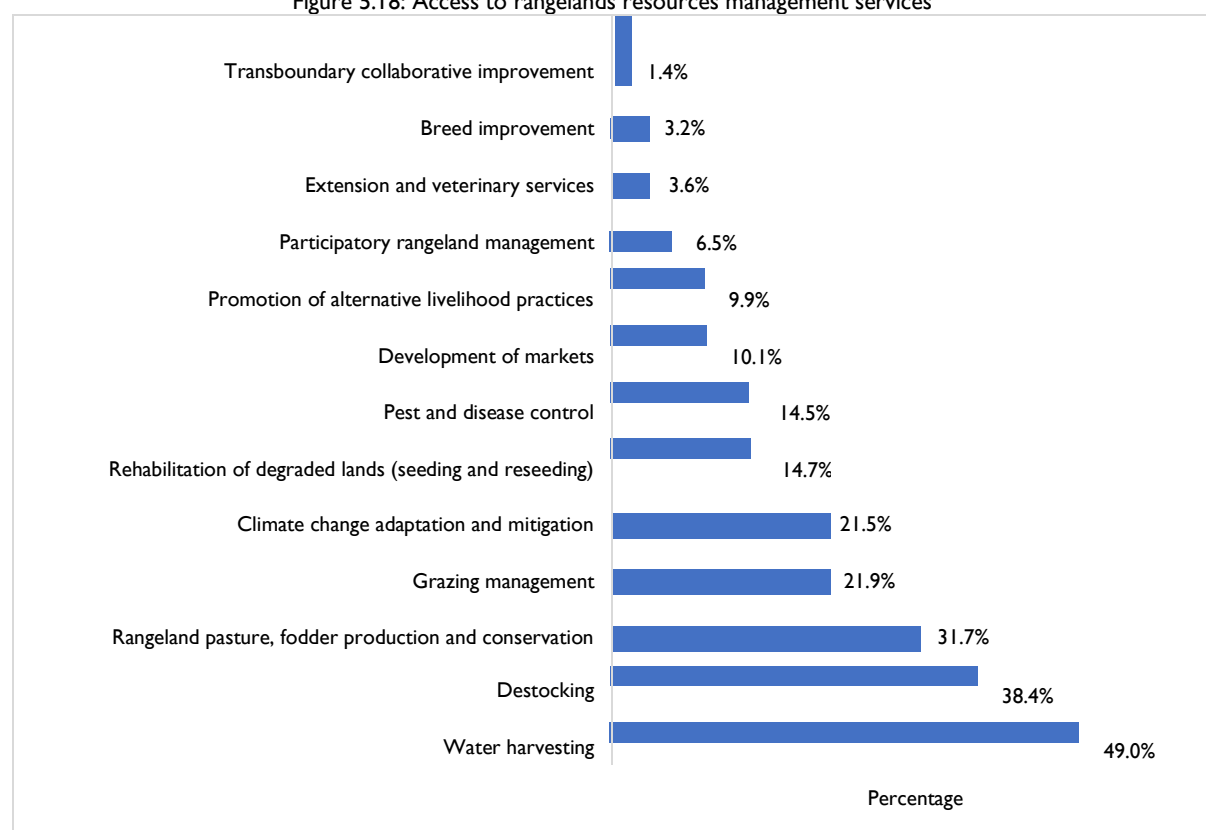


Table 5.13: Rangeland resource management and practices accessible to respondents

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total	
Water harvesting	41.3% (157)	50.9% (217)	61.7% (198)	65.0% (52)	62.3% (250)	54.0% (218)	49.0% (929)
Destocking	54.7% (208)	35.4% (151)	15.9% (51)	26.3% (21)	18.0% (72)	34.4% (139)	38.4% (729)
Rangeland pasture, fodder production and conservation	26.1% (99)	28.6% (122)	49.2% (158)	48.8% (39)	49.1% (197)	29.5% (119)	31.7% (602)
Grazing management	2.1% (8)	29.1% (124)	21.2% (68)	40.0% (32)	24.9% (100)	5.7% (23)	21.9% (415)
Climate change adaptation and mitigation	6.8% (26)	12.4% (53)	49.5% (159)	51.3% (41)	49.9% (200)	12.4% (50)	21.5% (408)
Rehabilitation of degraded lands (seeding and reseeding)	2.1% (8)	2.3% (10)	48.3% (155)	42.5% (34)	47.1% (189)	16.6% (67)	14.7% (278)
Pest and disease control	28.2% (107)	9.4% (40)	14.0% (45)	16.3% (13)	14.5% (58)	15.8% (64)	14.5% (276)
Development of markets	0.5% (2)	13.4% (57)	22.4% (72)	23.8% (19)	22.7% (91)	8.9% (36)	10.1% (192)
Promotion of alternative livelihood practices	6.3% (24)	3.8% (16)	34.3% (110)	21.3% (17)	31.7% (127)	3.2% (13)	9.9% (188)
Participatory rangeland management	0% (0)	4.0% (17)	23.1% (74)	20.0% (16)	22.4% (90)	2.7% (11)	6.5% (124)
Extension and veterinary services	12.9% (49)	0.5% (2)	4.4% (14)	3.8% (3)	4.2% (17)	0% (0)	3.6% (68)
Breed improvement	7.4% (28)	2.3% (10)	5.0% (16)	3.8% (3)	4.7% (19)	1.0% (4)	3.2% (61)
Transboundary collaborative improvement	0.3% (1)	0.9% (4)	5.0% (16)	7.5% (6)	5.5% (22)	0% (0)	1.4% (27)
Irrigated forages	0.5% (2)	0% (0)	1.6% (5)	2.5% (2)	1.7% (7)	0.7% (3)	0.6% (12)
Total	380	426	321	80	401	404	1897

Snapshot: (Left photo) of harvested grass by trained pastoralists in Turkana west sub-County Lopur Ward who have been practicing improved production, conservation grazing management during the dryseason. (Middle photo) A pasture field reseeded by pastoralists in the same location where livestock can also graze (right photo) at post-harvest.



Institutions involved in rangeland resources management activities in the five Counties were identified as follows: humanitarian organizations (46.5%), County departments (42.0%), County livestock marketing councils (38.5%), rangeland management committees (28.8%), conservancy grazing committees (19.3%), women groups (17.6%), borehole rapid response teams (16.9%), and private sector committees (15.1%), private companies (9.3%), individual farmers (7.8%), County capacity building funds representatives (5.4%) and cooperatives and SMEs (Table 5.14).

Table 5.14: Persons and institutions involved rangeland resource management activities in the Counties

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
County departments	51.9% (80)	25.4% (44)	38.4% (48)	55.1% (125)	32.2% (39)	42.0% (336)
County Livestock marketing councils (CLMCs)	39.0% (60)	32.4% (56)	17.6% (22)	60.4% (137)	27.3% (33)	38.5% (308)
Range Management Committees (RMCs)	37.7% (58)	44.5% (77)	22.4% (28)	25.6% (58)	7.4% (9)	28.8% (230)
Conservancy grazing committees	3.2% (5)	17.9% (31)	24.0% (30)	35.7% (81)	5.8% (7)	19.3% (154)
Women groups	18.2% (28)	39.3% (68)	2.4% (3)	9.3% (21)	17.4% (21)	17.6% (141)
Borehole rapid response teams	1.3% (2)	16.8% (29)	4.0% (5)	33.0% (75)	19.8% (24)	16.9% (135)
County private sector committees	1.3% (2)	3.5% (6)	4.8% (6)	40.1% (91)	13.2% (16)	15.1% (121)
Private companies	0.6% (1)	0.0% (0)	0.0% (0)	11.5% (26)	38.8% (47)	9.3% (74)
Individual farmers	17.5% (27)	0.6% (1)	0.8% (1)	11.0% (25)	6.6% (8)	7.8% (62)
County capacity building fund representatives	0.6% (1)	1.2% (2)	0.0% (0)	14.1% (32)	6.6% (8)	5.4% (43)
Seed/Fodder bulking cooperatives/SMES	0.0% (0)	0.0% (0)	0.0% (0)	7.9% (18)	1.7% (2)	2.5% (20)
Total	386	439	334	401	410	1970

Private entities in rangelands management in the five Counties were identified to include the following: National Drought Management Authority (NDMA), Care Kenya and Action Against Hunger in Garissa County Mercy Corps, World Vision, blue band aviation, International Livestock Research Institute

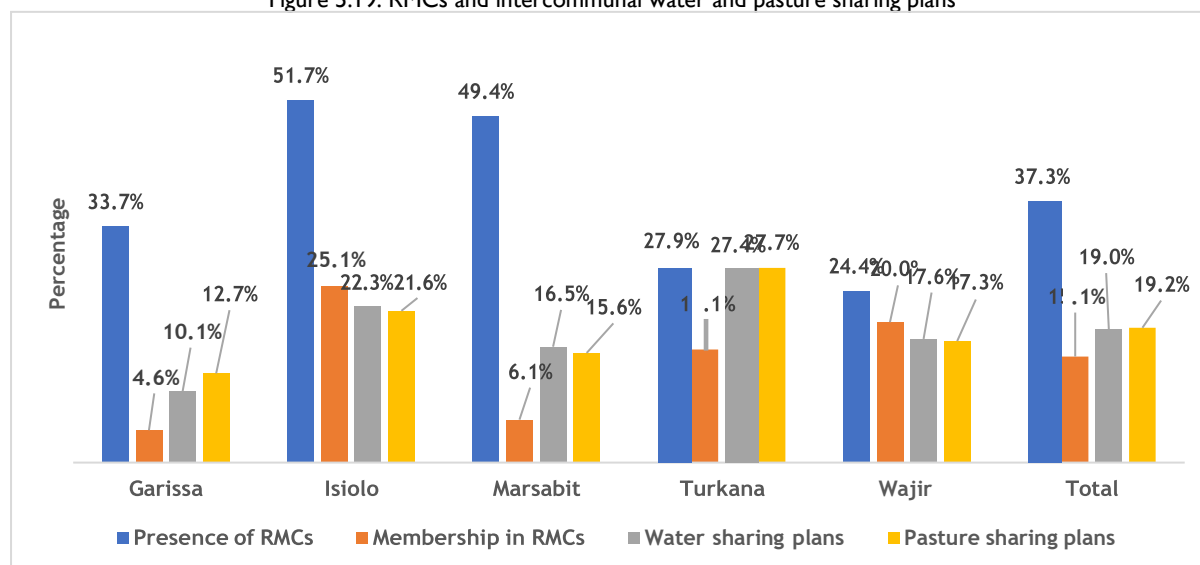
(ILRI), Kenya Society for Agricultural Professionals (KESAP) and the Arid Lands Development Focus (ALDEF) in Wajir County, Turkana Pastoralists Development Organization (TUPADO), Oxfam, VSF Belgium, ADF/USAID, Practical action, Catholic Relief Services and Mercy Corps in Turkana County, Catholic Relief Services, Caritas Isiolo, Mercy Corps and Christian Aid International in Isiolo County and NDMA in Marsabit County. In addition, individuals and women groups in Turkana County and Wajir County were engaged in fodder production and conservation as well as in crop irrigation. Men in all the five Counties were engaged in apiculture and resins production. It is only in Turkana County where individuals were found to be engaged in Aloe Vera juice harvesting, transportation, and processing. Poultry farming was noted as an emerging alternative livelihoods source among community members in Marsabit and Turkana Counties.

Below is a quote on rangelands resources management in Marsabit County:

“The rangelands in this County are highly degraded, as water sources are depleted largely as a result of underground aquifers not refilling. The situation is exacerbated by surface run off leading to low water levels”
 [KII, respondent, Marsabit County]

The existence of Rangeland Resources Management Committees (RMC) was reported by 37.3% of the respondents while 15.1% of them identified that their households were registered with the RMCs. In addition, the existence of intercommunal water and pasture sharing plans was reported by 19.0% and 19.2% of the respondents respectively (Figure 5.19). Peace committees were also reported to exist across all five Counties and their role in averting conflicts over water and pasture access noted by respondents. From the KIIs in Turkana County, sharing of water and grazing lands (and plans) among border communities was reported. For example, in 2020 (July) the Presidents of Kenya and Uganda signed an agreement aimed at ending hostilities and promoting trade among communities living along the Karamoja cluster. Among the agreement was the construction of a 2.5 million cubic meter Kebebe Dam along the Kenya-Uganda border to serve 1.5 million livestock from Turkana, Pokot and Karamoja communities living along the borders of the two countries.²¹² Further, every year members of the ATEKER cluster (the Teso, Karamojong, Jie, Toposa, Merille and Luo communities) come together for the celebration of the Tobong’u Lore annual festival.²¹³ The Tobong’u Lore, known in English as the Lake Turkana Cultural Festival, is a celebration of indigenous culture hosted every spring in Turkana County in northern Kenya by a number of indigenous communities adjacent to the lake. The aim of the festival is to promote peace, cultural exchange, and tourism. In Isiolo County, water sharing plans were reported among communities living in Modogashe East and West.

Figure 5.19: RMCs and intercommunal water and pasture sharing plans



²¹²<https://www.turkana.go.ke/index.php/2019/09/19/agreement-on-joint-kenya-and-uganda-cross-border-peace-programme-hailed-as-historic/> ²¹³ https://en.wikipedia.org/wiki/Tobong%27u_Lore

The strengths of the RMCs were identified to exist in their acceptability by community members, in their wide membership base bringing together multiple clans in the community, their integration of peace committees' representatives, the presence of youths and women in them, and in having governing constitutions and bylaws. They were however weak in organizational and management skills, in practical governance, in ability to mobilize and effectively manage financial resources, and often fell prey to political and clan interests. Further, their bylaws lacked proper anchorage in existing County governments' policies and Acts, and were therefore difficult to implement and enforce (Table 5.15)

Table 5.15: Rangeland management committees

County	RMC	Year of formation and activities	Leadership	Strengths	Weaknesses	Challenges
Wajir	Korondile	<ul style="list-style-type: none"> Set up in 2019 by World Vision To protect the pasture and water resources Water use planning To reduce overgrazing Use of blocks and bricks to demarcate grazing lands Men negotiate for access to grazing zones Women identify valuable grazing zones Fodder seeds distribution when available Promotion of reseeded Promotion of drip irrigation 	<ul style="list-style-type: none"> 30 leaders All clans Women Men Youth They have a woman as a treasurer, a youth as a secretary and a man as a chairperson Received trainings from WWI 	<ul style="list-style-type: none"> Peace committees represented in these groups Wide representation of all communities 	<ul style="list-style-type: none"> No constitution No office No record keeping No finances- When funded by partners we receive a KSHs 500 as sitting allowance Inadequate skills Rules not anchored on any legal County government documents Illiteracy Self-interests 	<ul style="list-style-type: none"> Contractors do not respect them Rules are not respected since there is no County by law/Act No identification documents No inter community visits to see what others are doing No trainings Conflicts Inadequate information No private sector support
	Bute	<ul style="list-style-type: none"> Formed in 2019 through support from Mercy Corps and World Vision Kenya There was need to have an institution that help manage rangeland resources that are highly valued by pastoralists Link communities to development partners control water pollution, deforestation, and destruction of rangelands resources 	<ul style="list-style-type: none"> The group has 30 leaders drawn from different community groups and clans as follows: elders, opinion leaders, peace committees' representatives, youths, people with disabilities, women group leaders and <i>Nyumba Kumi</i> representatives Respectable persons in the community 	<ul style="list-style-type: none"> Acceptability by the community members Wide representation of all the communities Integration of peace committees 	<ul style="list-style-type: none"> Illiteracy No office No record keeping Inadequate skills Poor governance characterized by self-interests 	<ul style="list-style-type: none"> Rangelands by laws gazetted by the committees Insecurity along borders Lack of a government policy to enforce rangeland management activities Unavailability of laws to punish offenders Frequent and prolonged droughts Lack logistical support Rangeland degradation Lack of motivation in the committee

		<ul style="list-style-type: none"> • Conservation of wildlife and plant species • Demarcation of grazing land for dry and wet seasons 	<ul style="list-style-type: none"> • Persons with knowledge on grazing activities • Previously trained by Word Vision and Mercy Corps 			
Garissa	Alikune	<ul style="list-style-type: none"> • Established in the year 2018 by Care Kenya, • The group was established to Safeguard the Interest of the community on pasture • Planting of grass • Promotion of destocking 	<ul style="list-style-type: none"> • 15 committee leaders • Men and Elders are the representative of the community • The committee represents about 380 households 	<ul style="list-style-type: none"> • Has a constitution • Has by laws • Community acceptability 	<ul style="list-style-type: none"> • Illiteracy limiting understanding of the group's mandate • Limited governance and finance management skills • Clan/self-oriented 	<ul style="list-style-type: none"> • Drought • Conflict
	Nanighi Harajabu	<ul style="list-style-type: none"> • Established in 2010 • To mitigate climate change • To control migratory corridors • Distribution of seeds provided by humanitarian organizations 	<ul style="list-style-type: none"> • 15 leaders from all clans • Women and youth incorporated in the leadership • Initially trained by Care Kenya and have been engaged by WFP and NDMA 	<ul style="list-style-type: none"> • Inclusion of all community groups and clans • Integration of pastoralist and agro pastoralists in the group 	<ul style="list-style-type: none"> • Clan interests • Inadequate governance skills • Only 8n of the 15 members are active • Regular migration of some members 	<ul style="list-style-type: none"> • Non-adherence to by laws in times of drought • Extensive droughts • Clan conflicts • Political interference
Turkana	Pelekech	<ul style="list-style-type: none"> • Established in 2015 • To educate people/pastoralists on rangeland conservation and proper usage of rangeland resources • Disease control/quarantine/ management for disease prevention (migration) • Tree conservation/ management 	<ul style="list-style-type: none"> • Committee has a membership of 20 leaders, drawn from the community • Covers 18 villages (including mobile villages) with 1,090 HHs and a population of about 9,857 persons • Chairperson, secretary and 	<ul style="list-style-type: none"> • Wide representation of 18 villages • Record keeping 	<ul style="list-style-type: none"> • Illiteracy of most members • Inadequate skills • No constitution • No finances • Weak governance skills 	<ul style="list-style-type: none"> • Resource-based conflicts

		<ul style="list-style-type: none"> Grazing management-control of cattle movement for grazing purposes Peace/ conflict management As a decision-making/solution finding forum-when we meet, we ask ourselves “what ideas have you brought from other places” – for example what to do during drought/we season Build partnerships- Pelekech Env. Group started with KEFRI-who help us set up the env. farm, they also organized exchange visits for us; JIKA taught us pasture production; other partners-Catholic Diocese of Lodwar, VSF, among others came on board 	<p>treasurer must be literate</p> <p>Other members must be knowledgeable on natural resources management and mediation</p> <p>Initially trained by LOCADO</p>			
	Nyia Nakururum Ngikeyokok	<ul style="list-style-type: none"> Established in 2016 To protect, plant fodder at Songot ward To identify rangeland good for fodder crop To teach the community on the importance of fodder retention Guide on grazing patterns 	<ul style="list-style-type: none"> 15 leaders with only 2 females Must be 18 years and above Must be from a resident who owns livestock Must be knowledgeable of the grazing rules 	<ul style="list-style-type: none"> Has by laws Regular meetings (twice a month) Wide acceptability by community members 	<ul style="list-style-type: none"> Inadequate skills in governance Illiteracy Low representation of females Bylaws not upheld No record keeping 	<ul style="list-style-type: none"> Conflicts Financial limitations Migration of some members from time to time
Marsabit	Hewa Safi	<ul style="list-style-type: none"> Established in 2018 	<ul style="list-style-type: none"> 15 leaders from the Borana community 	<ul style="list-style-type: none"> Has a constitution and by laws 	<ul style="list-style-type: none"> By laws not respected 	<ul style="list-style-type: none"> By laws not anchored on policy or legal

		<ul style="list-style-type: none"> Involved in kitchen gardening Growing of trees and grass Surveillance of areas affected by conflict 	<ul style="list-style-type: none"> Men, women, and youth are represented Initially trained by FH 	<ul style="list-style-type: none"> Acceptability by the Borana community 	<ul style="list-style-type: none"> Illiteracy Weak governance skills Mandate not clearly conceived Self-interests 	<p>documents of the County government</p> <ul style="list-style-type: none"> Intercommunity cattle rustling and conflicts Extensive /frequent and prolonged drought occurrence Due to political interference with the committee's activities
	D'etha	<ul style="list-style-type: none"> Established in 2002 To manage water and pasture resources Livestock improvement activities Preservation of graze lands in the rainy seasons (for grazing during drought) Solving disputes relate to water and pasture 	<ul style="list-style-type: none"> 30 leaders drawn from youth women and elders within the community 	<ul style="list-style-type: none"> Wide acceptability by community members 	<ul style="list-style-type: none"> Illiteracy Inadequate governance and technical skills Self-interests 	<ul style="list-style-type: none"> Overgrazing Long distances to cover Cross border attacks/conflicts Political interference
Isiolo	Nanapa	<ul style="list-style-type: none"> Established in 2018 Established with the purpose of management of grazing land. This includes coordinating and implementation of grazing plans, monitoring the grazing activities in these areas, environmental protection and reclaiming of the grasslands To make sure there is equal to available resources 	<ul style="list-style-type: none"> 30 leaders (chairman, manager, grazing coordinators, secretary, and members including women and youth) Includes women and youth because the activities monitored in these areas includes activities undertaken by all members of the community to improve their 	<ul style="list-style-type: none"> The community owning (elected from community members). They can implement rules easily. Representation of all clans in of the population 	<ul style="list-style-type: none"> Lack of resources. They cover vast areas and lack means to monitor the entire area. Their mobility is hindered even when they are required to go solve conflicts. They depend on the NGOs to offer transport and or local administration Lack of capacity on conflict resolution skills 	<ul style="list-style-type: none"> Limited options in regeneration of rangeland Climate change related effects Conflict from without the County Lack of political goodwill in improvement of rangeland management Lack of resources Lack of cooperation when deciding to restrict grazing areas

		<ul style="list-style-type: none"> To offer equal access to grazing area Wildlife conservation Medical and education 	<p>livelihood (firewood cutting, charcoal burning, bee keeping, fruits collection, hunting etc.)</p> <ul style="list-style-type: none"> Must be from the locality with 10 years of residing in the village 	<ul style="list-style-type: none"> Backing of the administration in the area 	<ul style="list-style-type: none"> Lack of technical skills in rangeland protection and management 	<ul style="list-style-type: none"> We have small number of community and rangers, and they are not well equipped Insecurity (theft)
	Merti rangeland committee	<ul style="list-style-type: none"> Established in 2005 by the community to manage grazing land due to inadequate pastures 	<ul style="list-style-type: none"> 30 leaders from different villages in pastoral households 10 women and 8 youth members Male =chairperson Female=Treasurer Youth=secretary 	<ul style="list-style-type: none"> Wide representation of the communities Presence of a constitution 	<ul style="list-style-type: none"> Women not active though they are members Illiteracy Inadequate skills 	<ul style="list-style-type: none"> Conflict and drought Disagreements

Below are some quotes from FGDs with RMCs leaders:

“This RMC covers 18 villages with 1,090 households and a population of 9,857 persons” [Male FGD participant, RMC, Turkana County]

“RMC members must be community members who have resided in the locality for at least 10 years and have an interest in environment conservation” [Female FGD participant, RMC, Isiolo County]

“The work of the rangelands management committee is voluntary, and we don’t have external sources of funding” [Male FGD participant, RMC, Wajir County]

“We have by laws but not anchored on any County government policy or Act hence difficulties in ensuring adherence in some instances” [Female FGD participant, RMC, Wajir County]

5.12 Decision making on production and Sale of Livestock and Agricultural Products

From the KIIs and FGDs, communities in the five Counties were largely patriarchal and as such women had very limited space to make decisions in the households. As such, decisions on sale of livestock were made predominantly by males according to 86.4% of the respondents with only 33.3% indicating that women were involved in such decisions. Decisions on animal feeds purchase were also largely made by men (84.1%) with only 36.3% of the adult females participating (Figure 5.20 and Table 5.16). Procuring of veterinary services was equally a male decision according to 84.6% of the respondents while 37.7% of the respondents indicated that females were also involved in making this decision. According to 82.4% of the respondents, the decision on feeding livestock (time and quantity) was made by adult males as was that on owning livestock (according to 84.6% of the respondents). Lastly, decision-making on agricultural production was shared between adult males (39.8%) and adult females (29.7%), while 52.8% of the respondents indicated that they were not engaged in any form of crop production. Migration in search of water and pasture was also said to be determined by adult household members (83.9%) -(Figure 5.20 and Table 5.16). From FGDs across all five Counties, decisions on the livestock to be left behind for milking during migration was made by women, while men decided who stayed behind (women, children, the sick, and the elderly) during that period. In most cases, lactating goats were left behind since they were easy to feed and manage and their water consumption not as high as that of other livestock.

Figure 5.20: Decision making on livestock and agricultural production in the households

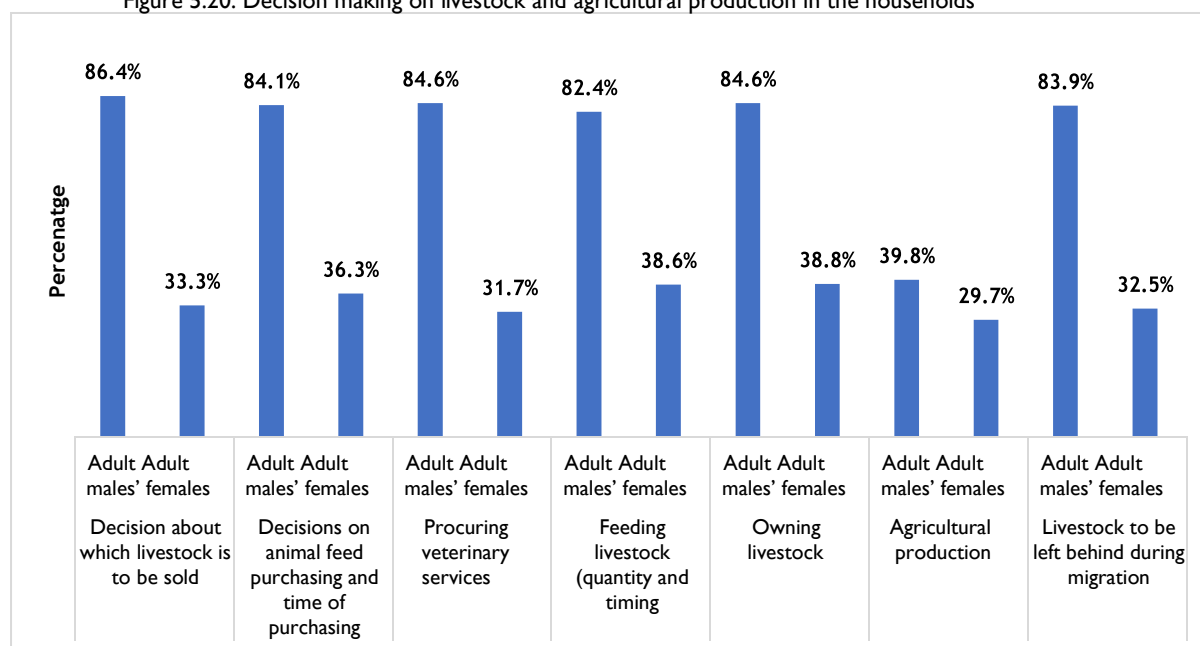


Table 5.16: Decision making on livestock and agricultural production in the households

Action	Responsibility	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Decision about which livestock is to be sold	Adult males	87.6% (338)	89.1% (391)	94.9% (317)	72.8% (292)	88.8% (364)	86.4% (1702)
	Adult females	40.7% (157)	13.7% (60)	16.8% (56)	47.1% (189)	47.3% (194)	33.3% (656)
Decisions on animal feed purchasing and time of purchasing	Adult males	82.1% (317)	87.7% (385)	91.6% (306)	71.8% (288)	88.0% (361)	84.1% (1657)
	Adult females	44.0% (170)	14.4% (63)	26.6% (89)	46.9% (188)	50.0% (205)	36.3% (715)
Procuring veterinary services	Adult males	83.7% (323)	88.8% (390)	93.1% (311)	70.6% (283)	87.8% (360)	84.6% (1667)
	Adult females	35.8% (138)	14.1% (62)	15.6% (52)	45.4% (182)	46.6% (191)	31.7% (625)
Feeding livestock (quantity and timing)	Adult males	81.1% (313)	88.6% (389)	89.5% (299)	68.8% (276)	84.4% (346)	82.4% (1623)
	Adult females	41.7% (161)	14.1% (62)	31.1% (104)	51.1% (205)	55.6% (228)	38.6% (760)
Owning livestock	Adult males	83.2% (321)	88.6% (389)	94.3% (315)	71.1% (285)	87.1% (357)	84.6% (1667)
	Adult females	45.1% (174)	23.0% (101)	19.5% (65)	48.4% (194)	56.1% (230)	38.8% (764)
Agricultural production	Adult males	31.9% (123)	37.1% (163)	19.2% (64)	62.1% (249)	45.1% (185)	39.8% (784)
	Adult females	25.4% (98)	15.9% (70)	11.7% (39)	62.8% (252)	30.7% (126)	29.7% (585)
Livestock to be left behind during migration	Adult males	79.8% (308)	88.8% (390)	94.0% (314)	71.8% (288)	86.1% (353)	83.9% (1653)
	Adult females	36.3% (140)	14.1% (62)	13.2% (44)	48.4% (194)	49.0% (201)	32.5% (641)
Total		386	439	334	401	410	1970

Sale of Milk was reported to be an adult female responsibility across all five Counties (71.4%) while that of hides and skins was shared between adult males and adult females (55.5% and 59.8% respectively). Decision on the sale of meat was also a shared one between adult males and adult female (62.7% and 57.6% of the respondents). Sale of livestock was however an adult male decision according to 81.3% of the respondents, with only two fifth of the respondents indicating that women could participate in making such a decision (40.3%). Most households (53.8%) did not produce crops. Among those that did however the decision on the sale of harvested products was made by both males and females (according to 35.8% and 32.7% of the respondents)-Figure 5.21 and Table 5.17.

Figure 5.21: Marketing/sale of livestock and crop products

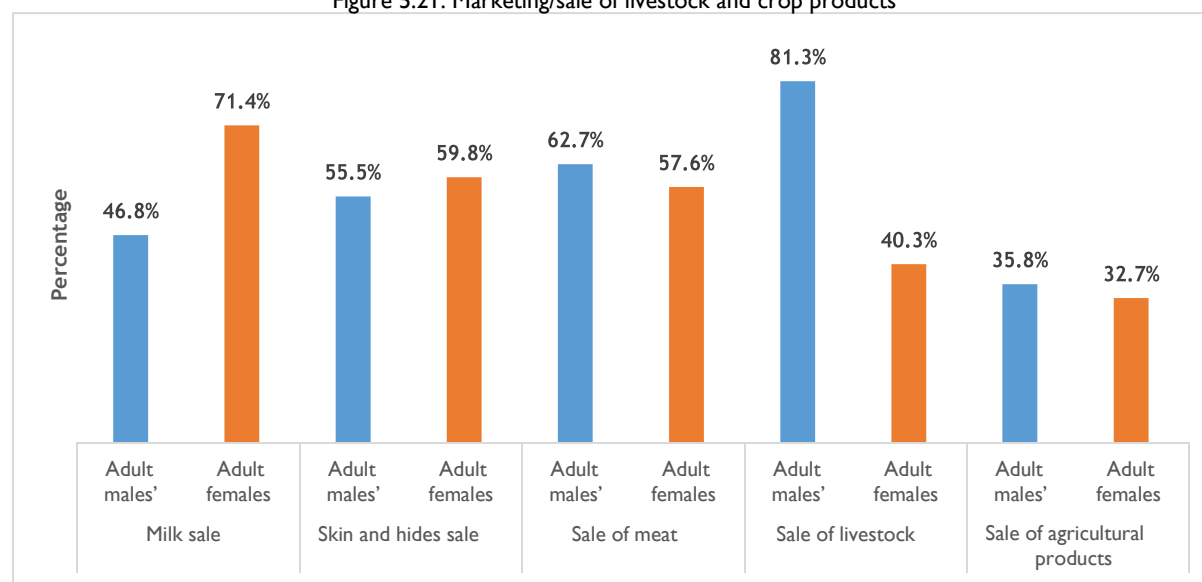


Table 5.17: Marketing/sale of livestock and crop products

Product	Person involved	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Milk sale	Adult males	48.7% (188)	35.5% (156)	55.4% (185)	37.9% (152)	58.8% (241)	46.8% (922)
	Adult females	76.7% (296)	72.2% (317)	65.0% (217)	69.6% (279)	72.7% (298)	71.4% (1407)
Skin and hides sale	Adult males	54.4% (210)	53.8% (236)	49.7% (166)	54.6% (219)	64.1% (263)	55.5% (1094)
	Adult females	66.3% (256)	59.9% (263)	51.2% (171)	53.6% (215)	66.6% (273)	59.8% (1178)
Sale of meat	Adult males	57.5% (222)	61.5% (270)	61.7% (206)	66.3% (266)	66.3% (272)	62.7% (1236)
	Adult females	71.5% (276)	52.8% (232)	41.6% (139)	54.1% (217)	66.1% (271)	57.6% (1135)
Sale of livestock	Adult males	81.1% (313)	85.0% (373)	93.1% (311)	67.6% (271)	81.5% (334)	81.3% (1602)
	Adult females	46.4% (179)	21.4% (94)	18.6% (62)	51.1% (205)	61.7% (253)	40.3% (793)
Sale of agricultural products	Adult males	30.6% (118)	35.3% (155)	13.8% (46)	54.6% (219)	41.0% (168)	35.8% (706)
	Adult females	27.5% (106)	19.1% (84)	12.9% (43)	69.8% (280)	32.2% (132)	32.7% (645)
Total		386	439	334	401	410	1970

5.13 Climate Change Mitigation

The main climate change adaptation and mitigation measure identified by the majority of the households interviewed, was the use of solar power, identified by 65.5% of the respondents. The others were destocking (29.0%), protection of water catchments (25.4%) use of pumps in boreholes (19.8%), solid waste management (19.7%), rangelands rehabilitation (13.0%), afforestation (11.6%), deforestation (7.6%), change of livestock breeds (3.0%) and reseeded of rangelands (2.1%) -Figure 5.22 and Table 5.18. From the FGDs in Garissa and Wajir migrating pastoralist identified carrying of wire meshes to construct sheds for livestock, as a climate change mitigation measure, since it meant that they did not cutting down trees to build. In Turkana County, crop framing, alternative livelihoods (including chicken keeping, vegetables farming, and apiculture) were being adopted. In both Turkana and Marsabit Counties, livestock improvement through crossbreeding with the Galla Goat, was noted). The main climate change mitigation measures promoted by the Wajir County government included solarization of boreholes, streets and markets, promotion of climate smart technologies such as minimum tillage to avoid moisture loss/evaporation; and use of organic manure which has been lacking among farmers.

On climate change, the department agriculture in Turkana County supported voluntary sale/off-taking of livestock during drought periods, destocking, provision of drought advisories and drought alerts, sensitization on drought cycle management, and the controlled usage of the Prosopis species. On the latter, the department of forestry was encouraging controlled usage of the invasive species' leaves and pods as fodder for livestock and controlled cutting down for charcoal making and for use as building material. Livestock insurance was also being piloted in Turkana and the County Government had zoned some locations for this purpose. Solarization of boreholes/streets/facilities, catchment protection and climate-sensitive breeding (with the Galla Goats) were other climate change mitigation interventions being implemented. In Garissa County, the department of livestock was promoting destocking, voluntary off-taking, of livestock and the cultivation of drought tolerant crops as the main climate mitigation measures. In this County, 2% of the budget was dedicated to climate change activities and a climate change planning committee had been established to guide decision making and implementation.

Figure 5.22: Climate change mitigation measures being undertaken by households

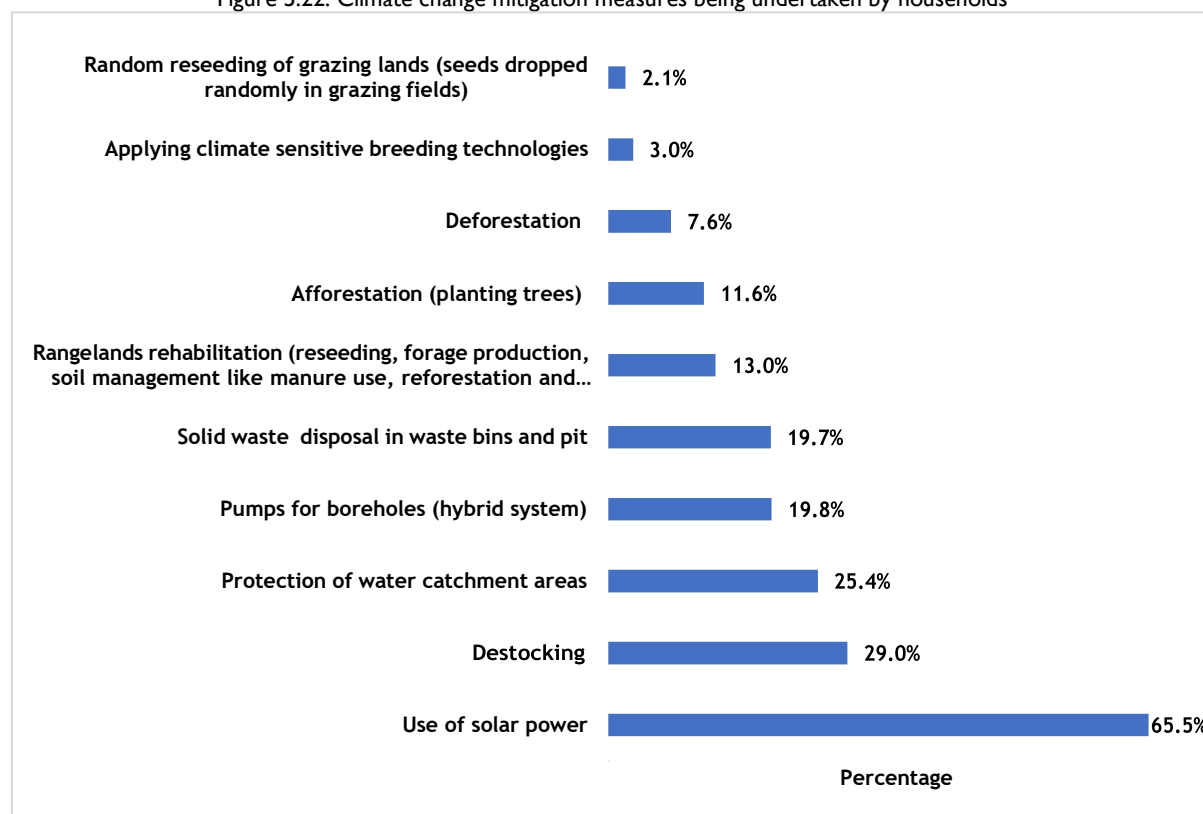


Table 5.18: Climate change mitigation measures being undertaken by households

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Total
Use of solar power	69.9% (270)	85.4% (375)	75.4% (252)	37.9% (152)	58.8% (241)	65.5% (1290)
Destocking (reduction in herd sizes)	40.4% (156)	23.7% (104)	20.1% (67)	32.9% (132)	27.6% (113)	29.0% (572)
Protection of water catchment areas	4.9% (19)	26.9% (118)	17.7% (59)	57.4% (230)	18.3% (75)	25.4% (501)
Pumps for boreholes (hybrid system)	10.9% (42)	13.2% (58)	11.4% (38)	30.9% (124)	31.5% (129)	19.8% (391)
Solid waste (including plastics) disposal in waste bins and pit	26.2% (101)	7.5% (33)	6.0% (20)	37.7% (151)	20.5% (84)	19.7% (389)
Rangelands rehabilitation (reseeding, forage production, soil management like manure use, reforestation, and forests preservation)	0.5% (2)	6.4% (28)	3.0% (10)	38.7% (155)	15.1% (62)	13.0% (257)
Afforestation (planting trees)	13.5% (52)	1.1% (5)	9.0% (30)	20.9% (84)	13.9% (57)	11.6% (228)
Deforestation	3.4% (13)	2.1% (9)	0.3% (1)	16.7% (67)	14.4% (59)	7.6% (149)
Applying climate sensitive breeding technologies	0.3% (1)	1.8% (8)	0.6% (2)	11.7% (47)	0.2% (1)	3.0% (59)
Random reseeding of grazing lands (seeds dropped randomly in grazing fields)	0% (0)	0.7% (3)	0.3% (1)	9.2% (37)	0.2% (1)	2.1% (42)
Total	386	439	334	401	410	1970

Below is a quote on breeding of livestock as part of climate change mitigation measures:

“We are not doing any adaptation in terms of breeding quality animals; however, few individuals are doing this on their own” [KII respondents, Garissa County]

Snapshot: Pasture production and sale by women groups in Wajir town. Bunch goes for 50 Kenya Shillings. In the dry seasons, pastoralists are losing livestock due to unavailability of both water and pastures, as such, women groups around Wajir town are producing pasture through furrow irrigation. Whereas this is a noble undertaking, the negative effects are over abstraction of water.



SECTION SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

6.1.1 General Conclusion

The findings presented in this report provide a snapshot of the baseline characteristics of the targeted populations, institutions, policies, and legal frameworks. The survey identifies overall low institutional and policy execution capacities in the Counties and low access to both water and rangelands resources among the target beneficiaries across all five Counties.

The principles of Integrated Water Resource Management (IWRM) and regenerative rangelands management which are universal standards of good governance and sustainable stewardship in the water and rangelands sectors are not fully embraced by the governments in the program Counties. This evaluation also reveals low awareness and practice of these principles in the program Counties.

While there is evidence of effort towards formulating policies and strategic plans and enacting laws to facilitate effective implementation and management of interventions within the two program outcome areas, we conclude that the policy frameworks, laws, and institutions necessary for the water and rangelands sector management and reforms are largely not in place, weak, incomplete, and not gender sensitive. In lacking the necessary full force of law, they were largely not funded and inoperable. As a result of this: public awareness and knowledge about them were low; they suffered low visibility; the institutions operationalizing (County Departments, sector and thematic working groups, water companies, WRUAs and WUAs and RMCs) them were weak (planning, execution and monitoring and evaluation), understaffed and underfunded, with County Departments failing to fully absorb the funding allocated to them and lacking capacities to mobilize resources externally; nearly all of them lack costed implementation and monitoring and evaluation plans; and their impacts on beneficiary populations remain low.

6.1.1 Conclusion on Access to Water

Within the water sector, Turkana and Isiolo Counties had updated policies on water management, while the rest had either a draft policy (Garissa) or an outdated version (Marsabit). Three Counties (Turkana, Garissa, and Marsabit) had Water Acts, while the rest had Bills. The survey revealed that in practice gender was poorly mainstreamed, poorly funded, and poorly implemented across all five Counties, even where water strategic plans, policies, and Acts existed. Three out of the five Counties (Garissa, Marsabit, and Isiolo) had approved Gender policies, the other two (Wajir and Turkana) had a draft and a zero-draft policy, respectively. In all five Counties, there were no costed water sector strategic plans, or policies or Acts, and no gender-disaggregated sector data and monitoring and evaluation plans. Lack of costed plans and weak capacities made external resource mobilization difficult and resulted in an over-reliance on external donors for water infrastructure development.

All the five Counties were faced with severe water security challenges manifested in various ways: low volumes of safe water accessed per capita and per household, especially in dry season-only five percent of the surveyed households identified as water secure and only two percent of them accessed the WHO stipulated minimum of fifty litres of water per person per day for drinking and domestic hygiene use-average per capita access from the study was twenty eight and seventeen litres during the rainy season and dry season respectively; long distances and times to access the main sources of water for human and livestock consumption, often far exceeding the thirty minutes round trip recommended by the WHO, despite majority of households indicating ability to access improved water sources-from the survey more than fifty-five percent of the households took longer than thirty minutes to reach their nearest source of safe water for drinking and household hygiene purposes, another seventy nine percent waited longer than thirty minutes at the source during the same season. longer times and longer waiting to be taken for the same purpose during the dry season, also to access water for livestock; declining water volumes and quality during dry seasons, necessitating expensive and hazardous searches for alternative water sources-and hence the imperative to invest more in

functional ground water sources and in O & M; low levels of investment in water quality treatment at both household level and County water department level-more than two thirds of community members in all five Counties did not treat their water before consumption for various reasons-poverty, inaccessibility of treatment agents, ignorance, and low knowledge levels. The main water treatment mode was through boiling and through chemicals obtained from donor-funded WASH programs; high salinity levels of underground water sources; insecurity, occasioned by scarcity particularly during the dry season and manifested in mistrust among communities, interclan, inter-ethnic and cross-boundary conflicts and occurrence of sexual and gender-based violence across all program Counties. Eleven percent of the respondents interviewed identified that a member of their household had experienced SGBV during the one year preceding the survey and frequent water systems breakdowns (one out of ten water points) caused by poor or inadequate operation and maintenance practices, wear and tear, poor ventilation and blockages, and damage by wildlife and livestock among other causes. Turnaround time for water system repairs ranged between one and thirty days, influenced by distance to water points and availability of spare parts, water technicians, and financial resources to undertake the repairs.

The main sources of water for domestic and livestock use were boreholes or tube wells, rivers, dams, and surface water in that order. In the dry season, use of unprotected sources and public taps, water kiosks and trucks became pronounced. The common technologies employed in accessing water included hand pumps, solar pumps, diesel generators and hybrid systems combining the use of solar, diesel and the national grid. Emerging new technologies included the use of solar modules, desalination, borehole sensors (to map borehole locations, yield and functionality), prepaid meters (ATM dispensers), and databases and dashboards for remote monitoring of monitoring systems functionality. These technologies are being promoted by a growing body of private sector players entering the water sector in all five Counties, among them, Davis and Shirliff, Epicentre, and Boreal. These players are however not involved in the water catchments protection, restoration, or regeneration initiatives or in public forums convened by the Counties to discuss water matters.

The use of Water for Multiple Purposes (MUS) was practiced, including its use for small-scale and localized irrigation. The proportion of households using water for irrigation was however low, at only three percent due largely to low investment by Counties in irrigation technologies. It is noted in this regard that most irrigation schemes established by County governments and international organizations were suffering wide ranging challenges key among them being poor management by established structures and cheaper produce coming into the program Counties from neighbouring Counties and countries. In terms of technology, use of obsolete technologies, destruction of water equipment by livestock and wildlife, and frequent water system breakages.

In view of the prevailing scarcity, the sharing of water resources was a common practice, often preceded by negotiations among the sharing communities. Where such negotiation did not take place or failed, conflict was an inevitable consequence across all five Counties, more so in Isiolo and Marsabit, often with severe consequences, including loss of lives and livestock and Sexual and Gender-based Violence. Such violence was settled largely through traditional systems of arbitration chaired by local elders due to prevailing cultural practices and prejudices, and low awareness of and challenges associated with the use of existing conventional referral pathways. Effective responses to SGBV were constrained further by the absence of strong gender TWGs at the County level, long distances to GBV units in the health facilities, poor alternative care and support systems for victims and survivors and poor incidence monitoring and reporting systems across in all the five Counties. Effective Gender programming across the Counties was hindered further by poor mainstreaming skills and practices, weak mandates for the Gender departments and a 'silos' approach to planning and execution observed across the Counties.

Water User Committees (WUC) elected by user communities were the main structures for the operation and management of water resources at the community level, performing a wide range of roles. Usually comprising six to fifteen officials, appreciably well balanced in terms of gender and youth

representation (although survey reveals that two-fifth of them did not meet the two thirds gender requirement), these committees depended largely on contributions and user fees collected from members to run their activities. The survey identifies a range of challenges and weaknesses that hamper their efficient and effective functioning, among them limited management skills, poor governance, including weak capacities for mobilization and management of finances for operation, maintenance and further investment, poor record keeping, reluctance from some members of the community to pay for use of water, and low engagement in water catchments protection, regeneration, restoration. The survey reveals however that WUCs were widely accepted in the communities because they drew membership from across all the strata in the community.

Water infrastructure development is resource heavy, and most Counties relied largely on development partners and on the national government for the development of key County water infrastructures. Across the five Counties, Non-governmental Development Organizations were also involved in the expansion of County water infrastructure, focusing more on the software side of this effort such as supporting studies and assessments, capacity building of delivery institutions and structures, such as the County water companies, WRUAs, and the WUCs. Grant financing of O&M activities was viewed as undermining community capacities in this regard and new, more locally sustainable approaches were called for.

6.1.2 Conclusion on Access to Rangeland Resources

Across all five Counties, the practice of improved rangeland management was faced with challenges of poor (near absence) policy, strategic, legal, and institutional framework, poor capacities of implementing departments, poor funding of rangeland interventions, and low knowledge levels and capacities of communities and community institutions. Apart from Isiolo County with a meaningful draft Rangeland Policy (2021), a draft Rangeland Bill (2021) and a draft Conservancy Bill (2021), none of the other Counties had a rangeland policy or Bill in any form. This is despite all CIDPs explicitly identifying Rangelands development and allocating Resources to it.

The survey reveals that with the exception of Turkana County, none of the Counties had a department, or directorate, or a division dedicated to rangelands Affairs. In Turkana County Rangelands management was domiciled under the directorate of Livestock services and assigned to the Directorate's deputy director. In the absence of an explicit policy, strategic and legal framework, and a dedicated Unit, actual financing and prioritization of rangelands resources management remained low. The development of this key sub-sector in the Counties has thus remained largely in the hands of development partners and research organizations, several who were present and active in the program Counties.

The main rangeland development and improvement practices being promoted by these groups, in partnership with the County governments include rangeland seeding and reseeding, fodder and pasture production, grazing management, management of grazing corridors, forestry and afforestation, water resourced development (water pans, rock dams, boreholes, water troughs), catchment protection, rangeland planning, including transboundary resource planning, capacity building in rangeland development and management, establishment of abattoirs, livestock holding grounds and livestock sales yards, research on rangeland improvement and the promotion of alternative livelihoods. At the community level rangelands resources management knowledge and practice are low, with only one in three community members able to name at least three of the practices listed above, and only 2 out of 10 households interviewed practicing some of the activities listed above. The main activities identified and practiced by the community members included destocking, fodder production, conservation and sale, and water harvesting in that order.

Majority of those practicing these activities were women, individually or in groups. Yet women played very marginal roles in decision-making regarding the management of rangeland resources, such as production, sale, and migration of livestock, largely done by men across all five Counties. Decisions on agricultural production and sales of crop products were however made by all genders, given their implications for access to grazing lands, Women were however responsible for agricultural production, and were also allowed to decide on sale of livestock products such as meat, milk, hides and skins.

Local-level institutions supporting and engaged in Rangeland development included the Rangeland

Management Committees, Livestock Marketing Associations (LMAs), producer cooperatives and associations, and pasture/fodder producing groups. Rangeland Management Committees were found across all 5 Counties and were responsible for a range of rangeland management and development activities, including education of communities on conservation and proper use of rangeland resources, protection of pasture and water resources, fodder and pasture production, pasture seeds distribution, management of grazing blocks and corridors, control of deforestation and destruction of rangelands, negotiation of access to grazing zones, linking communities with development partners, and conflict surveillance and resolution among other roles. The survey reveals their strengths to consist in their acceptability by community members, their inclusiveness (comprising different community clans, youth, and women), their integration of peace committees’ representatives, and their having sound governing constitutions and bylaws. The survey however found them challenged in several areas, including organizational and management skills, governance, ability to mobilize and effectively manage financial resources, and management of political and clan interests. Further, the absence of a clear policy and legal framework governing rangeland development, meant their bylaws were not properly anchored and were therefore difficult to implement and enforce. Similar organizational and institutional challenges were faced by the producer cooperatives and the pasture groups. A recurrent concern was that many of the institutions, having been established and supported by donors, soon became dormant following the exit of these donors.

Across most Counties, departments and private sector players were promoting a range of climate change adaptation and mitigation measures, among them in alternative livelihoods, improved goat breeds (Galla goats), solarization of water systems, minimum tillage to avoid moisture loss/evaporation, use of manure off-taking, destocking, greenhouses/shades, early planting, different forms of irrigation practices and the adoption of drought tolerant crops. A number of these were recognized and practiced to varying degrees by communities in the five Counties, the use of solar technologies in particular. In Turkana County the continued practice of the traditional system of EKWAR was viewed both by communities and the County government as a key rangeland conservation and climate change mitigation measure. The challenge identified by most respondents, including some of the government staff interviewed for this study, was the sustainability of most of these initiatives. The survey notes further that drought does not appear to trigger the voluntary sale of livestock, even when they are faced with imminent death due to lack of pasture and water. This is on account of the prestige value attached to ownership of livestock. This trend is however changing as the pastoralist livelihood comes under increasing stress from increasingly harsh climatic conditions, and as communities seek alternative livelihoods as an adaptation measure.

6.2 Recommendations

Based on the findings of the baseline evaluation and the conclusions thereof, the following recommendations are made for consideration in the implementation of the Kenya RAPID+ program:

6.2.1 Water and Rangelands Resources Governance, Legislation and Financing

- Align the RAPID plus program activities with the County governments’ Departmental priorities as well as the 2022-2027 County Integrated Development Plans (CIDPs) County.
- Investment in strategic targeted advocacy and lobby initiatives aimed at placing water and rangeland resources management improvement at the centre of policy decision-making and implementation processes in the five target Counties.²¹⁴ We see this being played out in three important ways:
 - Lobby the executive and legislative arms of the five County Governments to prioritize increased technical, policy and financial investments in water, gender, and rangeland

²¹⁴This approach, along with the accompanying targeted advocacy and lobby interventions was at the heart of the success of the V4CP program, a 5-year DGIS-funded programme implemented by SNV-IFRI in partnership with Civil Society Groups across Africa, Asia and Latin America focused on 4 areas-renewable energy, food and nutrition security, and water, sanitation, and hygiene, with close attention to gender, social inclusion, and climate. The V4CP empowered CSOs to engage with decision-makers by providing sound arguments and a solid evidence base backing the proposed sectoral changes. For a reading of the specific program interventions and policy impact, see the learning brief at https://snv.org/assets/explore/download/snv_learning_brief_wash_v4cp_okt_2020_v3.pdf

resources development as the critical drivers of growth and livelihood improvement in the ASAL Counties.

- Invest in a participatory and in-depth analysis and petitioning of the next generation CIDPs to be developed from September 2022 Counties. Such investment could focus on enabling groups that makeup RAPID plus program's core beneficiary institutions and groups to convene, analyse the CIDPs, and generate well-considered policy and programmatic feedback and recommendations-examples of groups that could be mobilized for this purpose would be WRUAs, WUAs, pasture groups, the RMC, the LMCs, the private sector water and rangeland resources actors, producer cooperatives, the faith-based groups and other local Community Based Organizations (CBOs).
- Sharing the resulting feedback in key forums of CIDPs stakeholders (such as the sector and thematic working groups, the sub-County and County public hearings, and the County Budget Execution Forums (CBEFs), and in specific meetings/workshops convened by the program to bring strategic stakeholders together for the purposes of advocating for specific interests. Support here could include enabling partners to attend relevant meetings/forums and financing and co-facilitating such events.
- Support strategic awareness events targeting members of the County Government Executive and Legislature aimed at securing their full understanding and support for core water and rangeland improvement interventions sought by the program- such events could include (I) reflection and learning sessions organized monthly or bi-monthly; (II) benchmarking and learning visits for MCAs and County Government executives and share experiences on leading-edge water, rangeland resources management practices.
- Develop and share high impact Information, Education and Communication (IEC) materials, policy/learning briefs, program information packages, public media material, including video documentaries and press releases to deepen and popularize the program's core messages.²¹⁵
- Provide dedicated technical and financial support towards the completion and passage of selected key sector/Departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland resources management gender sectors). Some of these were initiated through the support of RAPID program. Two ways to achieve this could be to:
 - Support the establishment or strengthening of steering committees for selected policies and Bills and sector working groups and serve as co-chair and secretariat for these Counties. This approach has been shown to galvanize stakeholders, improve inter-Ministerial coordination, congeal expertise and experiences, and streamline and speed up policy formulation, legislation and subsequent implementation²¹⁶
 - Support consultancy assignments to assist with the drafting of relevant policies and Bills as well as processes to validate and bring them to County Assemblies for passage.
- For Counties that have policies and legislative frameworks on water and rangelands resources management, support forums and digital platforms for their wide dissemination. From field visits, these documents were hardly available and traceable and were missing on online portals and websites of most of the County governments.
- Ensure all future policies, sectoral plans and laws developed have costed implementation frameworks and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation

6.2.2 Water Interventions

- Influence the full ownership of the ward development plans (WDPs) by the County governments and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.²¹⁷

²¹⁵As an example, under the V4CP programme, the video documentary "Price of Poop" <https://www.bing.com/videos/search?q=Mericy+korir+poop+documentary&view=detail&mid=FAC924DA0EC8E066A0F6FAC924DA0EC8E066A0F6&FORM=VIRE> was produced and aired nationally and in strategic Program meetings. The video together with other police evidence materials produced and widely and strategically disseminated by the program, including policy research and social audit reports were key to the impact that the programme made on WASH policies and budgets in the 5 focus Counties.

²¹⁶SNV. 2020.Evidence based advocacy for WASH.<https://snv.org/assets/explore/download/snv_learning_brief_wash_v4cp_okt_2020_v3.pdf>.

²¹⁷Feed the future. 2020.FEED The Future Kenya Livestock Market Systems, Activity Fy2020 Quarter Ii Progress Report. <https://pdf.usaid.gov/pdf_docs/PA00WS6M.pdf>.

- Promote water stakeholders' coordination in the five Counties by supporting/strengthening the County Water Forums. Lack of coordination and inconsistent procedures and policies are currently causing confusion amongst the user groups. It is recommended that the respective Water Departments should ensure and enforce adherence to agreed implementation guidelines where available. This gaps approach has been widely recommended through the Inter-governmental Consensus Events on water reforms.²¹⁸ Deliberate and support innovative and cost-effective approaches towards the capacity development of WMCs, WUAs and WRUAs, and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Ways to achieve this could include (I) partnerships to develop relevant IEC materials such as water and NRM posters, pamphlets, training, and service manuals (for boreholes and other water sources and catchments), flow charts; (II) review of successful models for cost-efficient operation and management of these structures to draw important lessons and experiences that can be replicated under the programme. For example, interesting lessons and experiences exist on delegated water management models that could be studied and replicated-especially now with a number of County water companies considering developing their strategic/master plans²¹⁹ (II) subsequent use of resulting evidence and materials in Trainer of Trainers (TOTs), refresher training and in strategic planning sessions for these structures. This is in view of the evident high levels of illiteracy and O & M and natural resources management knowledge and skill gaps among the WRUAs, WUAs, and RMCs to restore water sources, and the capacity challenges facing County water companies.^{220,221,222&223}
- Promote women's active and effective involvement in decision-making processes in the water user committees, beyond their mere presence in these structures. Ways to achieve this would include ensuring WUA training manuals are strongly gendered, organizing leadership training for WUA leaders, and promoting of cross-WUA learning exchange for scale up of practices.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water. In view of the on-going decentralization processes with their focus on local-level control of the management of resources, the analysis and strengthening of the role and effectiveness (capacity) of local-level institutions must constitute an important area of programming focus for organizations seeking to work at this level
- Consider training of male and female youths as village borehole and solar installation attendants (including through apprenticeships with available private water sector players) and supplying them with complete O & M service tool kits as a way of building and ensuring local capacities for O&M, reducing water point downtimes, and providing viable employment routes through alternative livelihood approaches. UNICEF has shown this to be an effective intervention in Nigeria.²²⁴
- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of water and rangelands resources management in the five Counties, to increase their capacities for resource mobilization for increased investment within the sector. Resource mobilization should be included in annual Departmental work plans for acceptance by potential funders as advocated for the Food Agricultural Organization (FAO) and the World Bank.^{225&226}
- Support County Governments to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock and Rangelands Resources Management to

²¹⁸Republic of Kenya.2019. Inter-governmental Consensus Events on water reforms. < <https://www.waterreforms.go.ke/inter-governmental-consensus-events/> > .

²¹⁹In this regard the work of Isiolo and Nakuru water and sewerage companies and the Merti WUA would be worth looking at for some lesson learnt in Nakuru County. See more details by clicking this link: s< <https://nakuruwater.co.ke> <https://www.iwasco.or.ke> <https://waterfund.go.ke/stories/merti>> .

²²⁰County government of Garissa.2022. Garissa County Launches Rangelands Management Programme. < <https://www.kenyanews.go.ke/garissa-launches-rangelands-management-programme/> >

²²¹Business Daily.2021. New rangeland system boosts northern Kenya. < <https://www.businessdailyafrica.com/bd/data-hub/new-rangeland-system-boosts-northern-kenya-3521342> > .

²²²Ministry of Water and Irrigation.2012. A Trainer's Manual for Community Managed Water Supplies in Kenya. < https://www.pseau.org/outils/ouvrages/fao_unicef_a_trainer_s_manual_for_community_managed_water_supplies_in_kenya_2012.pdf > .

²²³Plan International. 2002.Evaluation Report of a Potable Water Project in Luwero District. < <https://core.ac.uk/download/pdf/71360864.pdf>> .

²²⁴UNICEF.2018. How women borehole mechanics are serving their communities, earning incomes, and breaking down social myths. <<https://www.unicef.org/nigeria/stories/how-women-borehole-mechanics-are-serving-their-communities-earning-incomes-and-breaking>> .

²²⁵FAO.2012. A guide to resource mobilization. <<https://www.fao.org/3/i2699e/i2699e00.pdf>> .

²²⁶The World Bank.2019. Mobilizing Tax Resources to Boost Growth and Prosperity in Sub-Saharan Africa. < <https://www.worldbank.org/en/results/2019/09/09/mobilizing-tax-resources-to-boost-growth-and-prosperity-in-sub-saharan-Africa>> .

promote knowledge sharing and collaborative problem solving and investment in natural resources management.

- Support WRUAs and WUAs in their efforts to identify and grow partnerships for technical and financial resource mobilization. The Water Service Maintenance Trust Fund (WSMTF) in Kwale County and the Water Sector Trust Funding of the Merti WUA in Isiolo County are examples of where funding has been successfully attracted from private sector and local businesses. In the case of Kwale, local companies engaged in mining and agriculture activities, availed funding to support rural water supply maintenance activities. In the Case of Merti, the Water Sector Trust Fund, impressed by the ambitious vision of the community in Merti, invested, through its Rural Investment Programme, provided KSHs 7.6 million in their community water project, enabling the Merti Community Water User Project to hire more technical staff, abandon water kiosks and increase the number of individual meters, rehabilitate two core project boreholes, and embark on an ambitious piping and extension of clean water from Merti town to Mulanda Nur, a village situated 8 kilometres away and inhabited by more than 3,000 people. Even though these examples do not represent private equity investments, looking for a return on money, they demonstrate what is possible when optimal governance and oversight mechanisms are in place.^{227&228}
- Support WRUAs to identify the best modalities for charging for maintenance services including but not limited to: free service provision (payment for spare parts only as practiced in the Kabele water technician model in Uganda); variable cost-recovery fees paid per repair or per visit payment by a technician or mechanic on a case-by-case basis, depending on the type of repair or maintenance task; regularized set tariffs or fees (monthly payment for ‘guaranteed service’); volumetric tariffs (servicing after supply of a certain volume of water); and maintenance contracts for specific works as part of after sale services.²²⁹
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on the principles of proper usage, source and catchment protection, routine infrastructure service, and effective O & M financing models such as the successful borehole service insurance model being implemented by the Catholic Diocese of Lodwar. In South Sudan, operation, and maintenance (O & M) contracts, with agreed standardized quarterly fee and a fixed maintenance schedule involving repairs of all breakdowns, signed between WUCs, Mechanics Associations (Service Providers), and the Rural Water and Sanitation Services have been noted to be effective in reducing the down time.²³⁰
- In view of the increasing livestock and human populations, explore partnerships leading to development of more strategically located community boreholes and other watering points across the Counties to increase available water and reduce waiting time and distances covered to access water.
- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing of knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models in order to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allotted water and rangelands resources management budgets and allied resources to promote prioritization and full and effective utilization. Part of this would involve supporting the WUAs and WUCs to develop user friendly social audit toolkits of which has been successful in Nepal.²³¹

²²⁷USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. <https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf>.

²²⁸Water Sector Trust Fund.2022. Merti community water user’s association in Isiolo County. <<https://waterfund.go.ke/stories/merti>>.

²²⁹USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. <https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf>.

²³⁰Social Finance, United Kingdom.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya’s Arid and Semi-Arid Lands. <<https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

²³¹International Water Management Institute.2021. How social accountability tools can improve water service delivery in Nepal. <<https://www.iwmi.cgiar.org/2021/09/how-social-accountability-tools-can-improve-water-service-delivery-in-nepal/>>.

- County public health officers and water officers to be actively involved in regular surveillance and ensure provision of water treatment agents to reduce waterborne diseases in Marsabit County, in view of the extremely poor quality of water in that County.

6.2.3 Efficient Water, Irrigation and Solarization Technologies

- Promote demand driven approaches where communities decide which technologies best serve their needs. From our assessment, due to economic and physical inaccessibility of diesel and petrol, the use of hybrid water pumps systems (solar and generators) as complementary measures to ensure continuous availability of water to communities.
- Ensure robust management information systems for water services monitoring in the Counties, given the dearth of data and the high volumes of unaccountable water usage in some of the Counties. A great deal of valuable information generated by various stakeholders is not easily accessible leading to duplication of efforts and wasted resources. The water Departments in the Counties should coordinate all data relating to water delivery, using state of the art databases and MIS increasingly available. Use of digital applications and tools by technicians to mine and report data on facility yield, functionality, water quality and populations served (disaggregated by gender) is strongly recommended. This will provide a comprehensive database on the functioning and impact of water systems in the Counties, exposing common causes of breakdown, as well as serving as an important tool for anticipating O&M needs (and thus spare parts to be stocked) and policy decision-making and budgeting.²³² Before deciding on any rehabilitation work, the technical feasibility and cost of the operation would be known. Use of the iPads will also be instrumental in the analyses of the repair would be known with some certainty as documented in Ghana and other parts of the world. ^{233&234}
- Incorporate sensors in community boreholes to create alerts signalling imminent breakages hence timely repairs and servicing to avert water shortages.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for water by WUCs members as documented in Marsabit and Turkana Counties.
- Institutionalize monitoring of water recharge following rains, as an early warning system for contingency planning during seasons when rainfall is inadequate.

6.2.4 Rangelands Resources Management Interventions

- Advocate for enhanced prioritization and visibility of the rangelands sub-sector, by lobbying for the creation of rangelands Units or Directorates and offices with dedicated officers and budgets across all program Counties.
- Facilitate community and village sessions to come up with integrated participatory community land use plans (PLUPs) to promote focused and effective community common natural resources use.²³⁵ This participatory approach to community land use planning has been shown to be in effective among pastoral communities in Tanzania. In doing this, potential challenges should be borne in mind, including- low awareness and inadequate institutionalization of the process, conflicts over village boundaries and resources, budget constraints, reluctance amongst clan officials to relinquish their own power over land, excessive bureaucracy, and poor skills levels.²³⁶
- Promote participatory Community Action Plans (CAPs) and dialogues on rangeland resources restoration. Tools that can be used in this process include participatory and two-stage resource mapping, transect walks, time and trend lines, livelihood mapping, household surveys, and ranking of problems and opportunities, towards drawing up CAPs.²³⁷

²³²USAID.2019. Sustainable WASH Systems Learning Partnership: sustaining rural water: a comparative study of maintenance models for community-managed schemes. < https://pdf.usaid.gov/pdf_docs/PA00X8D2.pdf >.

²³³Lee, Sangho & Suh, Jangwon & Park, Hyeong-Dong. 2014. Borehole AR: A mobile tablet application for effective borehole database visualization using an augmented reality technology. Computers & Geosciences. 76. 10.1016/j.cageo.2014.12.005.

²³⁴Schultes, Olivia & Sikder, Mustafa & Agyapong, Emmanuel & Sodipo, Michelle & Naumova, Elena & Kosinski, Karen & Kulinkina, Alexandra.2022. Longitudinal borehole functionality in 15 rural Ghanaian towns from three groundwater quality clusters. BMC Research Notes. 15. 10.1186/s13104-022-05998-1.

²³⁵Tilstone V and Flintan F (ILC Rangelands Initiative).2014. Participatory Land Use Planning for building resilience of ASAL communities in Kenya. < <https://dlci-hoa.org/assets/doc/Vanessa%20Tilstone,%20DLCI%20and%20Fiona%20Flintan,%20ILC%20Rangelands%20Initiative.pdf>>.

²³⁶International Land Coalition. 2013.Village land use planning in rangelands in Tanzania: good practice and lessons learned. <<https://landportal.org/sites/default/files/rangelandsvillagelanduseplanning.pdf>>

²³⁷IUCN.2013. Booklet 2: Participatory Rangeland Planning: A Practitioners Guide. < https://www.iucn.org/sites/dev/files/import/downloads/handbook_2_web.pdf>.

- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.²³⁸
- Support local/community initiatives that seek to build peace and resolve conflicts among themselves to promote peaceful co-existence and sharing of common pastoralism resources. In this regard identify and involve community peace committees in program activities
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages. This would include helping them develop bylaws and mark out the routes in the most appropriate manner. Grazing areas and water points may need to be developed along those routes, as well as institutions to manage them.²³⁹ Non-resident herders gain access with permission from the elders, and those who break the by-laws are fined or have their livestock confiscated as guided by the USAID funded Resilience and Economic Growth in the Arid Lands – Improving Resilience (REGAL-IR) project in Turkana County.²⁴⁰
- There are many farmer groups (especially women groups) across the five Counties, but they are not registered. The program should encourage and facilitate their registration with the relevant social services or agricultural departments and help them establish relationships of mutual support and assistance e.g., in dissemination of new and improved agricultural technologies to communities.
- Institutionalize self-learning groups (SLGs) or farmer field schools (FFSs) in the targeted villages to capitalize their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.^{241&242}
- Retrain all the RMCs given the high illiteracy levels and the low operational skills among members, with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County governments Departmental policies, plans or Acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County departments of Livestock, Agriculture, Environment and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL). CRiSTAL is a project planning and management tool that helps users to integrate risk reduction and climate change adaptation measures into their community-level work.²⁴³
- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.
- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.²⁴⁴
- Restore/support initiatives seeking restoration of degraded pastures and increase of vegetation cover with different drought tolerant varieties.
- Fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection and other improved rangeland resources management practices should be promoted through community groups rather than individuals to popularize and deepen practice and to mitigate communal land use conflicts.

²³⁸NEMA.2021. Kenya State of Environment Report 2019-202. < https://www.nema.go.ke/images/Docs/EIA_1840-1849/Kenya%20State%20of%20Environment%20Report%202019-2021%20final-min.pdf>.

²³⁹Rowley T.2013. Participatory digital map-making in arid areas of Kenya and Tanzania (PLA 66). < <https://pubs.iied.org/sites/default/files/pdfs/migrate/G03659.pdf> >.

²⁴⁰ADESO.2015. Pastoralists Map Grazing Lands for Survival and Security in Northern Kenya. <<https://reliefweb.int/report/kenya/pastoralists-map-grazing-lands-survival-and-security-northern-kenya#:~:text=Pastoralists%20Map%20Grazing%20Lands%20for%20Survival%20and%20Security%20in%20Northern%20Kenya->>>.

²⁴¹Duveskog D, Friis-Hansen E & Taylor EW. 2011. Farmer Field Schools in Rural Kenya: A Transformative Learning Experience, The Journal of Development Studies, 47:10, 1529-1544, DOI: 10.1080/00220388.2011.561328

²⁴²Waddington H and White H.2014. Farmer field schools, from agricultural extension to adult education, March 2014, 3ie Systematic Review Summary I. London: International Initiative for Impact Evaluation (3ie).

²⁴³CRiSTAL.2022. CRiSTAL tool kit. <<https://www.iisd.org/cristaltool/>>

²⁴⁴Kenya Climate Smart Agricultural Project.2020. Climate Smart Agricultural Technologies, Innovations and Management Practices for Pasture and Fodder Value Chain, Training of Trainers' Manual. < <https://www.kalro.org/sites/default/files/pasture-tot-22-12-20.pdf> >.

- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County public participation/hearing forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.^{245,246,247&248}

6.2.5 Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, SGBV laws, and to develop costed implementation and monitoring and evaluation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management. Community and women empowerment require an integrated approach as opposed to the siloes in sectoral/Departmental approach observed across the five Counties. Applying a more intersectoral (inter-departmental) approach to mainstreaming gender will yield greater and faster cross-sectoral impact in a non-threatening way, given the strongly patriarchal nature of program's beneficiary communities.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' freed time to pursue alternative productive livelihoods activities, including income generating activities, and pursuit of literacy (adult education) and acquisition of new skills beyond the health, sanitation, and hygiene themes. Areas of alternative business or income generation interest could include: pursuing businesses in innovative sanitation solutions (soaps and detergent making), waste utilization schemes, pasture production and conservation, manufacture of feeds for animals, value addition for vegetables, fruits and range products (honey, resins, Aloe Vera juice) processing and sales of skins, processing of excess milk in rainy seasons into other long-lasting nutritious milk products for use in the dry seasons when food and milk are unavailable (Catholic Relief Services under the NAWIRI program is undertaking this in Marsabit and Samburu Counties while Save the Children International is doing the Same in Somalia and Ethiopia).^{249,250&251}
- Mitigate gender-based inequalities related to access to productive resources (assets and capital) in order to help redefine women's position in the families and their communities. This can be achieved through Village Savings and Loans (VSLA) groups and linkages to microfinance institutions available in the Counties. A case in point is Kakuma town where such outfits exist with contextualized services for women groups [Equity Bank, Kenya Commercial Bank, African Entrepreneur Collective (AEC)].
- Factor in class-sensitive gender approaches to promote control and development of water and rangelands resources for shared benefits across all genders.^{252,253&254} The entry point of such an approach would be to start with female headed households while using their transformation as examples in the communities.
- Equip the communities to actively participate in policy and regulatory reform events on water and rangeland resource management in the Counties through integrating community-based advocacy in program interventions.
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.

²⁴⁵Agency for Rangeland Information and Development in Kenya. 2018. Index-based livestock insurance as an innovative tool against drought loss: good practices and impact analysis from northern Kenya. Wageningen, The Netherlands: CTA

²⁴⁶Imbali F. 2019. Tackling drought in Kenya: livestock insurance policy to help pastoralists beat climate change. < <https://www.rapidtransition.org/stories/tackling-drought-in-kenya-livestock-insurance-policy-to-help-pastoralists-beat-climate-change/>>.

²⁴⁷International Livestock Research Institute. 2011. Index-Based Livestock Insurance. 2011. < <https://core.ac.uk/download/pdf/132634335.pdf>>.

²⁴⁸CAFOD, SCIAF and Trócaire. 2018. Participatory Research on the effectiveness of Index Based Livestock Insurance as a Pro-poor Climate Risk Management Strategy in Borena zone: the case of Moyale and Miyo Districts. <<https://reliefweb.int/report/ethiopia/participatory-research-effectiveness-index-based-livestock-insurance-pro-poor>>.

²⁴⁹Catholic Relief Services. 2021. Participatory Analysis and Co-design of Adapted Milk Matters interventions. < https://www.crs.org/sites/default/files/tor-consultancy_participatory_adapted_milk_matters_study.pdf>.

²⁵⁰Save the children Somalia and UNICEF Somalia. 2017. Feasibility study for the milk matters program in Hiiran region. < <https://somalia.savethechildren.net/sites/somalia.savethechildren.net/files/library/MILK%20MATTERS%20FEASIBILITY%20STUDY%20FINAL.pdf>>

²⁵¹Sadler, K., Mitchard, E., Abdi, A., Shiferaw, Y., Bekele, G., and Catley, A. 2012. Milk Matters: The impact of dry season livestock support on milk supply and child nutrition in Somali Region, Ethiopia. Feinstein International Centre, Tufts University and Save the Children, Addis Ababa.

²⁵²UNDP. 2006. Mainstreaming Gender in Water Management. < https://www.pseau.org/outils/ouvrages/gwa_resource_guide_mainstreaming_gender_in_water_management_2006.pdf >.

²⁵³Coppock DL, Fernández-Giménez, ME & Harvey, J. 2013. Women as change agents in the world's rangelands: Synthesis and way forward. Rangelands, 35(6), 82-90.

²⁵⁴Bullock R & Kariuki. 2019. A review of gender and sustainable land management: implications for research and development. ILRI Discussion Paper 36.

- Explore jointly with County governments and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions, and they participate in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County Gender Departments and relevant Gender Thematic Working Groups, in addition to the support to line Departments (water and rangelands resources) to deepen and sustain domestication and sustained institutionalization of relevant interventions.

6.2.6 Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi-Autonomous Government Agencies (SAGAs) such as water and sewerage companies which provide a more sustainable and low risk entry point since PPPs with County governments are faced with inhibiting challenges including: small balance sheets, leadership transitions every five years, and creditworthiness of County governments in view of delayed payments.²⁵⁵ Under the newly enacted Public Private Partnerships Act (2021), County governments have a representative in the national PPP Committee but their role is limited to identification of viable projects and proposals, which are then assessed by the national government through a tedious and tortuous process.²⁵⁶ To date, no PPP between County governments and the private sector has moved past the feasibility assessment stage.
- Further encourage water stewardship approaches that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as already identified in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, and more wholesome water treatment (beyond basic chlorine treatment), and to participate in O & M capacity building of WRUAs and WUAs.
- Engage the private sector to support value additions (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the five Counties.
- Explore with the County governments and partners ways to strengthen water and rangeland resources value chains. As part of this, link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic empowerment.

6.2.7 Climate Change Mitigation

- Explore ways of re-prioritizing water and rangelands resources and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting of Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial conflicts over grazing lands. This can be done through participation in the annual Community Land Summit.²⁵⁷
- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce demonstration or model farms for climate resilient and adaptive crop cultivation and animal husbandry to display best practices to local farmers in the Counties.²⁵⁸ This

²⁵⁵Brufal Jand Gray T.2017. Kenya: Kenya County Government PPPs. <<https://www.mondaq.com/government-contracts-procurement-ppp/631532/kenya-county-government-ppps>>

²⁵⁶Kenya Law Reforms.2021.The Public Private Partnership Act, 2022.< http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2021/ThePublicPrivatePartnershipsBill_2021.pdf>

²⁵⁷Community Land Summit.2021. Community Land Summit. < <https://communitylandsummit.org/>>

²⁵⁸CAR-Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad.2021. <
<https://www.manage.gov.in/publications/eBooks/Climate%20Resilient%20Animal%20Husbandry.pdf> >.

could start with selecting and training model farmers in and then facilitating their adoption of the various climate smart agricultural technologies.^{259&260}

- Support agricultural management techniques adapted to intensive and prolonged droughts. Such techniques should include use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the establishment of climate funds in the Counties of Turkana, Wajir and Marsabit based on the lessons from Isiolo and Garissa Counties which have already rolled out these funds.^{261&262}. The funds should be used for designated purposes while factoring in the unique needs and characteristics of recipient Counties.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice on climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies including but not limited to modified version of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.²⁶³
- For communities living along forest reserves in the Counties of Turkana, Wajir and Isiolo, liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS). This is a system whereby KFS allows forest adjacent community, through community forest associations, the right to cultivate agricultural crops during the initial stages of forest plantation establishment. Cultivation is often allowed to continue for 3 to 4 years until tree canopy closes.²⁶⁴

6.2.8 Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among men and women about gendered topics that pre-dispose to conflict (household workload, access and control of household assets and resources, productive roles for women and power inequities between genders).
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and statutory regulations existing across the five Counties.
- Promote a community centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources. In this regard, support the development and implementation of common resource sharing plans.
- Invest adequate time and resources in the resolution of boundary and other conflicts, and particularly in those that are deeply rooted and complex. Build in communities the understanding that conflicts must be resolved if land is to be secured and that trade-offs and compromises will be required. Multiple community meetings may be needed for this.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

²⁵⁹The World Bank. 2021. Climate Smart Agriculture. < <https://www.worldbank.org/en/topic/climate-smart-agriculture>>.

²⁶⁰FAO.2021. Climate-Smart Agriculture. <<https://www.fao.org/climate-smart-agriculture/en/>>.

²⁶¹County government of Isiolo.2018. The Isiolo County Climate Change Fund Act, 2018. <

<https://www.adaconsortium.org/index.php/component/k2/item/373-isiolo-County-climate-change-fund-act-2018>>

²⁶²County government of Garissa.2018. Garissa County Climate Change ACT – 2018. < <https://www.adaconsortium.org/index.php/component/k2/item/371-garissa-County-climate-change-act-2018>>

²⁶³Sharma, Bikash & Banskota, Kamal. 2015. Development of Sustainable Energy for Rangelands In the Hindu-Kush Himalaya Final Report on Phase I.<
https://www.researchgate.net/publication/280489063_Development_of_Sustainable_Energy_for_Rangelands_In_the_Hindu-Kush_Himalaya_Final_Report_on_Phase_I>

²⁶⁴Kenya Forestry Research Institute (KEFRI).2014. Contribution of pelis in increasing tree cover and community livelihoods in Kenya. <
<https://www.kefri.org/assets/publications/extension/Contribution%20of%20pelis%20in%20increasing%20tree%20cover%20and%20community%20livelihoods%20in%20Kenya.pdf>>.

6.2.9 Programming

- MWA and the partner organizations need to be well acquainted with the SDC Gender Toolkit and Gender Checklist to ensure that gender mainstreaming is ensured in every activity of this program's implementation.
- MWA to adopt a more participatory reflection and learning approach to program implementation, sourcing and blending expertise, knowledge and skills in staff and ensuring visibility of female staff in field work to improve the program's chances of reaching out more effectively to women and changing the gendered perceptions and attitudes in the communities.
- Programme to keep in mind the fact that productivity of rangelands is likely to be influenced by soil and site characterization and usage, as well as perennial vegetation cover which require mitigation through soil, site, and vegetation amendment interventions. An assessment of the state or condition of the rangelands in the program Counties from the outset, therefore, becomes a necessary baseline exercise. Drone technologies could be adopted to undertake this mapping and assessment.
- The Kenya RAPID+ program implementation needs to begin with clear exit strategies as a priority if sustainability is to be achieved.

6.2.10 Monitoring and Evaluation

- Encourage and where necessary support Counties to develop costed M&E implementation plans within the 2 areas of program interest and in the area of gender mainstreaming.
- Move beyond disaggregation of data by gender, to training female committee members and treating gender as a variable in water and rangelands resources management by interrogating the programs' input and process level indicators to include non-quantitative and innovative of gender equity promotion and monitoring.
- Derive output and process indicators for measuring conflict sensitivity programming as a cross-cutting theme in the program.
- From the onset (prior to commencement of interventions), generate baseline values for the status (including financial status) and the organizational and institutional capacities of focus County Departments WRUAs, WUCs, RMCs, pasture groups as well as water and pasture sources (types, yields, functionality status, size and condition, populations of people and livestock served) to enable subsequent routine and systematic monitoring and assessment.
- Revise, drop and add some program indicators which are either ambiguous or difficult to monitor over the program's five-year cycle.

6.2.11 Further Research

- Together with wildlife and forestry stakeholders, explore the best approaches to ensure water availability for wildlife in dry seasons to reduce human-wildlife conflicts, including destruction of water systems in times of drought.
- Explore the best approaches and methods of fencing and safeguarding water points from vandalization by human beings, livestock, and wildlife.
- Explore ways to productively manage and utilize *Prosopis* Spps. as fodder and a source of income (fodder, fuel and building material) and to reduce its impact as an invasive species
- Undertake further research on the traditional 'Ekwar' system²⁶⁵ as a viable and replicable approach to fodder and natural resources conservation and management.

²⁶⁵Barrow EGC.1990. Usufruct rights to trees: the role of Ekwar in Dryland central Turkana, Kenya. <<https://www.worldagroforestry.org/publication/usufruct-rights-trees-role-ekwar-dryland-central-turkana-kenya>>

Goats in search of water in a dried up natural well in Marsabit County



SECTION SEVEN: GARISSA COUNTY LEVEL SPECIFIC REPORT

7.1 Summary Narration

Background

- Garissa County is one of the three Counties in the North Eastern region of Kenya and covers an area of 44,174.1 Km², lying between latitude 10 58'N and 20 1' S and longitude 380 34'E and 410 32'E.²⁶⁶ The County borders the Republic of Somalia to the East, Lamu County to the South, Tana River County to the West, Isiolo County to the North West and Wajir County to the North.²⁶⁷
- In Garissa County, land is community owned and belongs to the people, which is recognized not just as a commodity for trade, but also as a principal source of livelihood.²⁶⁸ In urban centres, people have acquired individual plots and majority of them have been given allotment letters to own the plots while in rural areas subdivision of land has not been done, hence land is used communally by the people in their unique ways.²⁶⁹ Only one per cent of the populations holds title deeds, as majority of the population lives on communal land. This has seen increased cases of land related inter-clan clashes/conflicts in the recent past, leading to loss of human lives.²⁷⁰
- It is estimated that Garissa has 44,100 acres of land along the Tana River Basin which can be used for irrigation but, only, 5,121 acres of the land (12.0%), is under irrigation, mainly of horticultural crops. ²⁷¹ The major degraded areas are around the refugee bases of Dadaab and Fafi Sub Counties as a result of much overharvesting of firewood and construction materials.²⁷² Activities that have contributed greatly to environmental degradation in the County include illegal encroachments of and unplanned human settlements, logging and over-grazing, mushrooming settlements on grazing land, increase in population, climate change, influx of refugees and charcoal burning.²⁷³
- Garissa County has one permanent river (River Tana), 25 shallow wells, 109 boreholes, 195 water pans and one dam; water from other sources is generally unsafe and requires treatment at the household level before consumption.²⁷⁴ There are two schemes namely Garissa Water and Sewerage Company (GAWASCO) and the Garissa Rural Water and Sewerage Company, the latter not operational due to pending court cases.^{275 & 276} Garissa County is water scarce with only 23.8% of the population having access to safe water.²⁷⁷ Access to piped water is limited to the sub Counties headquarters where approximately 27,725 households have connection.²⁷⁸ In addition, there are 72 river-based water supply schemes that provide water to communities living along River Tana and hinterland which are managed by the Water Users Association.²⁷⁹
- MWA convenes and leads Kenya RAPID+, which is funded by the Swiss Agency for Development and Cooperation (SDC) and private sector actors, implementing partners, and county governments. The Program aims to improve access to safe, sustainably managed water and rangelands that contribute to resilient, peaceful livelihoods and environments in five counties. The program targets beneficiaries with two outcomes: pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote

²⁶⁶National Taxpayers Association. 2022.Garissa County. < <https://www.nta.or.ke/garissa-County/>>

²⁶⁷County government of Garissa.2021. Flood Early Warning Communication Strategy, Garissa County, 2021. < <https://reliefweb.int/sites/reliefweb.int/files/resources/GARISSA%20COUNTY%20COMMUNICATION%20STRATEGY.pdf>>

²⁶⁸County government of Garissa.2018. Second Garissa County integrated development plan (2018-2022). <<https://repository.kippra.or.ke/bitstream/handle/123456789/467/2018-2022%20Garissa%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

²⁶⁹Republic of Kenya.2018. Kenya Development Response to Displacement Impacts Project (KDRDIP) Additional Financing (P166266). <<https://documents1.worldbank.org/curated/en/534001531467006900/pdf/KDRDIP-Social-Assessment-Report.pdf>>

²⁷⁰County government of Garissa.2021. Flood Early Warning Communication Strategy, Garissa County, 2021. < <https://reliefweb.int/sites/reliefweb.int/files/resources/GARISSA%20COUNTY%20COMMUNICATION%20STRATEGY.pdf>>

²⁷¹County government of Garissa.2020. Ninth Garissa County Annual Development Plan, Financial Year, 2021/2022. < <https://garissaassembly.go.ke/wp-content/uploads/ADP-2021-2022-August-2020.pdf> >

²⁷²FAO.2020. Guidance to put forward sustainable forestry interventions in displacement settings in Kenya. < <https://data2.unhcr.org/en/documents/download/82666> >

²⁷³County government of Garissa.2018. Second Garissa County integrated development plan (2018-2022). <<https://repository.kippra.or.ke/bitstream/handle/123456789/467/2018-2022%20Garissa%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

²⁷⁴County government of Garissa.2022. Water and irrigation services. <<https://garissa.go.ke/water/>>

²⁷⁵Garissa Water and Sewerage Company (GAWASCO). 2022.Home. <<https://gawasco.co.ke/gawasco/>>

²⁷⁶Garissa Rural Water and Sewerage Company Limited.2022. Home. <<https://wasreb.go.ke/garissa/> >

²⁷⁷County government of Garissa.2018. Climate change mainstreaming guidelines, water, and sanitation sector. < http://www.greenafricafoundation.org/publications/Garissa%20Water%20sector%20C%20mainstreaming%20Guidelines%20_2_.pdf >

²⁷⁸UNICEF. 2018.Garissa social sector budget brief, (2013-14 to 2015-16). < <https://www.unicef.org/esa/media/841/file/UNICEF-Kenya-2017-Garissa-Budget-Brief.pdf> >

²⁷⁹Ibid

integrity, social cohesion, and gender equity. Before program activities and interventions began, a baseline survey was required to establish benchmarks for relevant indicators, confirm program assumptions, and inform programming approaches.

Objectives of the Baseline Evaluation

- The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in Garissa and the four other counties, in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents; and to generate recommendations for improvement of the program design and the planned interventions.

Baseline Evaluation Methodology

- The baseline evaluation was conducted in Garissa, in the month of April 2022, through a mixed methods study approach entailing:
 - A desk review of program documents, County government documents and other secondary materials.
 - A quantitative household survey reaching 386 in Garissa County.
 - Key Informant Interviews (KIIs) as follows: two (2) interviews with staff of the County Governments' Departments of Water Services; two (2) interviews with staff of the County Governments' staff in the Departments of Agriculture, Livestock and Fisheries, and Environment, Lands and Natural resources; one (1) interviews with staff of the County Governments' Departments of Gender and Youth; two (2) interviews with private water service providers across the five Counties and; one(1) interviews with an agrovet playing a critical role in the livestock sector in Garissa;
 - Focused Group Discussions (FGDs) as follows: one (1) FGD with members of Water Resource Users Associations (WRUAs); two (2) FGDs with members of Water Users Associations (WUAs) committees; three (3) FGDs with ordinary community members (1 male adults' groups, 1 female adults' group and 1 youths' groups) and two (2) FGDs with Rangelands Management Committees (RMCs) members.
 - In total some 8 KIIs and 8 FGDs were conducted. The FGDs involved a total of 67 respondents of whom 15% (10) were women and 85% (57) were men.

To analyse the data generated, the team:

- Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
- Exported all quantitative data from Huawei Media Pad Tablets and Android based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
- A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks' 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by 4 to obtain effectiveness score of policy / legal framework.

Baseline Evaluation Findings

- A total of 386 respondents participated in the survey, with a majority 36 to 45 years at 42.5%. The project is targeting youth of between 26-35 years, who form the second majority of 25.4%.

- The respondents reached in the survey included 66% females and 34% males. The project is directly intervening on gender inclusion and parity.
- Majority of the respondents reached were married (85.5%) and the remaining were separated, widowed, or never married before.
- Households in Garissa were characterized by large family sizes, averaging at 7 members. This contrasts with the national average of 5 members per household, confirming the high population density and the rapid population growth rate in the ASAL Counties.
- On livelihoods, 84.2% of the respondents in Garissa County were pastoralists, 12.4% were agro pastoralists, while only 2.1% were purely crop producers.
- Related to the above table, was the fact that, the main sources of income in the County were sale of livestock (71.5%), sale of livestock products (39.6%), casual labour (25.4%) sale of crop products (10.9%). Many young men and women are moving to towns in search for employment which is influenced by the rapid growth of the town due to devolution.
- Overall and per capita incomes remain low for 89.9% of the visited households in Garissa County, reporting an annual income of between 0 and 50,000 Kenya Shillings (0-500 USD). This translates to 1.19 USD every day, compared to the 1.90 USD per day poverty line, a confirmation that some households in this County are living in extreme poverty.
- The findings show that in Garissa there is a chance of losing 1 out of every 10 beneficiaries of the project due to relocation, this therefore means a possibility of not being able to measure 10% of the intervention benefits attributed to households in the areas on project implementation.
- Despite availability of County Water strategic plan in the County of Garissa (2018) the document was deficient of gender mainstreaming, financing and subsequently implementation was either lacking or sub-optimal, hence minimal impact on the intended beneficiaries.
- Gender inclusion achievement in the water sector was rated 1/4 in Garissa County and 1/4. The impact of water policies on the targeted beneficiaries in Garissa was rated 0.6/4; level of water policy implementation 0.6/4, allocation of budgets to water services was scored 0.6/4. It was observed that the installation of water infrastructure was done mainly by development partners. These scores were based on the low mainstreaming of gender, unavailability of budgets for implementation of the contents thereof, low implementation, monitoring, and evaluation of the same and poor or no impact on the residents of Garissa counties.
- Access to improved sources of safe water for drinking and domestic use in the rainy seasons was reported by 85.8% in Garissa County. For households reporting access, the main sources of safe water for drinking and human consumption in the rainy seasons were boreholes or tube wells identified by 51.3% of the respondents in Garissa County.
- During the dry seasons, surface water was not available and as such, 84.5% of the households in Garissa County indicated accessing safe water for drinking and domestic use from improved sources.
- The main sources of safe water for drinking and human consumption in the dry seasons were again boreholes or tube wells identified by 51.8% of the households in Garissa County.
- Across the two seasons use of borehole or tube well water increased due to diminished surface water, while the quantity of water accessible, the distance to the water points and the waiting time at the water points increased in the dry seasons.
- The main source of such water, reported by 28.8% of the households, was boreholes or tube wells. In the dry season, 55.4 % of the households accessed safe water for livestock consumption from improved sources largely due to migration and reduced surface water.

- The main source of such water in the dry seasons, reported by 47.4% (Table 7.13) of the households in Garissa, was boreholes or tube wells.
- One in ten households (11.4%) reported dysfunctional main sources of safe water for human consumption and domestic use during the rainy seasons, while 27.5% of the households, reported the same sources were dysfunctional during the dry seasons.
- From the FGDs and KIIs, water points and systems breakdowns were attributed to poor operational skills (with or without exposure to trainings), natural wear and tear, inadequate ventilation, overheating due to daily long hours of pumping water every day, blockages of suction tips and salinity, damage by livestock and wildlife, sucking of gravel by the pumps and the on-going road construction works across these Counties.
- Turnaround time for the repair of broken water systems ranged from between a day and 30 days. KIIs and FGDs across the County indicated that turnaround time for repairs was influenced by distance from the water point to County headquarters, availability of transport services, availability and affordability of spare parts and service technicians, and importantly, availability of finances in the water user committees or associations.
- During the rainy seasons, 47.4% of the respondents reported covering less than a kilometre to access the main source of safe water for drinking and domestic use. In the dry seasons, 43.0% of the respondents reported covering less than a kilometre to access their nearest source of main water for human consumption and domestic use
- From the FGDs across all sites, even the main water source (boreholes) in the villages and other strategic points in the communities experienced declined volumes of water in the dry seasons. In a number of instances, water from these sources changed colour, taste, and smell, forcing communities to walk longer distances to access alternative sources, for which they had to pay, in most cases, as they were not in their communities' territories.
- A proportion of 16.8% reported travelling less than a kilometre to reach their main source of water for livestock consumption during the rainy seasons. In the dry seasons, this proportion of households reduced to 11.9%.
- There was time variability in access to safe water for domestic use across seasons. During the rainy seasons, 51.6% of the households took less than 30 minutes to get to the main source of safe water for drinking and domestic use. In the dry seasons, this proportion of households reduced to 47.4%. FGDs revealed that communities covered longer distances to access alternative sources of safe water during the dry seasons and even longer during droughts.
- Time spent to fetch/collect water at the safe water sources also varied by seasons. In the rainy seasons, 40.9% of the households reported spending less than 30 minutes at their main source of safe water, while in the dry seasons, this proportion of households reduced slightly to 40.2% in the County. FGDs revealed that during drought, water points were shared among many other households and livestock herds, leading to longer waiting times across all the Counties. In some of the Counties, for example, households reported receiving lower or no volumes of water as a result of increased sharing.
- On time taken to bring livestock to safe sources of water, 14.5% of the households reported spending less than 30 minutes in the rainy seasons. In the dry seasons, this proportion of respondents, reduced to 10.9%. FGDS revealed that during periods of intense droughts, livestock moved across sub-Counties and at times, across Counties and national borders, to access water and pasture across the Kenya-Somalia borders, for communities in the County. As such, long distances were traversed, and pastoralists could be away from home for months. To access water in these foreign territories, advance delegations of elders were sent to negotiate for peaceful sharing of the water points and pastures.

- Time taken to bring livestock at the main source of safe water for livestock consumption in the rainy seasons was less than 30 minutes for 10.9% of the households. In the dry seasons, this proportion reduced to 7.5%. FGDs in Garissa showed that waiting times during the dry season went up to 72 hours. Thus, some water sources had troughs installed to control livestock movements as they waited for their turn, to drink water, at the main water sources.
- According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day is required to meet the most basic human needs. On average households accessed 130 litres of safe water for drinking and domestic use in the rainy seasons per day. In the dry seasons, the volume of water accessible for the same needs increased to 151 litres. This translates to 20.97 litres per person per day in the County, and to 25.4 litres per person per day in the dry seasons, all of which allude to intakes way below the recommended minimum rates.
- The quantity of water accessible to each household for drinking and domestic use during the rainy seasons was scored at 2.84/5 on a 0-5 Likert scale, 5 being the highest score and 1 being the lowest, while the same in dry seasons, was rated 3.02/5 (3.02/5). The same scale scored the volume of water available for livestock consumption in the rainy seasons at 3.71/5, and 1.9/5 in the dry seasons.
- Most households in the County were found to be water insecure. The percentage of water security in the households was 8.5%. Access to safe and adequate water for basic domestic uses was reported in only 5.2% of the households.
- Timely access to water varied by age category and seasons, with the youth reporting less timely access compared to women. Specifically, 33.9% of the youth reported timely access to water in the rainy seasons, compared to 43.8% of women. During the dry seasons, this number proportion to 33.9% and 36.7% for the women. These trends are different from the other counties where the women score low compared to youth.
- Water availability for livestock consumption in catchment areas in the dry seasons was reported by 57.6% of the households, while in the rainy seasons it was reported by 72.0% of the respondents.
- From the FGDs and KIs, conflicts over water and pastures were reported, characterized by raids and counter raids between clans and communities as well as small quarrels and disagreement at collection points. Trust of communities that households have been in conflict with was reported by only 7% in the County.
- Surveyed water user committees had between 6 and 17 members each. From interviews with the WUCs, all (100%) had at least 1/3 of their leadership positions occupied by women. For the most part women were elected or appointed as secretary or treasurer in these committees but it was noted that they did not understand their roles in these committees well. The FGDs revealed that, often, their roles were undermined, and they did not participate actively in the decision-making processes of the committees. The youth made up 18.2% of the membership of the WUCs and would mainly play the role of secretaries or water plants operators.
- Charges for water access by the WUCs, were largely in the form of flat monthly fees, meter bills or per litre accessed and per livestock or per household accessing water. In some committees, water was available for free in the rainy seasons, but access was charged in the dry seasons, largely to high demand and low supply dynamics.
- KIs and FGDs further revealed that these committees faced a wide range of Operation and Management (O & M) challenges including limited management skills, poor governance, poor capacities for mobilizing resources and forging effective partnerships, poor or no records

keeping of their operations, use of obsolete technologies, frequent water system breakdowns due to mis/over-usage, and destruction by livestock and wildlife, on-going road construction works in the Counties among other causes.

- Another limitation for the committees was noted to be, their low engagement in water catchment protection, restoration, and management. The committees were however found to be inclusive and widely accepted, as they drew their membership, from across all segments of the communities (men, women, youth, clans, and persons with disability, as appropriate).
- The main water source that is under the management of the WUCs/WUAs is Borehole or tube wells, covering 92% of all the water sources in their portfolio, followed by piped water at 19.2% and third in place is public taps/kiosks. This informs that boreholes carry the highest risk for community access to water and thus their management is critical for continued access.
- The FGDs indicate that, communities in the County traditionally keep livestock for subsistence and prestige purposes, and as a form of insurance against drought. Thus, 91.7% of the households had any form of livestock, with 52.1% of them having cows, 83.4% having goats, 70.7% having sheep, and 29.5% having camels. Goats were the predominant type of livestock kept by the households, 53.6% of the livestock herd in each household, followed by sheep (29.3%), cows (11.9%) and lastly camels (5.2%).
- The baseline evaluation was conducted in the middle of a drought, and, on average, every household had 16 cows, 46 goats, 30 sheep and 13 camels.
- There were three main sources of livestock in the region and by hierarchy they were named as: (1) local breeding, (2) purchase, and (3) social donations given as wedding gifts and donations to vulnerable families by wealthy Muslim families. Other minor sources include donations from humanitarian agencies, inheritance from parents and those obtained from raiding of other communities.
- Technologies reported included solarized water pumps, diesel generators, prepaid water meters and borehole sensors. In the County solarized water pumps, generators driven water points and desalination units were documented.
- Private water providers and stakeholders were present in the County. They were largely involved in installation of water systems (solar pumps and diesel generators), sale of spare parts, servicing of water systems, and water desalination for commercial and non-commercial sale.
- Private water providers and stakeholders were however, not involved in water catchment protection or regeneration activities, or in water infrastructure development dialogues at the communities or County levels and did not provide funding or support to community-driven water infrastructure development initiatives.
- Only 42.8% of the responding households reported owning land. Title deeds, allotment letters, lease documents and other ownership records (including purchase agreements) for the reported pieces of land were only available in 18% of the households. FGDs largely indicated that most of the referenced pieces of land were under communal land tenure systems and were largely used for livestock production purposes hence no ownership documents.
- In Garissa, a notification was made among communities of intended migrations in search of water and pasture. Thus, overall, 80.5% of the respondents felt welcomed by neighbouring communities during migration for water and grazing areas in times of need.
- A majority of the respondents (93.9%) from the 'marginalized' communities believed that they had equal access to water services with members from the dominant clans or communities. However, qualitative interviews revealed perennial clan rivalries over boundaries, cultural and traditional raids, especially among young men, and political instigations among various

- communal groups and clans across the entire County triggered most of the conflicts, with water access and sharing being secondary triggers.
- Cases of SGBV linked to access to water and rangeland resources among household members in the year preceding the survey were reported by 9.3% of the females. From the FGDs, such cases happened when women and girls went to fetch water and access other rangeland resources in places far off from their villages, including in the forests
- On the frequency of SGBV cases, FGD participants of all genders in the County reported 1 case every month in the rainy seasons but up to 2 cases every month in the dry seasons. From the FGDs, SGBV cases in the five Counties were largely resolved by elders and clan leaders who settled the matters through arbitration, fines or forced marriages in cases where the females were impregnated. In cases where elders could not agree on solutions, reported were made to the chiefs who then escalated them to the local police stations and thereafter, to the courts.
- The criminal justice system was considered ineffective in resolving SGBV cases due to several reasons, including intimidation of survivors, late presentation in health facilities (past the 72 window period and after tampering with clinical evidence through showering and change of clothes), the compromising of chiefs and police officers (who then either declined or issued inconclusive supportive court documents), long distances to courts, unavailability of transport services, and the lengthy trial periods during which complainants were not notified in time, thus missing court sessions.
- KIs with the gender Departments representatives identified that medical services, psychosocial services, and dignity kits were available in health facilities for victims but were inadequate. The commonest forms of SGBV named by these key informants in the five Counties were: rape, defilement, sodomy, and intimate partner violence.
- From the KIs and FGDs, it emerges that communities in Garissa County are largely patriarchal and as such women have limited space to make decisions in the households. Decision making on livestock production, sale, feeding, and migration were largely the preserve of male members, while the sale of livestock products such as of meat, milk, hides, and skins was delegated to women.
- Agricultural production and crop products sales decisions were however made by all genders given their implications for grazing lands, although actual production was a female activity (40.0% to 50.0% of males and females in the five Counties).
- The County Government of Garissa does not have a rangeland resources management policy and implementation of the existing policies was, however, sub-optimal in the absence of adequate political good will evidenced through adequate resource allocation in the County budgets. In addition, these documents lacked gender mainstreaming, costed implementation frameworks and M and E plans.
- In Garissa, rangeland resources management lacked dedicated departments or directorates and budgets, and were either lumped with agriculture, livestock production, livestock extension services or natural resources management departments or directorates, hence their low visibility in the County government's departments. A gender policy was recently passed by the county assembly (2022).
- From the households' survey, the baseline average household income from crop production per season was reported to be 24,907.41 Kenya shillings per season.
- Knowledge of sustainable rangelands resources management was relatively low in the County. The main rangeland management practices known to the respondents were destocking

- (56.7%), water harvesting (48.2%), pest and disease control (28.5%) and fodder production and conservation (25.4%).
- Participation in rangelands resources planning and management activities was reported by 8.6% women and by 4.6% of the youth in Garissa County.
- Private sector entities, largely in the form of humanitarian organizations were present in the five Counties, promoting various rangelands resources management and improvement practices. This was happening with the knowledge of the relevant County government Departments, but the latter were not engaged in any tangible or strategic way, such as through co-financing, follow-up extension visits or scaling up of what has been shown to work. In several Counties however, the Departments had established livestock holding grounds and livestock sales yards which were thriving. Farmers associations and cooperatives were existent in the County, but they were constrained organizationally, technically, and financially.
- Rangelands Management Committees (RMCs) were existent in the County but were severely constrained and largely dormant when and where not supported by humanitarian organizations. Interest in RMCs at community level was however huge, and this together with their strong embedment in the communities, drawing their membership from there, made them widely known and accepted in their respective communities.
- Additional strengths possessed by RMCs included their integration with other community structures such as the peace committees and the WUAs and the WRUAs, their inclusion of youth and women into leadership, and their management structures founded and codified in their respective constitutions and bylaws.
- The RMCs however, faced and exhibited several palpable weaknesses and challenges that severely constrained their abilities to plan and implement their core duties as well as receive meaningful support from interested development partners. These included: weak management skills, poor governance, low financial resource mobilization and management capabilities, interference by politicians, clan interests and bylaws that largely remained un-anchored on any County government policies or legal frameworks, and the lack of capacity in partnership development.
- From the survey, some 12.4% (96/410) of the respondents from the County identified benefiting from a range of concrete climate change measures. Solarization of boreholes, furrow irrigation and destocking were identified as the main climate change adaptation and mitigation measures adopted by communities. County government Departments and private sector players were promoting a range of other measures in climate change mitigation and adaptation, including alternative livelihoods, improved goat breeding (Galla goats in Turkana County), and use of solar power in water abstraction, minimum tillage to increase soil moisture retention, voluntary off-taking as a destocking measure, green houses/shades, solar lighting (streets), early planting and adoption of drought tolerant crops.
- Education levels in Garissa were low at 74.6% in the visited households that had not gone to school. These figures confirm typically low literacy levels in the ASAL Counties of Kenya, compared to the national average of 9.3%. The low literacy levels reflect the low capacities of community leadership structures (WUCs, WUAs, WRUAs, and RMCs) observed in the survey sites.

7.2 Summary of the Program Indicators

Indicator	Garissa County	
Household water security (with a focus on water supply and not water risk management) in the targeted ASAL Counties	8.5%	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties	8.9%	
% Of households with increased access to safe and adequate water for basic domestic uses (disaggregated by gender, minority groups)	Gender	Female=5.1% Male=5.4%
	Group	Minority=0.0% Dominant=5.9%
Households accessing 350 liters of water per day	Rainy seasons= 2.3% Dry seasons=2.3%	
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)	Rainy seasons=2.1% Dry seasons=2.1%	
% Of people in the target area report their trust in members of communities they are in in conflict has increased	7.0%	
% Increase in volume of water available for livestock consumption in a catchment area	Wet seasons	72.0%
	Dry seasons	57.6%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)	100.0%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses (Baseline Average in KSHs)	24,907.41 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs	96.1%	
% Of women and adolescents reporting reduction time in accessing water (<30mins time)	Wet seasons	Youth=33.9% Women=43.8%
	Dry seasons	Youth=33.9% Women=36.7%
% Of women reporting GBV related to access to water and rangeland resources	9.3%	
% Of marginalized groups who believe they have equal access to water services	93.9%	
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)	Degree of gender inclusion: 1/4 Impact on beneficiaries: 1/4 Level of implementation: 1/4 Allocation of budgets: 0/4	
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)	28.8%	
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing>=3practices)	8.3%	
% Of women and youth actively participating in rangeland resource planning and management activities	Women= (8.6%) Youth= (4.8%)	

% Increase in the grazing areas with pasture/fodder in the dry season across selected communities (those who reported no shortage in pasture in dry seasons)		19.4%
# Of persons benefiting from concrete climate change measures		12.4% 48/386
Output level indicators		
# Of households reporting improved water access in terms of quantity and reliability (disaggregated by gender, minority groups) [Scores of 5/5 on reliability and quantity]		Total=1.5% F=8.2% M=6.2% M=10.2% D=7.1%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		4 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=2 Adults=24 Male=8 Female=18 Total=26
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=7,0727.78 KSHs M=9,500.00 KSHs
	Livestock production	F=10,166.67 KSHs M=6,125.00 KSHs
# Of County livestock production/rangelands technical staff reporting increased knowledge on gender transformative rangeland management practices. (Gender disaggregated)		-

7.3 Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- Allocate resources in strategic advocacy and lobbying initiatives to improve the management of water and rangelands in five target counties. This is evidenced in three ways:
- Invest in a participatory, in-depth analysis and petitioning of September 2022 Counties' next generation CIDP. Such an investment could allow the core beneficiary institutions and groups of RAPID Plus to convene, analyse CIDP, and generate policy and programmatic feedback and recommendations. It is possible to mobilize WRUAs, WUAs, pasture groups, the RMC, the LMCs, private sector water and rangeland actors, producer cooperatives, faith-based organizations, and other local CBOs (CBOs).
- Sharing feedback in key forums of CIDPs stakeholders (such as sector and thematic working groups, sub-County and County public hearings, and County Budget Execution Forums (CBEFs), and in specific meetings/workshops convened by the program to bring together strategic stakeholders to advocate for particular interests. Support may consist of financing and co-facilitating pertinent meetings/forums.

- Support strategic awareness events directed at County Government Executives and Legislators in order to secure their full understanding and support for the program's core water and rangeland improvement interventions.
- Develop and disseminate high-impact IEC materials, policy/learning briefs, program information packages, and public media content, including video documentaries, to amplify and disseminate the program's core messages.
- Provide technical and financial support for the completion and passage of key water, rangeland, and gender sector policies, strategic plans, and legislation. Start with those that were initiated by RAPID I.
- Support the establishment or strengthening of steering committees for particular policies and legislation, as well as sector working groups, and serve as co-chair and secretariat. This strategy invigorates stakeholders, enhances inter-Ministerial coordination, consolidates expertise, and experiences, and streamlines and accelerates policy formulation, legislation, and implementation.
- Assist with consulting assignments to assist in drafting pertinent policies and legislation and submitting them to county assemblies for approval.
- Assist Garissa County with water and rangeland management policies and frameworks in establishing forums and digital platforms. The majority of county governments' online portals and websites lacked these documents, according to field inspections.
- Ensure that all future policies, sectoral plans, and laws contain costed implementation frameworks and M&E plans, and that gender and climate change implementation implications are clearly articulated.

Water Interventions

- Persuade the county government to fully own ward development plans (WDPs) and acknowledge them as the basis for successful ward-level water interventions in the County.
- Support/enhance County Water Forums in an effort to coordinate water stakeholders in Garissa. Procedures and policies that are inconsistent are causing user confusion. When available, Water Departments should enforce agreed-upon implementation guidelines.
- Encourage women's active and effective participation in water user committee decision-making processes. Ensure the gender-specificity of WUA training manuals, organize leadership training for WUA leaders, and encourage cross-WUA learning exchange for scaling practices.
- Promote the development of multi-use water resources that emphasizes the water-food-energy nexus, with an emphasis on end use. In light of ongoing decentralization processes focusing on local-level resource management, organizations wishing to operate at this level must assess and enhance the role and effectiveness (capacity) of local institutions.
- Consider training male and female youth as village borehole and solar installation attendants (including through apprenticeships with available private water sector players) and providing them with O & M service tool kits in order to build and ensure local capacities for O & M, reduce water point downtimes, and provide viable employment routes through alternative livelihood approaches. In Nigeria, UNICEF has demonstrated that this is an effective intervention.
- Deliver structured trainings on resource mobilization and partnership development to teams from the Departments of water and rangelands resources management in Garissa County. FAO and the World Bank encourage potential funders to include resource mobilization in their annual departmental work plans.

- Assist county governments in revitalizing sector working groups under Water, Livestock, and Rangelands Resources Management in order to encourage knowledge sharing, collaborative problem solving, and investment in natural resources management.
- Assist WRUAs and WUAs in establishing technical and monetary resource mobilization partnerships. The Water Service Maintenance Trust Fund (WSMTF) in Kwale County and the Merti WUA in Isiolo County were successfully financed by the private sector and local businesses. The mining and agricultural businesses of Kwale funded the maintenance of the rural water supply. The Water Sector Trust Fund in Merti, impressed by the community's ambitious vision, invested 7.6 million Kenyan Shillings through its Rural Investment Programme in their community water project. This allowed the Merti Community Water User Project to hire more technical personnel, eliminate water kiosks and increase the number of individual meters, rehabilitate two core project boreholes, and launch an ambitious piping and extension of clean water from the source.
- Assist WRUAs in determining the optimal modalities for charging for maintenance services, including free service provision (payment for spare parts only, as in the Kabele water technician model in Uganda); variable cost-recovery fees paid per repair or per visit by a technician or mechanic, depending on the type of repair or maintenance task; regularized set tariffs or fees (monthly payment for 'guaranteed service').
- Promote preventive and proactive approaches to O&M and sustainable management of water sources based on proper usage, source and catchment protection, routine infrastructure service, and effective O&M financing models like the Catholic Diocese of Lodwar's borehole service insurance model.
- Adopt operation and maintenance (O & M) contracts with a standard quarterly fee and a fixed maintenance schedule that includes repairs of all breakdowns have been observed to reduce downtime in South Sudan.
- Explore partnerships to develop strategically located community boreholes and other watering points across Counties in order to increase available water and decrease waiting times and travel distances.
- Promote and support inter-community and inter-associational (WRUA, WUAs, and WUCs) exchange visits to share water resource and catchment management experiences and best practices.
- Establish/support peer-to-peer connections between WRUAs, WUCs, and WUAs for knowledge sharing.
- Assist WUCs in developing or enhancing water resource business/revenue growth models based on proven models to ensure sustainable operation and maintenance of community water points and facilitate infrastructure investment.
- Support social accountability audits of water and rangeland management budgets and supplementary resources to promote prioritization and optimal use. This includes assisting WUAs and WUCs in the creation of user-friendly social audit toolkits, which have proven effective in Nepal.

Irrigation, Water, and Solarization High-Efficiency Technologies

- Encourage communities to determine which technologies best meet their needs through demand-driven strategies. Because diesel and gasoline are both economically and physically inaccessible, our assessment identifies the use of hybrid water pump systems (solar and generators) as supplementary measures to ensure the continuous availability of water to communities.

- Ensure strong management information systems for water service monitoring in the county, given the scarcity of data and the high volume of unaccounted water usage in Garissa. A significant amount of valuable information generated by various stakeholders is inaccessible, resulting in duplication of effort and resource waste. Water departments in counties should coordinate all data related to water delivery, utilizing increasingly available cutting-edge databases and MIS. The technical viability and cost of any rehabilitation project would be determined using data before proceeding.
- Install sensors in community boreholes to detect impending breaks, allowing for timely repairs and maintenance to avoid water shortages.
- As documented in Marsabit and Turkana Counties, consider installing water kiosks with prepaid meters to encourage WUCs members to pay for water.
- Establish water recharge monitoring after rainfall as an early warning system for contingency planning during drought seasons.

Interventions for Rangeland Resource Management

- Advocate for increased rangelands sub-sector prioritization and visibility by lobbying for the establishment of rangelands Units or Directorates, as well as offices with dedicated officers and budgets, in each program county.
- Facilitate community and village meetings to create integrated participatory community land use plans (PLUPs) that promote targeted and efficient use of the community's common natural resources. This participatory approach to community land use planning has been shown to be ineffective among Tanzanian pastoral communities. In doing so, potential barriers such as low awareness and inadequate institutionalization of the process, conflicts over village boundaries and resources, budget constraints, clan officials' reluctance to relinquish control over land, excessive bureaucracy, and insufficient skill levels must be considered.
- Encourage Community Action Plans (CAPs) and dialogues on rangeland resource restoration. Participatory and two-stage resource mapping, transect walks, time and trend lines, livelihood mapping, household surveys, ranking of problems and opportunities can draft CAPs.
- Identify and disseminate existing inter-ethnic and trans-boundary resource sharing plans in order to raise community awareness of them and the protocols that govern their use.
- Encourage peaceful coexistence and the sharing of common pastoralism resources by supporting local/community initiatives that seek to build peace and resolve conflicts among themselves. As a result, identify and include community peace committees in program activities.
- Identify, map, and work with communities to create mechanisms to protect livestock corridors and pastures between villages. This would entail assisting them in the creation of bylaws and suitable route markings. It may be necessary to develop grazing areas and water points along these routes, as well as institutions to manage them. Non-resident herders gain access with permission from the elders under the USAID-funded Resilience and Economic Growth in the Arid Lands – Improving Resilience (REGAL-IR) project in Turkana County, and those who violate the bylaws are fined or have their livestock confiscated.
- There are numerous farmer groups (particularly women's groups) in Garissa, but they are not registered. The program should encourage and facilitate their registration with the appropriate social services or agricultural departments, as well as assist them in establishing mutual support and assistance relationships, such as in the dissemination of new and improved agricultural technologies to communities.

- In the targeted villages, institutionalize self-learning groups (SLGs) or farmer field schools (FFSs) to capitalize on their beneficial effects on community livelihood improvement, income intensification and diversification, and market mechanisms for locally produced agricultural products.
- Retrain all RMCs in light of their members' elevated levels of illiteracy and low operational skills, with a focus on organizational development, record keeping, technical topics, gender equity, youth inclusion, and alternative means of subsistence.
- Encourage RMC to incorporate their constitutions and bylaws into relevant County government Departmental policies, plans, or Acts in order to increase community member compliance.
- Assist RMCs in refining their revenue growth models toward greater self-sufficiency, independent of donor program support.
- Train county departments of livestock, agriculture, environment, and rangeland resources management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL). CRiSTAL is a project planning and management tool that helps community-level initiatives incorporate risk reduction and climate change adaptation measures.
- Encourage initiatives that promote alternative livelihoods for communities and community groups in order to diversify income sources, increase resiliency, and relieve pressure on diminishing rangeland resources.
- Assist livestock farmers and pasture groups in developing long-term livestock pastures, forage banks, rangeland, and water collection systems.
- Restore and support initiatives aimed at restoring degraded pastures and increasing drought-tolerant vegetation cover.
- Community groups, rather than individuals, should promote improved rangeland resource management practices such as fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection, and other improved rangeland resource management practices in order to popularize the practices and reduce communal land use conflicts.
- Integrate modern drought early warning systems with traditional early warning systems, and train community members in disaster risk reduction (DRR) coping strategies.
- Encourage RMCs and other community organizations to actively participate in County public participation/hearing forums on water, livestock, environment, and climate change issues, as well as sector annual and multi-year planning.
- Improve and promote livestock sector sustainability by implementing improved livestock management practices, such as Index Based Livestock Insurance (IBLI), to protect communities from recurring droughts.

Gender Mainstreaming

- Assist county gender departments in finalizing their gender policies, SGBV laws, and implementation plans that are costed and measurable.
- Adopt a multi-sectoral/multi-departmental strategy to advance gender equality in the management of water and rangeland resources. Community and women's empowerment require an integrated approach, as opposed to the sectoral/departamental approach. Given the strongly patriarchal nature of the program's beneficiary communities, a more intersectoral (interdepartmental) approach to gender mainstreaming will result in greater, faster, and non-threatening cross-sectoral impact.
- Encourage women and girls to use their free time to pursue alternative productive livelihoods, such as income-generating activities, literacy (adult education), and the acquisition of new skills
- outside of the health, sanitation, and hygiene themes, in addition to increasing water access

points to reduce the work burden on women and girls. Women and girls should be supported to pursue businesses in innovative sanitation solutions (soap and detergent production), waste utilization schemes, pasture production and conservation, manufacture/blending of animal feeds, value addition for vegetables, fruits, and range products (honey, resins, Aloe Vera juice), processing and sales of skins, and processing of excess milk during the rainy season into other long-lasting nutritious milk products.

- Facilitate linkages to credit for women and girls in business, this can be achieved by means of Village Savings and Loans Association (VSLA) groups and links to microfinance institutions in the county. In the town of Garissa, for instance, there are organizations that provide contextualized services for women's groups [Equity Bank, and Kenya Commercial Bank].
- Consider class- and gender-sensitive approaches to promote the control and development of water and rangeland resources for mutual benefit. Such an approach would begin with female-headed households and use their transformation as examples throughout the community.
- Enable communities to participate actively in policy and regulatory reform events pertaining to water and rangeland resource management in Garissa County by integrating community-based advocacy into program interventions.
- Raise community awareness of the consequences of SGBV as well as the available medical, legal, psychosocial, and protection remedies and referral pathways for survivors.
- Investigate ways to strengthen existing referral pathways for sexual and gender-based violence in collaboration with the county government and development partners.
- Engage men via elders and religious leaders in re-imagining and reconstructing gender roles and stereotypes, ensuring accountability for their actions and participation in SGBV prevention and response.
- Encourage gender mainstreaming by providing strategic support to County Gender Departments and relevant Gender Thematic Working Groups, as well as line Departments (water and rangelands resources), to strengthen and institutionalize relevant interventions.

Private Sector Engagement

- Consider Semi-Autonomous Government Agencies (SAGAs) such as water and sewerage companies for any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, which provide a more sustainable and low-risk entry point. Currently, no public-private partnership between county governments and the private sector has advanced beyond the feasibility stage as of yet.
- Encourage water stewardship approaches that seek to engage the private sector in enhancing sustainable market-based approaches, as outlined in the preceding section.
- Collaborate with the private sector to expedite the adoption of more efficient water delivery technologies, such as borehole sensors, automated dispensing and billing technologies, and more wholesome water treatment (beyond basic chlorine treatment), and to participate in WRUA and WUA capacity building.
- Involve the private sector in value additions (especially processing of rangeland products) and increase their participation in marketing and sales of livestock, agricultural, and other rangeland products within and outside Garissa.
- Explore ways to strengthen the value chains of water and rangeland resources in collaboration with county governments and other stakeholders. As part of this initiative, connect local women's groups engaged in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, as well as other institutions and structures devoted to the economic empowerment of women.

Climate Change Mitigation

- Explore ways to re-prioritize water and rangeland resources and utilize them more efficiently as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing piloting processes of Community Land Rights Recognition Models (CLRR) as part of the implementation of the Communal Lands Act in pastoral Counties, with the ultimate objective of replicating the same in the five Counties to address recurrent conflicts over grazing lands. Attending the annual Community Land Summit will allow you to accomplish this.
- Encourage relevant county government Departments to develop and disseminate climate change adaptation and resilience knowledge products (toolkits, vulnerability maps, spatial models, and hydrological models).
- Encourage and supply seedlings with multiple benefits to rangelands to communities for tree planting, especially during the rainy season.
- Establish demonstration or model farms for climate-resilient and adaptive crop cultivation and animal husbandry to show county farmers best practices. This could begin with the selection and training of model farmers in climate-smart agricultural technologies, followed by their facilitation.
- Encourage agricultural management practices adapted to intense and protracted droughts. These techniques should include the use of drought-resistant crop varieties, crop diversification, cultivation practices adapted to climate change, and the maintenance of seed banks.
- Advocate for the establishment of more climate funds in Garissa County. The funds should be used for specific purposes that consider the unique needs and characteristics of the County.
- Support initiatives that aim to improve the knowledge, attitude, and behaviour of community members regarding climate change, resilience, and disaster risk reduction through community mobilization events, the production of relevant IEC materials, trainings, meetings, and workshops.
- Encourage the use of renewable energy technologies like modified versions of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes, and milk churners, which will help reduce deforestation and vegetation loss due to firewood and charcoal production (PELIS). Through community forest associations, KFS grants forest-adjacent communities the right to cultivate agricultural crops during the early stages of forest plantation establishment. Frequently, cultivation is allowed to continue for three to four years after the tree canopy has closed.

Conflict Prevention

- Utilize well-known or user-friendly Participatory Rural Appraisal (PRA) techniques to increase men's and women's awareness of gendered issues that predispose to conflict (household workload, access and control of household assets and resources, productive roles for women and power inequities between genders).
- Given that migration and cross-border movements will always be a part of pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and statutory regulations in Garissa.
- Promote a community-centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of communal resources held in common. Support the development and implementation of plans for the sharing of common resources.

- Devote sufficient time and resources to the resolution of boundary and other conflicts, especially those with deep roots and complexities.
- Instil in communities the understanding that conflicts must be resolved, and compromises will be required in order to secure land. Several community meetings may be required for this purpose.
- Promote inter-clan, inter-community, inter-tribal, and cross-boundary dialogue forums, and cultural exchanges on the use of water and rangelands to promote peace between communities.

Part of Tan River in Garissa County where floods often cause water inaccessibility in the county



SECTION EIGHT: ISIOLO COUNTY LEVEL SPECIFIC REPORT

8.1 Summary Narration

Background of Isiolo County

- Isiolo County borders Marsabit County to the north, Samburu and Laikipia Counties to the west, Garissa County to the south East, Wajir County to the North East, Tana River and Kitui Counties to the south, and Meru and Tharaka Nithi Counties to the south west.²⁸⁰ It covers an area of approximately 25,700 km² and is located between Longitudes 36° 50" and 39° 50" east and latitude 0° 05" south and 2° 00" north. Isiolo town lies 285 kilometres north of Nairobi, the capital city of Kenya.²⁸¹ More than 80% of the land in Isiolo County is communally owned and is under the trusteeship of the County government.²⁸² Public land constitutes 10 percent of the total land and includes land for schools, administration, army barracks, health facilities and game reserves.²⁸³ Less than 10% of the remaining land is under private ownership and has been alienated for private investment in housing, industrial and commercial purposes.²⁸⁴ Over 80 percent of the land cannot support crop farming and is used as grazing land by pastoralists. In some areas such as Kinna and along Ewaso Ngiro River, agro pastoralism is practiced on a small scale.²⁸⁵
- Isiolo County lies in two ecological zones namely semi-arid and arid and receives rainfall ranging between 400-650 mm annually; the semi-arid zone has become an area of sedentary agro-pastoral activities that cover parts of Wabera Ward, Bulla Pesa Ward and some parts of Burat Ward in Isiolo North Constituency. It also covers some southern parts of Kinna Ward in Isiolo South Constituency.²⁸⁷ The Arid zone covers Oldonyiro, Ngare Mara, some parts of Burat, Chari and Cherab Wards in Isiolo North Constituency, and Garbatulla, Sericho Wards and the northern part of Kinna Ward in Isiolo South Constituency.²⁸⁸
- As indicated above, Isiolo County is one of the Kenya's Arid and Semi-Arid Lands (ASALs) characterized by water shortages, poorly coordinated and implemented water resource management systems and limited skills among Water User Committees (WUCs), among other challenges.^{289&290} Rangelands in the County are poorly developed, and they face numerous challenges, including inadequate and fluctuating availability of fodder and water, encroachment of crop production into pastoral land, alienation of pastoral communities, inadequate markets, marketing infrastructure, and inadequate extension services.²⁹¹
- Given the need to explore new approaches to unlocking the potential of water sources, and resource use, and to manage them strategically and sustainably, while at the same time promoting their recharge, and the regeneration of the rangelands, Millennium Water Alliance (MWA), in collaboration with Catholic Relief Services (CRS)- Kenya country program, are implementing the 'Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+)' program in this County.
- The Kenya RAPID+ program is convened and led by the MWA, with primary funding from the Swiss Agency for Development and Cooperation (SDC), alongside matching investment grants from private sector actors, implementing partners and participating County governments. The overall goal of the Program is to ensure improved access to safe and sustainably managed water and rangelands that contribute to resilient peaceful livelihoods and environments for communities.

²⁸⁰Devolution knowledge hub.2022. Isiolo County. <<https://knowledgehub.devolution.go.ke/kh/Category/Countries/isiolo-County/>>

²⁸¹County government of Isiolo.2019. County Annual Development Plan (CADP), 2019/20. <<https://www.youthagenda.org/wp-content/uploads/2019/12/Isiolo-County-Annual-Development-Plan-2019.pdf>>

²⁸²Devolution knowledge hub.2022. Isiolo County. <<https://knowledgehub.devolution.go.ke/kh/Category/Countries/isiolo-County/>>

²⁸³Food Agricultural Organization (FAO). 2021.Effects of land Fragmentation on Land Use and Food Security; Case Study of Nyamira, Laikipia, Nandi, Trans Nzoia, Taita Taveta, Kiambu, Kajado, Nakuru, Tana River, Makeni, Isiolo, Kisumu and Vihiga. < https://www.landcommission.go.ke/media/erp/upload/land_fragmentation_report_6.3.22_final.pdf >

²⁸⁴Kenya Electricity Transmission Company. 2017.Environmental and social impact assessment study report for the proposed Isiolo-Garbatulla-Garissa high voltage transmission line project. < https://www.nema.go.ke/images/Docs/EIA_1400-1409/ESIA_1409%20Isiolo_Garbatulla_Garissa%20report%20.pdf>

²⁸⁵MoALF. 2017. Climate Risk Profile for Isiolo County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

²⁸⁶Sang, R., Arum, S., Chepkorir, E., Mosomtai, G., Tigoi, C., Sigei, F., Lwande, O. W., Landmann, T., Affognon, H., Ahlm, C., & Evander, M. (2017). Distribution and abundance of key vectors of Rift Valley fever and other arboviruses in two ecologically distinct Counties in Kenya. *PLoS neglected tropical diseases*, 11(2), e0005341. <https://doi.org/10.1371/journal.pntd.0005341>

²⁸⁷USAID.2021. Communication pathways for building resilience in ASAL communities; Report on Knowledge and Communication Needs and Gaps in Isiolo County.

<<https://resiliencelearninghub.com/wp-content/uploads/2021/11/USAID-Communication-Pathways-for-Building-Resilience-in-ASAL-Communities-Isiolo-Page-View-2-compressed.pdf>>

²⁸⁸Ibid

²⁸⁹OXFAM.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. < <https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

²⁹⁰Republic of Kenya. 2013.Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-ede-2013-17>>

²⁹¹Ibid [10]

in the five targeted Counties. The program targets 200,000 beneficiaries with two outcomes, namely: pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth, and pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity. A baseline survey was required before kick-off of program activities and interventions, to establish benchmarks for relevant indicators, confirm the assumptions made in the program's theory of change, and to inform programming approaches.²⁹²

Objectives of the Baseline Evaluation

- The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in Wajir County's in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents; and to generate recommendations for improvement of the program design and the planned interventions.

Baseline Evaluation Methodology

- The baseline evaluation was conducted in in the month of April 2022, through a mixed methods study approach²⁹³ entailing:
 - A desk review of program documents, Isiolo County government documents and other secondary materials.
 - A quantitative household survey reaching 439 respondents in Isiolo County.
 - Six (6) Key Informant Interviews (KIIs)-(see Annex 2); and
 - Nine (9) Focused Group Discussions (FGDs)-(see Annex 2).
- To analyse the data generated, the team:
 - Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
 - Exported all quantitative data from Huawei Media Pad Tablets and Android based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
 - A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by 4 to obtain the effectiveness score of policy / legal framework.²⁹⁴

Baseline Evaluation Findings

- Analysis of the respondents; 69.1% of the respondent were females while 30.9% were Males. Households had an average of 7 members which is fairly large; 99.8% of the respondents were living in the rural areas while 0.2% were residing in the Peri-urban.
- The County has a very high illiteracy levels, 56.9% had never been in school, 5.9% had informal schooling and 0.9% had a religious education. 10.9% had not completed primary education while 13.4% had completed primary level education. Only 4% of the respondent had completed high school, 1.6% had TVET certificates and only 0.7% had a college education.
- On livelihoods, 93.6% were reported to be pastoralists while 4.1% are agro pastoralists. Only 0.7% depended on Agriculture and 0.7% had small businesses.
- In Isiolo County, the main sources of income were sale of livestock products (74.5%), sale of livestock (26.2%), sale of crop products, (17.3%) petty trading (sale of firewood) 9.6%.
- The monthly income for most of the respondents was less than Kshs 50,000 (95.7%) and 64.2% live on this same amount of money per year.

²⁹²Terms of Reference.

²⁹³Schoonenboom, J., & Johnson, R. B. 2017. How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>

²⁹⁴https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdcontext/Documents/SDC_indicators_AFS_TRI_2.pdf

- On policies, Water issues in Isiolo County are guided by Water act of 2020, Isiolo County Water and Sanitation Services Bill, 2020 and the strategic plan (2017-2021). In these policies, gender inclusion in the water sector was rated $\frac{3}{4}$. The impact of water policies on the targeted beneficiaries was rated 0/4, level of water policy implementation had a score of 0/4 and the allocation of budgets to water services was scored 0/4.
- In Isiolo County, access to improved sources of safe water for drinking and domestic use in the rainy seasons was reported 81.8%. For these households, the main sources of safe water for drinking and human consumption in the rainy seasons were boreholes or tube wells identified at 37.8%.
- During the dry seasons, surface water was more scarce and reported at 72.9%. The main source of safe water for drinking and human consumption in the dry seasons were again boreholes or tube wells at 46.9%.
- For livestock use 71.4% of the households reported access to improved sources of safe water in the rainy/wet seasons with boreholes or tube wells reported as the main source of such water. In the dry season, 70.5% of the households accessed safe water for livestock consumption with boreholes or tube wells again being the main sources of such water.
- The respondents in Isiolo County reported dysfunctional main sources of safe water for human consumption and domestic use at 5.2% during the rainy season while 35.8% reporting dysfunctionality of the same sources during the dry season.
- On the distance to the main source of water, 60.3% of the respondents reported to cover less than a kilometre to access the main sources of safe water in the rainy season in Isiolo County. In the dry season, 28.5% of the respondents reported covering less than a kilometre to access their nearest sources of main water for human consumption and domestic use.
- On the other hand, 41.7% of the households reported travelling less than a kilometre to reach their main sources of water for livestock consumption during the rainy season while, during the dry season, this number reduced to 22.1%.
- The distance covered to access safe water for domestic use in the two seasons varied. During the rainy seasons, 60.4% of the households did less than a kilometre to get to the main sources of safe water for drinking and domestic use. In the dry seasons, this number reduced to 39.4%.
- The time taken to bring livestock to safe sources of water, 37.85% of the households reported spending less than 30 minutes in the rainy seasons while this number reduced to 20.7% in the dry season.
- Waiting time at the main source of safe water for livestock consumption in the rainy seasons was less than 30 minutes for 20.7% of the households in Isiolo County while during the dry seasons this number reduced to only 13.0% of the respondents.
- In Isiolo county, average households accessed 323 liters of water per day for domestic use in the rainy season with this number reduced to 56 liters per day in the dry season. This translates to 54 liters per person per day (based on the survey derived household size of 7 members) in the rainy seasons and 9.28 liters during the dry season.
- The quantity of water accessible to each household for drinking and domestic use during the rainy seasons was scored at 4.0 on a 0-5 Likert scale, 5 being the highest score and 1 the lowest. The same scale scored the volume of water available for livestock consumption in the rainy seasons at 3.94/5.
- Most of these water sources were managed by committees. 73.1% of the households surveyed had their water sources managed by a water committee. These water user committees had between 6 and 17 members each. 33.3% of these had 1/3 of their leadership positions occupied by women. The youth made up 31.0% of the membership of the water committees.
- Water access was not the same for most residents of Isiolo County. 40.3% of respondents reported that long queues and long waiting time as one of the reasons for not accessing water for drinking and domestics in the rainy season. This percentage increased in the dry season to 60.5%. For livestock use, the same reason was rated at 74.8% during the wet seasons and 59.6% during dry seasons.

- On water treatment, 66.7% of respondents in Isiolo County do not treat water before consumption. For those that do, using Chemicals was reported at 53.4% and boiling at 65.1%
- Most households in the County were found to be water insecure with the prevalence water security in the households was 8.2%.
- In Isiolo county, access to safe and adequate water for basic domestic uses was not reported.
- Timely access to water varied by age category and season with the youth reporting more timely access compared to women. 47.9% of the youth reported timely access to water in the rainy season compared to 34.3% of women for the same season. During the dry season, this number dropped to 28.8% for the youths and 16.5% for the women
- Water available for livestock consumption in catchment areas in the dry seasons was reported by 46.0% of the households in Isiolo County.
- Asked whether they feel safe while accessing water points, 40.1% of the respondents reported that they felt welcomed by neighbouring communities during migration to access water and grazing areas in times of need. In terms of minority clans, 80.0% of the respondents from the marginal communities believed that they had equal access to water services with members from the dominant clans or communities
- Cases of SGBV linked to access to water and rangelands resources in the year preceding the survey were reported by 7.3% of the females in Isiolo County
- From the households' survey, the baseline average household income from crop production per season is reported to be to be 3800.80 Kenya shillings in Isiolo County. Knowledge of sustainable rangelands management is low in the County with only 26.7% of the respondents able to name three related practices.
- Participation in rangelands resources planning and management activities was reported by 9.6% of women and 3.7% of the youth in Isiolo County
- From the survey, some respondents (65/439- 14.8%) identified benefitting from a range of concrete climate change measures in Isiolo. Solarization of boreholes, furrow irrigation and destocking were identified as the main climate change adaptation and mitigation measures adopted by communities. County government departments and private sector players were promoting a range of other measures including alternative livelihoods, improved goat breeding (Galla goats), use of solar power in water abstraction, minimum tillage to increase soil moisture, voluntary off-taking as a destocking measure, greenhouses/shades, solar lighting, early planting, and adoption of drought tolerant crops.

8.2 Summary of the Program Indicators

Indicator	Isiolo County	
Prevalence of household water security (with a focus on water supply and not water risk management) in the target ASAL counties	8.2%	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL counties.	9.2%	
% Of households with increased access to safe and adequate water for basic domestic uses. (Gender, minority groups disaggregated)	Gender	Female=0.0% Male=0.3%
	Group	Minority=0.0% Dominant=0.3%
% Of people in the target area report their trust in members of communities they are in conflict has increased.	0.3%	
% Of households with increased access to safe and adequate water for basic uses.	0.0%	
% Increase in volume of water available for livestock consumption in a catchment area.	Wet Season	80.1%
	Dry Season	46.0%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)	33.3%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses. (Baseline Average in KES)	3,800.80 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs.	40.1%	

% Of women and adolescents reporting reduction time in accessing water. (<30mins time)	Wet Season	Youth=47.9% Women=34.3%
	Dry Season	Youth=28.8% Women=16.5%
% Of women reporting GBV related to access to water and rangeland resources		7.3%
% Of marginalized groups who believe they have equal access to water services		80.0%
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)		Degree of gender inclusion: 3/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)		26.7%
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing>=3practices)		10.7%
% Of women and youth actively participating in rangeland resource planning and management activities.		Women= (9.6%) Youth= (13.7%)
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities. (Those who reported no shortage in pasture in dry seasons)		12.5%
# Of persons benefiting from concrete climate change measures		14.8% 65/439
Output level indicators		
# Of households reporting improved water access in terms of quantity and reliability (Gender, minority groups disaggregated)		3.7/5
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point. (Ownership- gender, groups disaggregated)		8.5 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=15 Adults=44 Male=22 Female=37 Total=59
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=13,964.55 KSHs M=11,216.33 KSHs
	Livestock production	F=13,964.55 KSHs M=11,216.33 KSHs
# Of County livestock production/rangelands technical staff reporting increased knowledge on gender transformative rangeland management practices. (Gender disaggregated)		-----

8.3 Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- During this inception and early implementation stage of the programme, review and align RAPID PLUS programmatic activities with clear policy, institutional and programmatic priorities of the County Government departments captured in the CIDPs, and the findings of this baseline evaluation, establishing clear connectors and gaps and capturing these clearly in improved overall, annual, and quarterly implementation plans.
- Engage in strategic advocacy and lobby campaigns aimed at placing water and rangelands development at the heart of policy development and implementation in the County. Such engagement must be multi-faceted, focused on lobbying County government executives and assembly members to prioritize investment in water and rangelands resources development through i) enhanced policy stewardship and funding, ii) support for in-depth participatory analysis and petitioning of the next generation CIDP to ensure capture of strategic water and rangelands resources development priority interventions, iii) support to enable full participation of program beneficiaries in key public policy platforms established at County level.
- Develop and share high impact IEC materials that create compelling stories and evidence in support of the two programme priority areas, such as targeted research, social audit toolkits and reports, policy and learning briefs, program information packages, and public media material, including video documentaries.
- Provide dedicated support (technical and financial) towards the completion and passage of selected key sector/departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland management gender sectors and thematic areas). Some of these were initiated through the support of RAPID I.
- Support forums and digital platforms for policies and legal frameworks wide dissemination. The survey team has struggled to access key County government documents since they were not traceable/published online, due to incomplete websites.
- Ensure all future policies, sectoral plans and laws developed have costed implementation and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation.

Water Interventions

- Promote the adoption of Ward Development Plans (WDPs) by the County government and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.
- Promote water stakeholders' coordination in the Counties by supporting/strengthening the County Water Forums.
- Deliberate and support innovative and cost-effective approaches and models towards the capacity development of WMCs, WUAs and WRUAs (including a strengthened role for women in these committees) and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Focus here to include review and appropriate replication of successful models for cost-efficient (delegated) operation and management of these structures; partnerships to develop and use effective (well-gendered) IEC in O&M TOT and refresher trainings and in strategic planning sessions for these structures.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water.
- Train male and female youths as village boreholes and solar installation attendants through apprenticeships with available private water sector players and supplying them with complete Operations and Maintenance (O & M) service tool kits as a way of reducing water points downtimes and providing viable employment.
- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to increase their capacities for resource mobilization for increased investment within the sectors.
- Support County Government to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock, Environment, Natural and Rangelands Resources

Management to promote knowledge sharing and collaborative problem-solving including investments in water and rangelands resources development.

- Support Water Resource Users Associations (WRUAs), Water User Associations (WUAs) and Water User Committees (WUCs) in their efforts to identify and grow partnerships for technical and financial resource mobilization
- Support WRUAs to identify the best modalities for charging for maintenance services.
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on known principles, best practices, and financing models
- In view of the increasing livestock and human populations, explore partnerships leading to development of more strategically located community boreholes and other watering points across the County to increase available water and reduce waiting time and distances covered to access water.
- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing of knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models in order to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allocated water and rangelands resources management budgets and allied resources in the County to promote prioritization and full and accountable utilization. This would involve supporting the WUA/Cs to develop user friendly social audit toolkits

Efficient Water, Irrigation and Solarization Technologies

- Promote participatory and demand driven approaches to water services delivery where communities decide which technologies best serve their needs-for example hybrid water pumps will be key to ensuring uninterrupted supply of water to communities, in view of growing economic and physical inaccessibility of diesel and petrol
- Ensure robust (digital) versatile (readable on the go) databases and management information systems for water services monitoring and improvement to address current dearth of data in this area-populations reached, facility yields, volumes abstracted, pump functionality, delivery costs, revenue streams
- Incorporate sensors in community boreholes to create alerts signalling imminent water systems breakages to facilitate pre-emptive and timely repairs and servicing to avert water shortages and reduce downtimes.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for use of water, as documented in Marsabit and Turkana Counties. Institutionalize catchment protection and 3R (recharge, retain, re-use) approaches as the key bases for sustainable water resource conservation and management

Rangelands Resources Management Interventions

- Advocate for prioritization and enhanced visibility of the rangelands sub-sector, by lobbying for the development of rangelands development and management policies, laws and strategic plans and the creation of County Rangelands Units or Directorates and offices, with dedicated officers, programs, and budgets.
- Facilitate community and village sessions to produce integrated Participatory Community Land Use Plans (PLUPs) to promote focused and effective community common natural resources use.
- Promote Participatory Community Action Plans (PCAPs) and dialogues on rangelands resources restoration.
- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages.

- Identify, map and support community peace committees towards an integrated approach to conflict resolution and peaceful sharing of common pastoralism resources
- Encourage and facilitate the registration of farmers groups with the relevant Social Services or Agricultural Departments and help them establish relationships of mutual support and assistance.
- Institutionalize Self-Learning Groups (SLGs) or Farmer Field Schools (FFSs) in the targeted villages to capitalize their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.
- Retrain all the Rangelands Management Committees (RMCs) with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County government Departmental Policies, plans or Acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County Departments of Livestock, Agriculture, Environment, Natural and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL) to integrate risk reduction and climate change adaptation measures into their community-level work.
- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.
- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.
- Restore/support initiatives seeking restoration of degraded pastures and increase of vegetation cover with different drought tolerant species and varieties.
- Promote fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection and other improved rangeland resources management practices through community groups (to mitigate potential community land use conflicts)
- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County Public Participation/Hearing Forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as crossbreeding and Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.

Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, SGBV laws, and to develop costed and monitorable implementation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management as opposed to the silo-based approaches currently practiced.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' freed time to pursue alternative productive livelihoods activities, including income generating activities, literacy, and education.
- Mitigate resource-based gender inequalities through Village Savings and Loans (VSLA) schemes linked to microfinance institutions within the County, in order to help change the narrative and redefine women's position in the families and their communities.
- Identify, support model women (HH Heads) champions in efforts to promote effective management of water and rangelands resources for shared benefits across all genders (in model farms, farmer field schools)
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.

- Explore jointly with County government and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions and are participating in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County government Gender Departments and relevant Gender Thematic Working Groups with foundations anchored on water and rangelands resources access and use in the communities.

Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi-Autonomous Government Agencies (SAGAs) due to ease of engagement and the sustainability benefits thereof.
- Encourage water stewardship approaches and models that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as identified already in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, repairs and maintenance and more wholesome water treatment beyond basic chlorine treatment and desalination.
- Engage the private sector to support value addition (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the County.
- Link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic empowerment.

Climate Change Mitigation

- Explore ways to re-prioritize water and rangelands resources development and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting of Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial conflicts over grazing lands.
- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce/support demonstration or model farms and farmer field schools for climate resilient and adaptive crop cultivation and animal husbandry to display best practices to local farmers in the County.
- Support agricultural management techniques adapted to intensive and prolonged droughts, including use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the full implementation of the climate fund as envisioned.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice in climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies, including, but not limited to modified versions of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.
- Liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS).

Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among men and women about gendered topics with potential to amplify conflict.
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and institutions and statutory regulations across the County.
- Promote a community centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources.
- Invest adequate time and resources in the resolution of boundary and other conflicts, particularly those that are deeply rooted and complex.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

Camels grazing on degraded rangelands in Lechach, Isiolo County



SECTION NINE: MARSABIT COUNTY LEVEL SPECIFIC REPORT

9.1 Summary Narrative

Background

- Marsabit County falls within Kenya's arid and semi-arid areas, and as such can be classified as a dryland County. Occupying a total area of 70,961.2 sq. km it is in the extreme end of northern Kenya and lies between latitude 02° 45' North and 04° 27' North and longitude 37° 57' East and 39° 21' East.²⁹⁵ It shares an international boundary with Ethiopia to the north, borders Lake Turkana to the west, Samburu County to the south and Wajir and Isiolo Counties to the east.²⁹⁶ Marsabit County lacks a land use policy and spatial plan, hence the proliferation of informal settlements, inadequate infrastructure services, congestion, environmental degradation, unplanned urban centers, pressure on agriculture and grazing land, and intertribal conflicts.²⁹⁷ Out of its total land mass, only 2,082 sq. km or 3% in the mountain area of Marsabit sub-County has potential for farming.²⁹⁸
- The people and livestock in Marsabit County rely on surface or ground water since there are no permanent rivers.²⁹⁹ There are three water catchments in the County (the upper horizon of Mt Marsabit and Mt Kulal; springs like Badassa, Songa and Balesa Bongole; and underground water (boreholes and shallow wells).³⁰⁰ Thus, water accessibility is a challenge, with 50.0% of the rural population and 60% of the urban population accessing water from boreholes, shallow wells, pans and the lake.³⁰¹ The daily demand for water in this County, is estimated at 6,750,000 liters, against a daily production of 4,050,000 liters.³⁰²
- Many of the water supply facilities and schemes in Marsabit County are not financially self-sustaining and from time to time depend on financial and technical support from the government, humanitarian organizations and other external partners.³⁰³ As a result, they operate at less than 50.0% capacity. Their lack of sustainability is attributed to, among other factors, expensive and inefficient technologies, lack of technical skills and inadequate operational efficiencies, poor governance and management practices and lack of accountability.³⁰⁴ In Marsabit County, most transmission and distribution lines are not fully functional while water schemes have outlived their design period and cannot meet the current population demands.³⁰⁵ Similarly, most water points have fallen into disuse or neglect and require rehabilitation, reconstruction and catchment protection to serve the growing population; there are high levels of water contamination; and many of the water facilities, especially in rural areas are managed by user committees that lack adequate management capacities and therefore are ineffective and unable to run the water supplies efficiently.³⁰⁶
- As indicated above, Marsabit County is one of the Kenya's Arid and Semi-Arid Lands (ASALs) characterized by water shortages, poorly coordinated and implemented water resource management systems and limited skills among Water User Committees (WUCs), among other challenges.^{307&308} Similarly, rangelands in the County are poorly developed and they face numerous challenges, including inadequate and fluctuating availability of fodder and water,

²⁹⁵ County government of Marsabit. 2022. About Marsabit. < <http://www.marsabit.go.ke/>>

²⁹⁶ Infotrak. 2022. Marsabit County. <<http://Countytrak.infotrakresearch.com/mandera-County/>>

²⁹⁷ County government of Marsabit. 2018. Second County integrated development plan 2018-2022. < <https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

²⁹⁸ County government of Marsabit. 2018. Second County integrated development plan 2018-2022. < <https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

²⁹⁹ County government of Marsabit. 2018. Climate Change Mainstreaming Guidelines, Water, and Sanitation Sector. < http://www.greenafricafoundation.org/publications/Marsabit%20Water%20_%20Sanitation%20CC%20Mainstreaming%20Guide%20_1_.pdf >

³⁰⁰ Marsabit County government. 2016. Environmental impact assessment for Bakuli 4 dam project and introduction of sewerage system in Marsabit town. < https://www.nema.go.ke/images/Docs/EIA_1340-1349/EIA%201328_%20Bakuli%204%20Dam%20Project%20Report-mini.pdf>

³⁰¹ Ibid

³⁰² Ibid

³⁰³ Ministry of Agriculture, Livestock and Fisheries (MoALF). 2017. Climate Risk Profile for Marsabit County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

³⁰⁴ County government of Marsabit. 2018. Second County integrated development plan 2018-2022. <<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

³⁰⁵ County government of Isiolo. 2018. Isiolo County integrated development plan, CIDP 2018-2022. < <https://repository.kippra.or.ke/bitstream/handle/123456789/1409/2018-2022%20Isiolo%20County%20CIDP.pdf?sequence=1&isAllowed=y>>

³⁰⁶ County government of Marsabit. 2018. Second County integrated development plan 2018-2022. <<https://cog.go.ke/media-multimedia/reportss/category/106-County-integrated-development-plans-2018-2022?download=313:marsabit-County-integrated-development-plan-2018-2022>>

³⁰⁷ OXFAM. 2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. < <https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

³⁰⁸ Republic of Kenya. 2013. Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-edo-2013-17>>

encroachment of crop production into pastoral land, alienation of pastoral communities, inadequate markets and marketing infrastructure, and inadequate extension services.³⁰⁹

- Given the need to explore new approaches to unlocking the potential of water sources, and resource use, and to manage them strategically and sustainably, while at the same time promoting their recharge, and the regeneration of the rangelands, Millennium Water Alliance (MWA), in collaboration with Food for the Hungry, are implementing the 'Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+)' program in this County.
- The Kenya RAPID+ program is convened and led by the MWA, with primary funding from the Swiss Agency for Development and Cooperation (SDC), alongside matching investment grants from private sector actors, implementing partners and participating County governments. The overall goal of the Program is to ensure improved access to safe and sustainably managed water and rangelands that contribute to resilient peaceful livelihoods and environments for communities with two outcomes, namely: pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth, and; pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion and gender equity. A baseline survey was required before kick-off of program activities and interventions, to establish benchmarks for relevant indicators, confirm the assumptions made in the program's theory of change, and to inform programming approaches.³¹⁰

Objectives of the Baseline Evaluation

- The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in Wajir County's in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents; and to generate recommendations for improvement of the program design and the planned interventions.

Baseline Evaluation Methodology

- The baseline evaluation was conducted in the month of April 2022, through a mixed methods study approach³¹¹ entailing:
 - A desk review of program documents, Marsabit County government documents and other secondary materials.
 - A quantitative household survey reaching 334 respondents in Marsabit County.
 - Eight (8) Key Informant Interviews (KIIs)-(see Annex 2); and
 - Seven (7) Focus Group Discussions (FGDs)-(see Annex 2).

To analyze the data generated, the team:

- Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
- Exported all quantitative data from Huawei Media Pad Tablets and Android based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
- A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by 4 to obtain effectiveness score of policy / legal framework.³¹²

³⁰⁹ibid [10]

³¹⁰Terms of Reference.

³¹¹Schoonenboom, J., & Johnson, R. B. 2017. How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>

³¹²https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdcontext/Docs/SDC_indicators_AFS_TRI_2.pdf

Baseline Evaluation Findings

- In Marsabit County, 334 respondents participated in the baseline evaluation with the largest proportions being those aged 26 to 35 years (32.9%) and 36 to 45 years (31.1%) while 10.5% were aged above 55 years, 12.3% were aged 18 to 25 years and 13.2% were aged 46 to 55 years.
- In addition, 80.0% of the respondents were females while 20.0% were males while on marital status, 85.6% were married, 6.3% were widowed, 5.4% were single, 1.5% were separated from their spouses and 1.2% were divorced.
- Illiteracy characterized by 78.1% of community members who have never been to school was recorded in Marsabit County with only 7.2% having completed primary school level education, 2.7% having completed secondary school level education, 1.8% having trained in colleges, 0.6% having trained in universities and 0.9% having TVET skills.
- Households in Marsabit County an average of 6 members sharing a pot of food of whom 3 were adults while another 3 were minors aged below 18 years.
- Most of the households (99.7%) resided in the rural areas with only 0.3% residing in the urban areas and none in the peri urban areas. Most of the households had resided in their villages for over ten years (74.35) with 18.0% and 7.8% having lived in these villages for 5 to years and less than 5 years, respectively.
- Pastoralism was the main livelihood form in his County with 95.8% of the households practicing the same followed by agropastoralism (3.6%). Across the households, 16.2% lacked income while 64.7% relied on sale of livestock and 17.4% indicated sale of livestock products was their main source of income. In addition, casual labour and petty trade were also reported as sources of income in the households by 8.4% and 7.8% of the respondents.
- Despite large herd sizes in the households, 96.4% of the households had a monthly income of 0 to 50,000 Kenya Shillings while, 59.0% and 39.2% had annual income levels of o too 50,000 Kenya Shillings and 50,001 to 100,000 Kenya Shillings, respectively.
- Marsabit County had legislated the water and sewerage Bill in 2018 hence the availability of the Marsabit County water and sewage Act of 2018. This Act was meant to operationalize the County's water and sewage company, but this had only been partially achieved through recruitment of a Chief Executive Officer. The County also had a water policy (2019) and a water Act (2019), but the policies lacked costed implementation frameworks and M and E plans, were not fully financed and no gender mainstreaming components.
- Access to improved water sources for drinking and domestic uses across both seasons (all year round) was reported by 59.6% of the respondents. In the rainy seasons, only 49.1% of the households accessed safe water for drinking and human consumption from improved sources, while the same was accessed by 75.1% of the households in the dry seasons.
- Three main sources of water for drinking and domestic use in the rainy seasons were reported in the households namely dams (30.8%), boreholes and tube wells (17.7%) and public taps (14.4%). Water for this purpose was obtained from the following three main sources in the dry seasons: boreholes or tube wells (55.4%), public taps (15.0%) and unprotected wells (12.9%).
- In the rainy seasons, households had three main sources of water for livestock: surface water (28.4%), boreholes and tube wells (23.1%) and dams (19.5%). In the dry seasons, water sources for livestock were two: boreholes or tube wells (61.7%) and unprotected dug wells (18.3%). From FGDs and KIs, ground water excavation was a challenge in Marsabit County due to volcanic activities and very low water tables.
- Main sources of water for drinking and domestic use were functional for 76.3% and 58.1% of the households in the rainy and dry seasons respectively and no household reported abandonment of water sources across both seasons.
- Mian sources of water for livestock use were functional for 76.5% and 59.9% of the households with none indication abandonments of their main water source for this purpose in all year round.
- Time taken to repair water points was reported as 1 to 3 days by 28.4% of the households, 7 to 14 days by 20.1% of the households, more than two weeks by 21.0% of the households and

4 to 6 days for 9.3% of the households, while 16.5% of the respondents indicated that their water sources had never broken down.

- A distance of less than a kilometre to access the main sources of safe water for drinking and domestic use were reported by 28.1% of the households in the rainy seasons and 19.5% of the households in the dry seasons.
- A distance of less than a kilometre to access water sources for livestock consumption was reported by 14.4% and 7.5% of the households in the rainy and dry seasons, respectively.
- In the rainy and dry seasons, 22.8% and 17.7% of the households accessed their main sources of safe water for drinking and human consumption in less than 30 minutes. Similarly, the same time was used by 6.0% and 3.9% of the households to access main water sources for livestock consumption in the rainy and dry seasons, respectively.
- In the rainy seasons, it took 7.8% of the households less than 30 minutes to bring livestock to their main water sources of water but in the dry seasons, only 3.3% of the households took this time for the same activity.
- In the rainy seasons, each household member accessed 22.08 liters of water for drinking and domestic use while 14.55 liters of water were accessed by each household member for the same purpose in the dry seasons. This was against a WHO recommendation of 50-80 liters which signifies compromised hygiene and sanitation practices by household members. Indeed, in this County, waterborne and sanitation related diseases were reported to be high by both KIs respondents and FGD participants.
- Reliable and adequate water access for human use was rated 4.26/5 and 3.26/5 by respondents in the rainy and dry seasons. Reliable access to adequate water for livestock use, in the rainy and dry seasons were on the other hand rated 4.05/5 and 2.58/5 by the survey respondents.
- Inaccessibility of water for human and domestic purposes was reported by 86.5% and 15.6% of the households in rainy and dry seasons, respectively. The main reasons for inaccessibility in the rainy seasons were long queues (50.0%), insecurity (46.2%) and reduced water levels (21.2%); while in the dry seasons they were long queues (87.2%), contamination of water (56.1%) and long distances (46.4%).
- Inaccessibility of water for livestock uses was on the other hand reported by 88.9% of the households in the rainy seasons and 17.7% of the households in the dry seasons. Reasons given for this inaccessibility in the dry seasons were long queues (55.9%), insecurity (49.2%), restrictions 923.750 and reduced water levels (23.7%).
- Additionally, 88.0% and 39.5% of the survey respondents reported equitable water access by communities and clans while only 39.5% of the households indicated being welcomed by neighbouring communities to access water in times of need. They further indicated a feeling of not being welcomed to share water in times of needs due to hostility by neighbouring communities (39.8%) and traditional boundaries (35.6%) which required to be respected.
- Treatment of water before drinking was reported by only 40.4% of the households despite the unsafety of water reported by the water sector stakeholders in this County. The main treatment methods were two, boiling (16.3%) and chemicals (84.4%).
- From the field interviews, 72.8% of the households indicated that their water points were managed by WUCs/WUAs but only 2.5% of them were actively engaged in these committees. A further 16.7% and 83.3% reported to have women and youth in the positions of leadership in their committees.
- Two WUCs were visited in the County (Kamboe WUC and El Hadi WUC) and no female leaders were in the El Hadi committee, while Kamboe WUC had 18.2% of the committee leaders as females. Kamboe had 36.4% of the leaders as youths while El Hadi WUC had a 50.0% representation of youths in the committee leadership. Both WUCs kept records but did not raise money for repair works, maintenance, and expansion of water infrastructures. They used solar and diesel energy to pump water which was used for human and livestock purposes only.
- The strengths in the two committees were acceptability by community members and supportive clan leaders while limitations were inadequate finances, poor governance and

resource mobilization skills, inability to expand water infrastructure despite a growing population of human beings and livestock.

- On herd composition in this County, 74.6% of the households had cows, 87.7% had goats, 74.6% had sheep and 46.1% had camels. On average, each household had 11 camels, 28 sheep, 62 goats and 31 cows. On herd structure, female livestock were predominant for milk production while the sources of these livestock were breeding, purchase and social donations.
- Land ownership was reported by 24.6% of the households with only 65.9% of them having title deeds, allotment letters, leasehold documents, and purchase agreements, all of which point out to huge chunks of communal lands.
- The land was largely used for livestock production (86.6%); therefore, no household practiced irrigated crop production in this County. Related to this, was pasture inaccessibility in the rainy seasons across the County as reported by 19.2% of the households largely due to insecurity/conflict (64.1%), long distances (935.9%) and unavailability (32.8%).
- Only 45.5% of the households indicated being able to make decisions on use of communal land while 53.3% of the households had participated in decision making forums touching on communal land. Thus, 53.3% and 53.3% of the households spent one quarter and two quarters of the dry seasons on these communal lands.
- Conflicts over water and pastures were reported by 68.3% and 64.7% of the households, respectively. These conflicts were largely inter-ethnic (72.7%) and inter communal (48.1%). KIIIs and FGDs pointed out to political incitements, clan rivalry and raids and counter raids as parts of communities' rites of passage contributed to these conflicts
- Following perennial conflicts in the Counties, trust for rival communities, welcoming of neighbouring communities to share water and welcoming of rival communities to share pastures were rated 1/5, 1/5 and 1.05/5 by the survey respondents.
- Water access relate SGBV affecting family members was reported by only 3 out of the 334 respondents (0.9%) in this County. Actions were taken against all the 3 cases, and this was arbitration by elders (3) with only one of the 3 cases proceeding to a court for legal remedy.
- This County had no rangelands resources management policy and no gender policy, but a livestock Bill was before the County Assembly and a Rangelands resources management Bill, and a market and trade Bill were both being drafted at the time the survey was conducted.
- Limited rangelands management activities were noted in this County with only three organizations being involved (Concern Worldwide, PACIDA and NDMA) while cooperatives and associations were not encountered or named by both qualitative and quantitative interviews respondents.
- The top three rangeland resources improvement practices known in this County were water harvesting (25.1%), destocking (49.7%) and grazing management (48.2%).
- Rangeland resources improvement practices in the households were destocking (68.3%), uptake of alternative livelihoods opportunities (17.7%) and fodder production (12.3%).
- Knowledge of communal plans for sharing water and pastures were reported by 16.5% and 15.5% of the respondents, respectively.
- Rangelands Management Committees (RMCs) presence in the villages were reported by 49.4% of the households but only 6.1% of those aware of these institutions, indicated membership in the same.
- Two RMCs were visited in the County (Hewa Safi and D'etha RMCs) with 15 and 30 leaders respectively including women and youths. These RMCs had constitutions and bylaws, but they were not anchored on any County government laws and policies or guidelines hence low or no adherence to the same. Whereas these RMCs had wide acceptability in the communities, politicization and conflicts resulting in displacements as well as low governance skills and weak financial muscles limited their functionality.
- In this County, decision on livestock sale, purchasing of livestock feeds, timing on feeding of livestock, vaccination and treatment of livestock and livestock numbers to be left behind during migration were made by men (an average of over 90.0% for all these aspects).

- Women and men had equal decision-making rights on sale of livestock products such as skins and hides, milk, and meat (an average of 50.0%).
- At the household level, climate change mitigation and adaptation measures included use of solar power (75.4%), destocking (20.1%) and protection of water catchment areas (17.7%).

9.2 Summary of the Program Indicators

Indicator	Marsabit County	
Household water security (with a focus on water supply and not water risk management) in the targeted ASAL Counties	1.2%	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties	0.6%	
% Of households with increased access to safe and adequate water for basic domestic uses (disaggregated by gender minority groups)	Gender	Female=0.0% Male=1.2%
	Group	Minority=0.0% Dominant=0.3%
Households accessing 350 liters of water per day	Rainy seasons=0.6% Dry seasons=0.9%	
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)	Rainy seasons=0.0% Dry seasons=0.0%	
% Of people in the target area report their trust in members of communities they are in in conflict has increased	2.2%	
% Increase in volume of water available for livestock consumption in a catchment area	Wet seasons	68.3%
	Dry seasons	47.9%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)	0.0%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses (Baseline Average in KSHs)	35,000.00 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs	39.5%	
% Of women and adolescents reporting reduction time in accessing water (<30mins time)	Wet seasons	Youth=7.3% Women=12.8%
	Dry seasons	Youth=2.4% Women=1.2%
% Of women reporting GBV related to access to water and rangeland resources	0.9%	
% Of marginalized groups who believe they have equal access to water services	84.2%	
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)	Degree of gender inclusion: 0/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)	18.9%	
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing>=3practices)	0.6%	
% Of women and youth actively participating in rangeland resource planning and management activities	Women= (0.8%) Youth= (4.9%)	
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities (those who reported no shortage in pasture in dry seasons)	7.8%	
# Of persons benefiting from concrete climate change measures	9.6% 32/334	

Output level indicators		
# Of households reporting improved water access in terms of quantity and reliability (disaggregated by gender, minority groups) [Scores of 5/5 on reliability and quantity]		Total=4.5% F=4.4% M=4.7% M=31.6% D=2.9%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		8.5 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=0 Adults=6 Male=3 Female=3 Total=6
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=0.00 KSHs M=4,080.00 KSHs
	Livestock production	F=5,133.33 KSHs M=8,333.33 KSHs
# Of County livestock production/rangelands technical staff reporting increased knowledge on gender transformative rangeland management practices. (Gender disaggregated)		-

9.3 Section Three: Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- During this inception and early implementation stage of the program, review and align RAPID PLUS programmatic activities with clear policy, institutional and programmatic priorities of the County Government departments captured in the CIDPs, and the findings of this baseline evaluation, establishing clear connectors and gaps and capturing these clearly in improved overall, annual, and quarterly implementation plans.
- Engage in strategic advocacy and lobby campaigns aimed at placing water and rangelands development at the heart of policy development and implementation in the County. Such engagement must be multi-faceted, focused on lobbying County government executives and assembly members to prioritize investment in water and rangelands resources development through i) enhanced policy stewardship and funding, ii) support for in-depth participatory analysis and petitioning of the next generation CIDP to ensure capture of strategic water and rangelands resources development priority interventions, iii) support to enable full participation of program beneficiaries in key public policy platforms established at County level.
- Develop and share high impact IEC materials that create compelling stories and evidence in support of the two program priority areas, such as targeted research, social audit toolkits and reports, policy and learning briefs, program information packages, and public media material, including video documentaries.
- Provide dedicated support (technical and financial) towards the completion and passage of selected key sector/departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland management gender sectors and thematic areas). Some of these were initiated through the support of KRAPID.
- Support forums and digital platforms for policies and legal frameworks wide dissemination. The survey team has struggled to access key County government documents since they were not traceable/published online, due to incomplete websites.

- Ensure all future policies, sectoral plans and laws developed have costed implementation and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation.

Water Interventions

- Promote the adoption of Ward Development Plans (WDPs) by the County government and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.
- Promote water stakeholders' coordination in the Counties by supporting/strengthening the County Water Forums.
- Deliberate and support innovative and cost-effective approaches and models towards the capacity development of WMCs, WUAs and WRUAs (including a strengthened role for women in these committees) and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Focus here to include review and appropriate replication of successful models for cost-efficient (delegated) operation and management of these structures; partnerships to develop and use effective (well-gendered) IEC in O&M TOT and refresher trainings and in strategic planning sessions for these structures.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water.
- Train male and female youths as village boreholes and solar installation attendants through apprenticeships with available private water sector players and supplying them with complete Operations and Maintenance (O & M) service tool kits as a way of reducing water points downtimes and providing viable employment.
- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to increase their capacities for resource mobilization for increased investment within the sectors.
- Support County Government to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to promote knowledge sharing and collaborative problem-solving including investments in water and rangelands resources development.
- Support Water Resource Users Associations (WRUAs), Water User Associations (WUAs) and Water User Committees (WUCs) in their efforts to identify and grow partnerships for technical and financial resource mobilization
- Support WRUAs to identify the best modalities for charging for maintenance services.
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on known principles, best practices, and financing models
- In view of the increasing livestock and human populations, explore partnerships leading to development of more strategically located community boreholes and other watering points across the County to increase available water and reduce waiting time and distances covered to access water.
- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing of knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models in order to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allocated water and rangelands resources management budgets and allied resources in the County to promote prioritization and full and accountable utilization. This would involve supporting the WUA/Cs to develop user friendly social audit toolkits

Efficient Water, Irrigation and Solarization Technologies

- Promote participatory and demand driven approaches to water services delivery where communities decide which technologies best serve their needs-for example hybrid water pumps will be key to ensuring uninterrupted supply of water to communities, in view of growing economic and physical inaccessibility of diesel and petrol
- Ensure robust (digital) versatile (readable on the go) databases and management information systems for water services monitoring and improvement to address current dearth of data in this area-populations reached, facility yields, volumes abstracted, pump functionality, delivery costs, revenue streams
- Incorporate sensors in community boreholes to create alerts signalling imminent water systems breakages to facilitate pre-emptive and timely repairs and servicing to avert water shortages and reduce downtimes.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for use of water, as documented in Marsabit and Turkana Counties. Institutionalize catchment protection and 3R (recharge, retain, re-use) approaches as the key bases for sustainable water resource conservation and management.
- Advocate for active engagement of County Public Health and Water Officers in regular surveillance and provision of water treatment agents to reduce the incidences of waterborne diseases, particularly in Marsabit County, in view of low water safety standards reported by community members.

Rangelands Resources Management Interventions

- Advocate for prioritization and enhanced visibility of the rangelands sub-sector, by lobbying for the development of rangelands development and management policies, laws and strategic plans and the creation of County Rangelands Units or Directorates and offices, with dedicated officers, programs, and budgets.
- Facilitate community and village sessions to come up with integrated Participatory Community Land Use Plans (PLUPs) to promote focused and effective community common natural resources use.
- Promote Participatory Community Action Plans (PCAPs) and dialogues on rangelands resources restoration.
- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages.
- Identify, map and support community peace committees towards an integrated approach to conflict resolution and peaceful sharing of common pastoralism resources
- Encourage and facilitate the registration of farmers groups with the relevant Social Services or Agricultural Departments and help them establish relationships of mutual support and assistance.
- Institutionalize Self-Learning Groups (SLGs) or Farmer Field Schools (FFSs) in the targeted villages to capitalize their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.
- Retrain all the Rangelands Management Committees (RMCs) with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County government Departmental Policies, plans or Acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County Departments of Livestock, Agriculture, Environment, Natural and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL) to integrate risk reduction and climate change adaptation measures into their community-level work.

- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.
- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.
- Restore/support initiatives seeking restoration of degraded pastures and increase of vegetation cover with different drought tolerant species and varieties.
- Promote fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection and other improved rangeland resources management practices through community groups (to mitigate potential community land use conflicts)
- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County Public Participation/Hearing Forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as crossbreeding and Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.

Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, SGBV laws, and to develop costed and monitorable implementation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management as opposed to the silo-based approaches currently practiced.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' freed time to pursue alternative productive livelihoods activities, including income generating activities, literacy, and education.
- Mitigate resource-based gender inequalities through Village Savings and Loans (VSLA) schemes linked to microfinance institutions within the County, in order to help change the narrative and redefine women's position in the families and their communities.
- Identify, support model women (HH Heads) champions in efforts to promote effective management of water and rangelands resources for shared benefits across all genders (in model farms, farmer field schools)
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.
- Explore jointly with County government and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions and are participating in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County government Gender Departments and relevant Gender Thematic Working Groups with foundations anchored on water and rangelands resources access and use in the communities.

Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi- Autonomous Government Agencies (SAGAs) due to ease of engagement and the sustainability benefits thereof.
- Encourage water stewardship approaches and models that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as identified already in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, repairs and maintenance and more wholesome water treatment beyond basic chlorine treatment and desalination.
- Engage the private sector to support value addition (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the County.
- Link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic

empowerment.

Climate Change Mitigation

- Explore ways to re-prioritize water and rangelands resources development and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting of Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial conflicts over grazing lands.
- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce/support demonstration or model farms and farmer field schools for climate resilient and adaptive crop cultivation and animal husbandry to showcase best practices to local farmers in the County.
- Support agricultural management techniques adapted to intensive and prolonged droughts, including use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the full implementation of the climate fund as envisioned.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice in climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies, including, but not limited to modified versions of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.
- Liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS).

Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among men and women about gendered topics with potential to amplify conflict.
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and institutions and statutory regulations across the County.
- Promote a community centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources.
- Invest adequate time and resources in the resolution of boundary and other conflicts, particularly those that are deeply rooted and complex.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

A dam in Garissa County, serving a main source of water for livestock



SECTION TEN: TURKANA COUNTY LEVEL SPECIFIC REPORT

10.1 Summary Narration

Background

- Turkana County is the second largest of the 47 Counties of the Republic of Kenya. It lies between Longitudes 34° 30'E and 36° 40'E and between Latitudes 10° 30'N and 50° 30'N and covers an area of 71,597.6 km², accounting for 13.5% of the total land mass of Kenya.³¹³ Turkana is located in the Northwest of Kenya and borders Uganda to the west, South Sudan and Ethiopia to the north and Northeast, respectively. Internally, it borders West Pokot and Baringo Counties to the south, Samburu County to the southeast, and Marsabit County to the east.³¹⁴ The majority of households in Turkana earn their income from livestock keeping (67% of the households) with only 3% of the households practicing crop farming.³¹⁵
- Turkana County is subject to the impacts of climate change brought about by land degradation, livestock keeping, deforestation, and burning of fossil fuels, among others.³¹⁶ Environmental degradation stems from a loss of soil and biodiversity, and a lack of water capture and storage, as the result of unsustainable land management practices such as: overgrazing, leaving the vegetation without enough time to regenerate; poor farming practices; infestation by invasive species; deforestation; unsustainable irrigation resulting in soil salinization; and abandonment or lack of reclamation associated with mining.³¹⁷ Land degradation in Turkana County currently affects 50.0% of the County's land area and threatens food production and grazing land, water, energy security, climate change mitigation and adaptation, and livelihood resilience.³¹⁸ Furthermore, land degradation has huge economic costs as soil erosion, the main form of land degradation, reduces soil fertility and productivity, livestock carrying capacity, water quality and quantity, and fuel wood availability.³¹⁹
- In Turkana County, 39% of residents use improved sources of water, the rest (61%) relying on unimproved sources such as unprotected wells and streams.³²⁰ The main water sources in the County comprise protected springs, protected wells, boreholes, piped water into dwellings, collected piped and rainwater; while unimproved sources include ponds, dams, the lake, and streams/streams, unprotected springs, unprotected wells, Jabia, water vendors among others.³²¹ The distance to and from the nearest water point ranges between five and ten kilometers.³²² Currently, the County has only one Water Company - Lodwar Water and Sanitation Company (LOWASCO), which only supplies water within Lodwar town and its environs, typically up to 50 km². The other urban centers in the County are managed by water companies while most rural communities obtain their water from boreholes and shallow wells which are managed by Water Users Associations.³²³
- The County government has recently drilled about 200 boreholes and either upgraded or rehabilitated existing water schemes, but the management of water resources at all levels requires improvement and use of new and appropriate technologies.³²⁴ Specifically, uncontrolled sand harvesting has led to severe environmental degradation, leading to changes in the regime of some of the rivers, and loss of retention capacities of some of the seasonal rivers.³²⁵ Except for Lake Turkana, naturally occurring surface water bodies are negligible due to the high evaporation rates.

³¹³UN HABITAT and the County government of Turkana. 2019. Cities and Migration Exchange, Local Initiatives and Global Agendas. <https://www.citiesalliance.org/sites/default/files/2019-12/4.%20UN-Habitat%20Presentation_Bern_2019.pdf>

³¹⁴Regional pastoral livelihoods resilience project (Kenya). 2021. Turkana. <<https://resilience.go.ke/turkana/>>

³¹⁵Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Climate Risk Profile for Turkana County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC), Nairobi, Kenya.

³¹⁶Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Analysis of opportunities for integration of climate change issues into national, County, and local sectoral development planning processes. <<https://drslpkenya.kilimo.go.ke/wp-content/uploads/2021/11/Final-Report-Integrating-CC-26092021.pdf>>

³¹⁷Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC). 2021. Climate Risk Profile for Turkana County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MoALFC), Nairobi, Kenya.

³¹⁸Akall, G.2021.Effects of development interventions on pastoral livelihoods in Turkana County, Kenya. Pastoralism 11, 23 (2021). <https://doi.org/10.1186/s13570-021-00197-2>

³¹⁹County government of Turkana.2018. County Integrated Development Plan, CIDP II 2018-2022. <https://repository.kippira.or.ke/bitstream/handle/123456789/2832/Turkana_CIDP_2018-2022.pdf?sequence=1&isAllowed=y>

³²⁰County government of Turkana.2018. The Turkana County Water and Sewerage Services Sector Policy, 2018. <https://repository.kippira.or.ke/bitstream/handle/123456789/2079/Turkana-County-Water-and-Sewerage-Services-Sector-Policy-2016-Final_23022018.pdf?sequence=1&isAllowed=y>

³²¹UNESCO.2018. Water Security for Turkana, Kenya (WATSECT). <<https://en.unesco.org/fieldoffice/nairobi/watsect>>

³²²County government of Turkana.2022. Department of Water Services. <<https://www.turkana.go.ke/index.php/ministry-of-water-irrigation-agriculture/departement-water-services/>>

³²³Ibid [41]

³²⁴County government of Turkana.2018. County Integrated Development Plan, CIDP II 2018-2022. <https://repository.kippira.or.ke/bitstream/handle/123456789/2832/Turkana_CIDP_2018-2022.pdf?sequence=1&isAllowed=y>

³²⁵Republic of Kenya and the County government of Turkana.2019. Climate Change Adaptation Action Plan (CCAAP), Technical Working Paper, 2019 – 2022. <<https://www.turkana.go.ke/wp-content/uploads/2022/02/Turkana-County-CCAAP-2019-2024-1.pdf>>

- Water in the lake region has high fluoride content and is thus not suitable for consumption by humans and animals due to its negative effect. However, it is used both domestically and for livestock during dry season.³²⁶ The County also has several rivers with the major ones being Turkwel and Kerio, while the rest are seasonal.³²⁷ Currently, there are 1,267 boreholes, 531 shallow wells, 129 water pans, 35 unprotected springs, 10 protected springs and 6,819 roof catchments.³²⁸
- As indicated above, Turkana County is one of the Kenya's Arid and Semi-Arid Lands (ASALs) characterized by water shortages, poorly coordinated and implemented water resource management systems and limited skills among Water User Committees (WUCs), among other challenges.^{329&330} Similarly, rangelands in the County are poorly developed and they face numerous challenges, including inadequate and fluctuating availability of fodder and water, encroachment of crop production into pastoral land, alienation of pastoral communities, inadequate markets and marketing infrastructure, and inadequate extension services.³³¹
- Given the need to explore new approaches to unlocking the potential of water sources, and resource use, and to manage them strategically and sustainably, while at the same time promoting their recharge, and the regeneration of the rangelands, Millennium Water Alliance (MWA), in collaboration with Catholic Relief Services (CRS)- Kenya country program, are implementing the 'Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) program in this County.
- The Kenya RAPID+ program is convened and led by the MWA, with primary funding from the Swiss Agency for Development and Cooperation (SDC), alongside matching investment grants from private sector actors, implementing partners and participating County governments. The overall goal of the Program is to ensure improved access to safe and sustainably managed water and rangelands that contribute to resilient peaceful livelihoods and environments for communities in the five targeted Counties. The program targets 200,000 beneficiaries with two outcomes, namely: pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth, and pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity. A baseline survey was required before kick-off of program activities and interventions, to establish benchmarks for relevant indicators, confirm the assumptions made in the program's theory of change, and to inform programming approaches.³³²

Objectives of the Baseline Evaluation

- The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in Wajir County's in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents; and to generate recommendations for improvement of the program design and the planned interventions.

Baseline Evaluation Methodology

- The baseline evaluation was conducted in in the month of April 2022, through a mixed methods study approach³³³ entailing:
 - A desk review of program documents, Turkana County government documents and other secondary materials.
 - A quantitative household survey reaching 401 respondents in the County.
 - Ten (10) Key Informant Interviews (KIIs)-(see Annex 2); and
 - Eight (8) Focused Group Discussions (FGDs)-(see Annex 2).

³²⁶UNICEF.20212. For villages in Turkana, Kenya, a new initiative that brings clean water to the community is life changing. < <https://reliefweb.int/report/kenya/villages-turkana-kenya-new-initiative-brings-clean-water-community-life-changing>>

³²⁷Ibid

³²⁹OXFAM.2018. Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. < <https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

³³⁰Republic of Kenya. 2013.Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-edde-2013-17>>

³³¹Ibid [10]

³³²Terms of Reference.

³³³Schoonenboom, J., & Johnson, R. B. 2017. How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>

- To analyze the data generated, the team:
 - Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
 - Exported all quantitative data from Huawei Media Pad Tablets and Android based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
 - A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by 4 to obtain the effectiveness score of policy / legal framework.³³⁴

Baseline Evaluation Findings

- From the four hundred and one respondents in Turkana County 20.0% were males and 80.0% were females and they were of the age groups 18 to 25 years (5.0%), 26 to 35 years (37.4%), 36 to 45 years (32.4%), 46 to 55 years (32.4%) and above 55 years (9.7%). In this County, the average household size was 6 members (3 adults and 3 children).
- Illiteracy levels are high among the targeted beneficiaries as depicted by 74.3% of the respondents who have never been to school. This translates to poor governance in WUCs/WUCs and RMCs as well as a general low community level conceptualization of water and rangelands resources management activities.
- Community members migrations and settlements were noted and captured through reports of 5.2% of the household members who had only lived in the program sites for less than 5 years and 17.2% of those who had lived in these visited villages for 5 to 10 years with 77.6% of the targeted beneficiaries having resided in the villages for more than 10 years. This has implications on programming and more so follow up of beneficiaries given that this program's cycle is five years.
- At the household level, pastoralism accounted for the major livelihood activity (47.9%) followed by agropastoralism (28.4%) and agricultural production (4.7%). Notables in the visited households was the changing livelihoods orientation with an uptake of apiculture, petty trading (charcoal, firewood, and household commodities), poultry, Aloe Vera juice extraction and processing for sale and crop farming with a focus on vegetables.
- Most households (92.5%) had a monthly income of 0 to 50,000 Kenya Shillings and so did another 86.0% of the households that reported an annual income of between 0 and 50,000 Kenya Shillings. However, 22.9% of the households had no source of income with 45.9% relying on sale of livestock, 40.1% sold firewood for income, 33.7% received NGO funding and government funding to cushion pastoralists from droughts, 24.7% dependent on sale of livestock products, Sale of fodder and range products (24.7%), 23.7% relied on casual labour, petty trading of charcoal (22.2%), remittance from family members and relatives (14.7%). The sale of firewood and charcoal hereby reported has negative ramifications on climate change and rangelands resources as well as water towers and catchment areas such as forests. Indeed, most of the Aloe Vera juice was extracted from forests where the mother tree thrived well.
- Turkana County had a water and sewerage services sector policy (2018), but it required to be updated having served the stipulated five years. However, this policy had no costed implementation framework, had no costed M and E plan, and had no gender mainstreaming components. In addition, the County had a water strategic plan (2022-2027 revision being finalized), a water Act (2019) and sub catchment water plans.
- Across both seasons access to improved water sources for drinking and domestic use was 37.9%. Access to improved water sources for human consumption and domestic use in this

³³⁴https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdccontext/Documents/SDC_indicators_AFS_TRI_2.pdf

County was reported by 64.8% of the households in the rainy seasons and 65.1% of the households in the dry seasons.

- The main sources of water for this purpose in the rainy seasons were boreholes or tube wells (30.9%) and public taps (28.7%) while in the dry seasons they were still borehole or tube wells (31.2%) and public taps (27.2%).
- The main sources of water for livestock consumption in the rainy seasons were rivers (41.4%) and boreholes or tube wells, while in the dry seasons they were boreholes or tube wells (20.2%) and dams (16.6%).
- Drinking and domestic water sources were functional in the rainy seasons for 92.3% of the households while 0.7% (3 respondents) reporting abandoning of the same over these wet seasons. In the dry seasons, sources of water for human consumption and domestic use were reported as functional by 75.15% of the households while 10.0% of the households reporting abandoning these sources in the dry seasons.
- In the rainy seasons abandonment of water human drinking and domestic use water sources was due to salinity (2 respondents), insecurity (1 respondent) and low volume (1 respondent). In the dry seasons reasons for abandoning water sources were salinity (100.0%), insecurity (27.5%) and drying up of the sources (2.5%).
- Functionality of water sources for livestock consumption was reported by 87.5% and 68.4% of the respondents in the rainy and dry seasons respectively while abandonment was reported by 1.1% of the respondents in the rainy seasons and 11.1% of the respondents in the dry seasons.
- Abandonment of livestock water sources in the rainy seasons was due to salinity (75.0%) and insecurity (75.0%) while in the dry seasons it was due to salinity (92.5%), insecurity (62.5%) and drying up of sources (9.25%).
- In the cases of non-functional water sources, repair works were undertaken in 7 to 14 days for 23.4% of the households, 4 to 6 days for 15.5% of the households, 1 to 3 days for 9.0% of the households, less than a day for 1.2% of the households, while 6.7% were never repaired and another 32.75% had never broken down.
- A distance of less than a kilometre to access water for drinking and domestic use was covered by 52.6% of the households in the rainy seasons and 51.6% of the households in the dry seasons.
- On distance to water sources for livestock use, a distance of less than a kilometre was covered by 28.9% of the households in the rainy seasons and 27.4% of the households in the dry seasons.
- On average 46.1% of the households took less than 30 minutes to access their main sources of water for domestic use and human consumption in the rainy seasons, while the same time was spent by 44.6% of the households in the dry seasons.
- In addition, on average 37.9% and 27.9% of the households spent less than 30 minutes on queues to collect/fetch water for human consumption and domestic uses in their main sources in the rainy and dry seasons.
- On average it took less than 30 minutes to take livestock to the main sources of water for their consumption for 24.7% of the households in the rainy seasons and 19.0% of the households in the dry seasons.
- The World Health Organization (WHO) has set up the minimum water requirements for every individual at 50-20 liters per day but in the rainy and dry seasons, on average, every household member accessed 19.39 liters and 13.78 liters of water, respectively.
- Accessible and reliable volumes of water for human consumption and domestic use were rated as 2.76/5 and 2.48/5 in the rainy and dry seasons respectively while water for livestock consumption was rated 2.39/5 and 2.01/5 in wet and dry seasons, respectively.
- Inaccessibility of water for drinking and human consumption in the rainy seasons was reported by 64.1% of the respondents' while in the dry seasons it was reported by 25.9% of the households.

- Reasons for water inaccessibility for his purpose in the rainy seasons were long queues (48.1%), insecurity (33.75%) and daily restrictions (21.2%) while in the dry seasons it was long queues (77.0%), low water levels (70.4%) and long distances (53.3%).
- Inaccessibility of water for livestock consumption was reported by 55.9% and 15.2% of the households in the rainy and dry seasons. Reasons given for inaccessibility in the rainy seasons were long queues (45.9%), insecurity (45.9%) and contamination of water (55.7%) while in the dry seasons it was due to long queues (70.1%), low water levels (71.9%) and long distances (58.5%).
- Perceived equal access of water between communities and clans was reported in 68.3% and 69.6% of the households respectively while only 43.9% of the households felt welcomed by neighbouring communities to access water in times of need. Those indicating being unwelcomed, it was largely due to historic hostilities (53.65%) and the existence of traditional boundaries (29.9%).
- In Turkana west sub-County, only 19.7% of the households treated water before drinking and this was largely through boiling (73.4%) and use of chemicals (67.1%). From the FGDs, low water treatment was attributed to low awareness of the need to do so and economic and physical inaccessibility of water treatment agents.
- In the visited households, 43.9% of the respondents indicated that their water sources were managed by user committees or association with 11.1% and 68.4% reporting presence of females and youths in the committees' chairships.
- Three WUCs were visited by the evaluation team, namely: Lokichoggio Loritit and Dertu and the representation of women in the three committees was as follows, 20.0%, 50.0% and 36.3% while youth representation was as follows, 50.0% and 50.0% and 18.2%. The turnaround time for undertaking repairs in these committees ranged between 0 and 90 days while payment for water was largely on a monthly basis per household with volumetric charges being used in times of water shortage and this was in kiosks. The accessed water was used for human, domestic, livestock and irrigation purposes.
- Strengths in the visited committees were acceptability of members and regular meetings, while limitations were poor governance, limited resources, and poor understanding of the mandates of the youth and women in the groups., The committees also faced challenges of inaccessibility of spare parts and high costs of fuel.
- Four main private water sector players were encountered, namely: LOWASCO, Davis and Shurtleff, Epicenter Africa Limited and the Catholic Diocese of Lodwar. They were engaged in installation and maintenance of water systems, sale of spare parts, water desalination and sale and offering contracted rapid response services for water system challenges. However, none of the party was engaged in public-private dialogues on water or conservation of water catchments.
- From the visited households, 63.6% had one or more different livestock species as follows: 8.5% had cows, 62.1% had goats, 49.4% had sheep and 93.8% had camels. On average, every household had 4 camels, 13 sheep, 23 goats and 5 cows.
- Land ownership in this County was reported by 52.9% of the households but only 23.1% of those reporting ownership had legal documents their piece(s) of land and this was largely due to communal ownership structures.
- The lands owned and those accessible to community members were used for livestock production (48.1%), agricultural production (34.4%) and commercial purposes such as shops and rental houses (30.75%) while 34.9% used the pieces of land for their shelter and another 10.4% used their lands for alternative livelihoods activities such as bee keeping, poultry and resin and gums production (10.4%).
- For households owning land communally, 43.4% had decision making rights on access and use of these pieces of land while 36.5% of the households had participated in decision making on grazing lands use.
- Crop production was being taken up as an alternative to livestock keeping in this County and as such, irrigation was being conducted by 52.1% of the households.

- Households and his was largely drip form (68.4%), manual form (65.8%) and localized form (63.2%). Despite irrigation and crop production, conservation of fodder was sub optimal, hence, 14.7% of the households complained of lack of pastures. Thus, communal conflicts over water and pastures access in the year preceding the survey was reported by 38.7% and 34.2% of the households, respectively. These conflicts were intercommunal (67.1%), intracommunal (63.5%), inter-ethnic (50.9%) and domestic forms (37.7%) all of which resulted in mistrusts and hostilities. On a scale of 1 to 5 in an ascending order, trust for conflicting communities, being welcomed to access water but neighbouring communities and being welcomed to access grazing fields by neighbouring communities were rate 1.79/5, 1.99/5 and 1.61/5.
- Specifically, SGBV affecting household members in the preceding year was reported by 145.2% of females interviewed with the survivors being largely females (91.2%). Of these cases of SGBV, 87.7% received remedy actions most of which were arbitrations by elders (94.0%) and legal remedies in courts of law (60.0%). Reasons or not taking actions on the SGBV cases were unawareness of the measures available (85.7%), fear of the shame thereof (71.4%) and fear of repercussions (28.6%).
- The County has a Sale Yard Bill is awaiting adoption and the County Integrated Management Plan captures rangelands resources management but vaguely while no rangelands resources management policy or law exists.
- In this County, institutions engaged in rangelands resources management are largely humanitarian organizations including, Oxfam GV, Mercy Corps, Catholic Relief Services, VSF Belgium, ADF/USAID, Practical Action, NAWIRI program while the Catholic Diocese of Lodwar, Agrovets and NDMA were also undertaking the same activities.
- The top three known rangelands resources improvement practices were water harvesting (64.3%), climate change mitigation measures in broad (50.9%), and pasture, fodder production and conservation (43.9%).
- On the other hand, the practiced rangelands resources improvement activities were fodder production (60.8%), fodder bulking (48.4%) and seed multiplication (46.9%).
- Rangelands Management Committees (RMCs) were known to 27.9% of the respondents with membership in the same being reported by 16.1% of the respondents. In addition, water and pasture sharing plans were known by 27.4% and 27.7% of the evaluation survey respondents.
- Two RMCs were visited, and these were Pelekech and Nyia Nakururum Ngikeyokok. They had a wide representation of clans and community representation groups including peace committees but lacked awareness and capacity to execute their core functions due to limited trainings, illiteracy of some leaders and limited financial resources. In addition, political interference, and non-adherence to their bylaws since they were not anchored on any County government laws were also noted as key challenges they faced.
- Decision making on livestock matters such as sale, feeding, vaccination and treatment, purchase of feeds and migration plans were largely the prerogative of the males (over 70.0% of the households). However, women played a key role in the sale of livestock products such as hides and skins, milk and meat and crop production in the households (over 50.0%).
- Lastly, the top three climate change mitigation and adaptation measures reported in the households were protection of water catchment areas (57.4%), reseedling, forage production, soil management like manure use, reforestation, and forests preservation (38.7%) and use of solar power (37.9%). FGDs and KIs indicated that adoption of alternative livelihoods, fodder production, destocking and cross breeding of goats were being promoted to cope with and mitigate climate change.

10.2 Summary of the Program Indicators

Indicator	Turkana County	
Household water security (with a focus on water supply and not water risk management) in the targeted ASAL Counties	2.7%	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties	72.9%	
% Of households with increased access to safe and adequate water for basic domestic uses (disaggregated by gender, minority groups)	Gender	Female=1.6% Male=0.0%
	Group	Minority=0.0% Dominant=1.8%
Households accessing 350 liters of water per day	Rainy seasons=1.0% Dry seasons=1.0%	
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)	Rainy seasons=0.7% Dry seasons=0.5%	
% Of people in the target area report their trust in members of communities they are in in conflict has increased	4.8%	
% Increase in volume of water available for livestock consumption in a catchment area	Wet seasons	60.1%
	Dry seasons	47.8%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)	50.0%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses (Baseline Average in KSHs)	1,569.86 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs	43.9%	
% Of women and adolescents reporting reduction time in accessing water (<30mins time)	Wet seasons	Youth=50.0% Women=36.4%
	Dry seasons	Youth=35.0% Women=26.8%
% Of women reporting GBV related to access to water and rangeland resources	14.2%	
% Of marginalized groups who believe they have equal access to water services	54.9%	
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)	Degree of gender inclusion: 1/4 Impact on beneficiaries: 2/4 Level of implementation: 2/4 Allocation of budgets: 1/4	
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)	83.3%	
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing>=3practices)	71.6%	
% Of women and youth actively participating in rangeland resource planning and management activities	Women= (71.7%) Youth= (80.0%)	
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities (those who reported no shortage in pasture in dry seasons)	11.5%	
# Of persons benefiting from concrete climate change measures	56.4% 226/ 401	
Output level indicators		

# Of households reporting improved water access in terms of quantity and reliability (disaggregated by gender, minority groups) [Scores of 5/5 on reliability and quantity]		Total=2.7% F=3.4% M=0.0% M=8.0% D=1.6%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		45 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=100.0% Adults=5.6% Male=0.0% Female=12.5% Total=10.5%
	Number (n)	Youths=1 Adults=18 Male=3 Female=16 Total=19
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=812.50 KSHs M=0.00 KSHs
	Livestock production	F=106.25 KSHs M=0.00 KSHs
# Of County livestock production/rangelands technical staff reporting increased knowledge on gender transformative rangeland management practices. (Gender disaggregated)		-

10.3 Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- During this inception and early implementation stage of the programme, review and align RAPID PLUS programmatic activities with clear policy, institutional and programmatic priorities of the County Government departments captured in the CIDPs, and the findings of this baseline evaluation, establishing clear connectors and gaps and capturing these clearly in improved overall, annual, and quarterly implementation plans.
- Engage in strategic advocacy and lobby campaigns aimed at placing water and rangelands development at the heart of policy development and implementation in the County. Such engagement must be multi-faceted, focused on lobbying County government executives and assembly members to prioritize investment in water and rangelands resources development through i) enhanced policy stewardship and funding, ii) support for in-depth participatory analysis and petitioning of the next generation CIDP to ensure capture of strategic water and rangelands resources development priority interventions, iii) support to enable full participation of program beneficiaries in key public policy platforms established at County level.
- Develop and share high impact IEC materials that create compelling stories and evidence in support of the two programme priority areas, such as targeted research, social audit toolkits and reports, policy and learning briefs, program information packages, and public media material, including video documentaries.
- Provide dedicated support (technical and financial) towards the completion and passage of selected key sector/departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland management gender sectors and thematic areas). Some of these were initiated through the support of RAPIDI.
- Support forums and digital platforms for policies and legal frameworks wide dissemination. The survey team has struggled to access key County government documents since they were not traceable/published online, due to incomplete websites.
- Ensure all future policies, sectoral plans and laws developed have costed implementation and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation.

Water Interventions

- Promote the adoption of Ward Development Plans (WDPs) by the County government and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.
- Promote water stakeholders' coordination in the Counties by supporting/strengthening the County Water Forums.
- Deliberate and support innovative and cost-effective approaches and models towards the capacity development of WMCs, WUAs and WRUAs (including a strengthened role for women in these committees) and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Focus here to include review and appropriate replication of successful models for cost-efficient (delegated) operation and management of these structures; partnerships to develop and use effective (well-gendered) IEC in O&M TOT and refresher trainings and in strategic planning sessions for these structures.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water.
- Train male and female youths as village boreholes and solar installation attendants through apprenticeships with available private water sector players and supplying them with complete Operations and Maintenance (O & M) service tool kits as a way of reducing water points downtimes and providing viable employment.
- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to increase their capacities for resource mobilization for increased investment within the sectors.
- Support County Government to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to promote knowledge sharing and collaborative problem-solving including investments in water and rangelands resources development.
- Support Water Resource Users Associations (WRUAs), Water User Associations (WUAs) and Water User Committees (WUCs) in their efforts to identify and grow partnerships for technical and financial resource mobilization
- Support WRUAs to identify the best modalities for charging for maintenance services.
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on known principles, best practices, and financing models
- In view of the increasing livestock and human populations, explore partnerships leading to development of more strategically located community boreholes and other watering points across the County to increase available water and reduce waiting time and distances covered to access water.
- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing of knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models in order to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allocated water and rangelands resources management budgets and allied resources in the County to promote prioritization and full and accountable utilization. This would involve supporting the WUA/Cs to develop user friendly social audit toolkits

Efficient Water, Irrigation and Solarization Technologies

- Promote participatory and demand driven approaches to water services delivery where communities decide which technologies best serve their needs-for example hybrid water pumps will be key to ensuring uninterrupted supply of water to communities, in view of growing economic and physical inaccessibility of diesel and petrol

- Ensure robust (digital) versatile (readable on the go) databases and management information systems for water services monitoring and improvement to address current dearth of data in this area-populations reached, facility yields, volumes abstracted, pump functionality, delivery costs, revenue streams
- Incorporate sensors in community boreholes to create alerts signalling imminent water systems breakages to facilitate pre-emptive and timely repairs and servicing to avert water shortages and reduce downtimes.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for use of water, as documented in Marsabit and Turkana Counties. Institutionalize catchment protection and 3R (recharge, retain, re-use) approaches as the key bases for sustainable water resource conservation and management

Rangelands Resources Management Interventions

- Advocate for prioritization and enhanced visibility of the rangelands sub-sector, by lobbying for the development of rangelands development and management policies, laws and strategic plans and the creation of County Rangelands Units or Directorates and offices, with dedicated officers, programs, and budgets.
- Facilitate community and village sessions to come up with integrated Participatory Community Land Use Plans (PLUPs) to promote focused and effective community common natural resources use.
- Promote Participatory Community Action Plans (PCAPs) and dialogues on rangelands resources restoration.
- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages.
- identify, map and support community peace committees towards an integrated approach to conflict resolution and peaceful sharing of common pastoralism resources
- Encourage and facilitate the registration of farmers groups with the relevant Social Services or Agricultural Departments and help them establish relationships of mutual support and assistance.
- Institutionalize Self-Learning Groups (SLGs) or Farmer Field Schools (FFSs) in the targeted villages to capitalize their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.
- Retrain all the Rangelands Management Committees (RMCs) with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County government Departmental Policies, plans or acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County Departments of Livestock, Agriculture, Environment, Natural and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL) to integrate risk reduction and climate change adaptation measures into their community-level work.
- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.
- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.
- Restore/support initiatives seeking restoration of degraded pastures and increase of vegetation cover with different drought tolerant species and varieties.

- Promote fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection and other improved rangeland resources management practices through community groups (to mitigate potential community land use conflicts)
- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County Public Participation/Hearing Forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as crossbreeding and Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.

Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, SGBV laws, and to develop costed and monitorable implementation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management as opposed to the silo-based approaches currently practiced.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' freed time to pursue alternative productive livelihoods activities, including income generating activities, literacy, and education.
- Mitigate resource-based gender inequalities through Village Savings and Loans (VSLA) schemes linked to microfinance institutions within the County, in order to help change the narrative and redefine women's position in the families and their communities.
- Identify, support model women (HH Heads) champions in efforts to promote effective management of water and rangelands resources for shared benefits across all genders (in model farms, farmer field schools)
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.
- Explore jointly with County government and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions and are participating in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County government Gender Departments and relevant Gender Thematic Working Groups with foundations anchored on water and rangelands resources access and use in the communities.

Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi-Autonomous Government Agencies (SAGAs) due to ease of engagement and the sustainability benefits thereof.
- Encourage water stewardship approaches and models that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as identified already in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, repairs and maintenance and more wholesome water treatment beyond basic chlorine treatment and desalination.
- Engage the private sector to support value addition (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the County.
- Link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic empowerment.

Climate Change Mitigation

- Explore ways to re-prioritize water and rangelands resources development and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting of Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial conflicts over grazing lands.
- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce/support demonstration or model farms and farmer field schools for climate resilient and adaptive crop cultivation and animal husbandry to showcase best practices to local farmers in the County.
- Support agricultural management techniques adapted to intensive and prolonged droughts, including use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the establishment of climate funds based on the lessons from Isiolo and Garissa Counties which have already rolled out these funds.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice in climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies, including, but not limited to modified versions of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.
- Liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS).

Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among men and women about gendered topics with potential to amplify conflict.
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and institutions and statutory regulations across the County.
- Promote a community centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources.
- Invest adequate time and resources in the resolution of boundary and other conflicts, particularly those that are deeply rooted and complex.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

Mangrove plantations around Lake Turkana, Turkan County



SECTION ELEVEN: WAJIR COUNTY LEVEL SPECIFIC REPORT

11.1 Summary Narration

Background

- Wajir County is located in the North Eastern region of Kenya, lies between latitudes 3° N 60' N and 0° 20' N and Longitudes 39° E and 4° E and covers an area of 56,685.9 Km².³³⁵ It borders Somalia to the East, Ethiopia to the North, Mandera County to the Northeast, Isiolo County to the South West, Marsabit County to the West and Garissa County to the South.³³⁶ Land in Wajir County is categorized as trust type, apart from a small percentage of the total area occupied by townships. Two main land tenure systems exist in the County; private and communal land; private land is mainly found in Wajir town and used for residential, business and crop/fodder production, while the communal land is used for grazing.³³⁷ The land is mostly used communally for nomadic pastoralism, but some small areas are under small scale agricultural production activities by individuals or groups. There is a high increase in the number of new settlements which threatens rangeland management and strains delivery of essential social services such as water, education, health, and sanitation services.³³⁸
- Wajir County has several water resources namely: underground, surface, and sub-surface sources. The County has 272 boreholes, 15 mega pans, and 260 water pans. However, only 2% of the households have access to piped water, largely in Wajir town, Griftu, Eldas, Habaswein, Tarbaj, Arbajahan and Masalale.³³⁹ In this County, there are no permanent surface water sources as most of the water sources are subsurface, including boreholes, shallow wells, and pans. The average distance to the nearest water point is around 20 Km and the Wajir water and sewerage Company (WAJWASCO) manages 30 boreholes while the rest are managed by the Department of Water. At the community level, Water Users' Associations (WUA) manage the day-to-day operations of these boreholes.³⁴⁰
- As indicated above, Wajir County is one of the Kenya's Arid and Semi-Arid Lands (ASALs) characterized by water shortages, poorly coordinated and implemented water resource management systems and limited skills among Water User Committees (WUCs), among other challenges.³⁴¹ Similarly, rangelands in the County are poorly developed and they face numerous challenges, including inadequate and fluctuating availability of fodder and water, encroachment of crop production into pastoral land, alienation of pastoral communities, inadequate markets and marketing infrastructure, and inadequate extension services.³⁴³
- Given the need to explore new approaches to unlocking the potential of water sources, and resource use, and to manage them strategically and sustainably, while at the same time promoting their recharge, and the regeneration of the rangelands, Millennium Water Alliance (MWA), in collaboration with World Vision Kenya country program, are implementing the 'Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) program in this County.
- The Kenya RAPID+ program is convened and led by the MWA, with primary funding from the Swiss Agency for Development and Cooperation (SDC), alongside matching investment grants from private sector actors, implementing partners and participating County governments. The overall goal of the Program is to ensure improved access to safe and sustainably managed water and rangelands that contribute to resilient peaceful livelihoods and environments for communities in the five targeted Counties. The program targets 200,000 beneficiaries with two outcomes, namely: pastoralist communities have increased their access to sustainable and safe water for multiple uses benefiting men, women, and youth, and pastoralist communities have improved their access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity

³³⁵County government of Wajir.2013. Wajir County Integrated Development Plan, 2013. < <https://www.wajir.go.ke/UserSiteFiles/publicDocs/Wajir%20CIDP%201st-I.pdf>>

³³⁶Infotrak. 2020.Wajir County. < [³³⁷County government of Wajir.2018. Wajir County integrated development plan 2018-2022. < <https://www.cog.go.ke/downloads/category/106-County-integrated-development-plans-2018-2022?download=351:wajir-County-integrated-development-plan-2018-2022>>](http://Countytrak.infotrakresearch.com/wajir-County/#:~:text=Wajir%20County%20is%20located%20in,Ethiopia%20to%20the%20North%20West.></p></div><div data-bbox=)

³³⁸Ibid

³³⁹Ibid

³⁴⁰Ibid

³⁴¹OXFAM.2018.Funding mechanisms to incentivize sustainable and inclusive water provision in Kenya's arid and semi-arid lands. < <https://www.socialfinance.org.uk/sites/default/files/publications/rr-funding-mechanisms-solar-water-kenya-300818-en.pdf>>

³⁴²Republic of Kenya. 2013.Sector plan for drought risk management and ending drought emergencies. <<https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4310-vision-2030-sector-plan-for-drought-risk-management-and-ed-2013-17>>

³⁴³Ibid [10]

A baseline survey was required before kick-off of program activities and interventions, to establish benchmarks for relevant indicators, confirm the assumptions made in the program's theory of change, and to inform programming approaches.³⁴⁴

Objectives of the Baseline Evaluation

- The objectives of the baseline evaluation were to: serve as a foundation for setting annual and five-year program targets; provide a benchmark for measuring progress on outcomes and outputs during mid-term and end-line evaluations; facilitate measuring and understanding of changes in Wajir County's in-community and cross-border water and rangelands systems and actors; validate assumptions made in the program proposal and program design documents; and to generate recommendations for improvement of the program design and the planned interventions.

Baseline Evaluation Methodology

- The baseline evaluation was conducted in the month of April 2022, through a mixed methods study approach³⁴⁵ entailing:
 - A desk review of program documents, Wajir County government documents and other secondary materials.
 - A quantitative household survey reaching 410 respondents in Wajir County.
 - Key Informant Interviews (KIIs) as follows: 1 in the Department of water services, 2 in the Department of Agriculture and Livestock Extension Services, 1 in the Department of Gender and 3 with private water providers (see Annex 2); and
 - Focused Group Discussions (FGDs) as follows: 2 with WRUAs, 3 with community members and 2 with RMCs (see Annex 2).

To analyze the data generated, the team:

- Transcribed and analysed all qualitative data using flow chart matrices to establish convergence and divergence of themes. A deductive qualitative data analysis approach was used to deconstruct, interpret, and reconstruct the responses.
- Exported all quantitative data from Huawei Media Pad Tablets and Android based Mobile Phones (used for quantitative data collection) into Microsoft (MS) Excel sheets, and then, analysed the data set using the Statistical Package for the Social Sciences (SPSS) version 24.0.
- A score of 0-4 was used to assess/rate perceptions of state and effectiveness of implementation (achievement) of water and rangelands policies and legal frameworks 4 quality criteria/elements, namely the degree of gender inclusion, impact on beneficiaries, level of implementation and budget allocation. From the scoring: 0 = 'Not at all Achieved', 1 = 'Marginally Achieved', 2 = 'Partially Achieved', 3 = 'Largely Achieved', and 4 = 'Fully Achieved'. The total score was then divided by 4 to obtain effectiveness score of policy / legal framework.³⁴⁶

Baseline Evaluation Findings

- Four hundred and ten (410) respondents participated in the baseline evaluation with 55.1% being females and 44.9% males.
- The respondents were in the following age groups: 4.1% aged above 55 years, 17.3% in the group 18 to 25 years, 33.2% in the age group 26 to 35 years, 31.7% in the age group 36 to 45 years and 13.7% in the age group 46 to 55 years.
- Majority of the respondents (82.9% were married) with 6.1% being single, 1.2% being separated from their partners and spouses, 5.6% were divorced and 4.1% were widowed.
- In this County, 49.5% of the respondents had never been to school while 22.4% had only attended Madras classes with no other formal trainings.
- On average households in Wajir County had 8 members of whom 3 were adults and 4 were children.
- Of the interviewed respondents, 48.0% resided in rural areas, 9.0% resided in urban areas and 7.2% lived in peri urb areas. Worth noting was the increasing settlements around urban and peri urban areas following devolution in the country and the improving infrastructure.

³⁴⁴Terms of Reference.

³⁴⁵Schoonenboom, J., & Johnson, R. B. 2017. How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>

³⁴⁶https://www.shareweb.ch/site/Agriculture-and-Food-Security/sdcontext/Documents/SDC_indicators_AFS_TRI_2.pdf

- The visited households in Wajir County were largely engaged in pastoral farming (41.2%), 2.0% were agro pastoralists, 0.5% were IDPs, 13.2% were urban dwellers, 42.4% were peri urban populations, 0.2% were agricultural households and 0.2% were businessmen and women. Urban dwellers and peri urban dwellers were largely engaged in sale of livestock and livestock products as middlemen/women, retailers, or wholesalers.
- In this County, 10.2% of the respondents had no income while 60.0% depended on livestock sale for income, 21.7% relied on sale of livestock products, 16.8% sold firewood, 14.9% were casual labourers' and 18.8% relied on remittance from family members and relatives. The sale of firewood and charcoal noted across major urban, and peri urban areas had negative ramifications on rangelands resources in the County as well as climate change in the already drought prone County.
- Despite ownership of large herd sizes, most of the households had a monthly income of 0 to 50,000 Kenya Shillings (95.6%) while a further 41.7% and 51.7% had annual income levels of 0-50,000 Kenya Shillings and 50,001 to 100,000 Kenya Shillings.
- From the interviews, 63.4% of the respondents had lived in the program sites for over ten years, 28.3% had resided in the visited villages for five to ten years while 8.3% had only been in the targeted villages for less than five years. These findings indicate a population actively migrating from one village to another with implications for follow up in this five-year long program.
- In this County was a draft water Bill that had been in the national assembly for three years, but no water sector policy had been developed. Engagement of two female water technicians by the Department of water services was noted a foundation for mainstreaming gender into water services but more was required.
- The department of water services did not have any dialogues with the private water sector and did not also mobilize funds for improvement of water supply in the County largely due to non-prioritization of the same and poor resource mobilization skills.
- Access to improved water sources in the rainy seasons was reported in 82.3% of the households while in the dry seasons the same was reported by 72.4% of the households in the dry seasons. Lastly, across both seasons, access to safe water from improved water sources was reported by 68.8% of the households.
- The main sources of safe water for drinking and human consumption in the rainy seasons were boreholes or tube wells and dams (46.6% and 12.9%) while in the dry seasons they were boreholes or tube wells and piped water into premises (45.9% and 9.8%).
- During the rainy seasons, livestock largely obtained water for drinking from boreholes and tube wells (37.1%) and dams (35.9%) while in the dry seasons, water for the same sources was from Boreholes and tube wells (50.5%) and carts (14.6%).
- Functionality of the water sources for livestock consumption was reported by 72.7% and 72.5% of the respondents in rainy and dry seasons, respectively. A further 4 respondents reported abandonment of these sources in the dry seasons and rainy seasons (4 in each season). And this was because of salinity (2 respondents in the rainy seasons and 2 in the dry seasons), insecurity (1 respondent in both seasons) and government capping (1 respondent in the rainy seasons).
- From the interviews, 97.1% of the households had functional water sources for human use and consumption in the rainy seasons while 75.1% had functional sources in the rainy seasons with unfunctional sources being water sources for human uses in the dry seasons were reported by 22.9% of the households. In addition, 8 respondents indicated abandonment of water sources for human use and consumption in the dry seasons due to salinity (4 respondents) and insecurity (4 respondents).
- On loss of function, 25.4% and 24.1% of the respondents indicated that it took 1-3 days and 4-6 days to repair the broken water systems.
- Only 49.3% of the households in Wajir took 30 less than a kilometre to access their main water sources for drinking and domestic use in the rainy seasons while in the dry season the same distance was only manageable for 42.2% of the households.

- Still on distance to water points, 26.3% and 28.3% of the households covered less than a kilometre to access main sources of water for livestock in the rainy and dry seasons respectively an indication of migration closer to water points in the dry season.
- The distance to the households' main sources of safe water for drinking and human consumption was covered in less than 30 minutes by 39.3% of the households in the rainy seasons and 38.5% of the households in the dry seasons.
- A further 35.4% and 32.9% of the households spent less than 30 minutes to access water from their main sources in the rainy and dry seasons, respectively.
- The time taken to bring livestock to the main source of water was less than 30 minutes for 19.0% and 20.5% of the households during rainy and dry seasons, respectively.
- Each household member in Wajir County had 23.28 liters and 23.34 liters of water to use daily against a WHO daily recommendation of 50-100 liters.
- On a scale of 1 to 5 with 1 being the least and 5 being the highest score, the quality of water accessible and available for human consumption and domestic use was rated 3.68/5 and 3.30/5 in the rainy and dry seasons, while the same parameters were scored 3.40/5 and 2.75/5 for livestock water in the rainy and dry seasons.
- Inaccessibility of water for human consumption and domestic use in dry seasons was reported by 49.8% of the respondents while in the rainy seasons, 27.1% of the households reported the same. The main reasons for inaccessibility in the rainy seasons were long queues (35.1%), contamination of water (42.3%) and illnesses of females or children in the households (35.1%). In the dry seasons, inaccessibility was due to low water levels (56.9%), long queues (39.7%), and long distances (21.6%).
- Inaccessibility of water for livestock was reported by 51.2% of the households in the dry seasons and 21.5% of the households in the rainy seasons. Reasons given in the rainy seasons were long queues (26.1%) and contamination of water (35.2%), while, in the dry seasons, reasons were long queues (43.3%), low water levels (58.1%) and long distances (28.1%).
- Equal access to water in the communities reported by 60.55% of the households, while equal access by clans was reported by 61.5% of the households and another 80.5% of the households indicated being welcomed by their neighbours to access water in times of need. FGDs hinted at communal negotiations for water access through elders. The main reason for feeling unwelcome was hostility (94.6%) with traditional boundary demarcations being a minor reason (2.9%).
- Drinking water treatment was reported by 33.7% of the households with the main treatment methods were chemicals (70.35%) followed by boiling (39.1%). Low awareness of the importance of water treatment, geographical and economic inaccessibility of water treatment agents were reported as the main barriers to water treatment in the households.
- From the visited households, 49.0% had their water managed by WUCs/WUAs and 9.0% were active in these committees. However, 0.0% were not aware of any female leaders and 16.7% indicated presence of youths in their committees.
- Two WUCs were visited in Wajir County, and they were widely accepted by community members but had poor record keeping practices. They also had inadequate trainings hence poor governance and also faced inadequate finance mobilization. One had 33.3% of the officials as females and the other had 50.0% of the leadership position occupied by women. However, women were not well versed with their roles in these institutions. Youths were also noted (16.7% and 50.0%) and they served as secretaries or water point operators.
- These committees used diesel engines and solar power to pump water, but diesel was not economically and financially accessible. Thus, upon breakdown they had a turnaround time for repairs of 7 to 14 days.
- The private water sector players encountered in Wajir County were WAJWASCO, Boreal, Davis and Shirliff and Solargen. They were engaged in water desalination and sale through kiosks and other means, installation of water systems (generator and solar powered forms), sale of spare parts and repair works. Only Davis and Shirliff indicated annual training of the Wajir County water department staff as part of Corporate Social Responsibility (CSR). None

of them was involved in dialogues on water services improvement or water catchment areas protection, regeneration, or restoration.

- In this County, 56.8% of the households had cows, 80.0% had goats, 64.4% had sheep and 32.9% had camels. On average each household had 15 camels, 21 sheep, 44 goats and 32 cows.
- The County government of Wajir had no rangelands resources management policy or Act, neither did they have a livestock production policy or Act, but they had a draft Agriculture Bill. There was no officer or office dedicated to rangelands resources management.
- Land ownership was reported by 14.4% of the respondents of whom 40.7% (24/59) had title deeds, lease agreements or title purchase agreements. For those with no title deeds it was because the pieces of land were under the community land tenure systems (77.1%).
- Only 20.0% of the respondents under communal land tenure systems had ever participated in decision making rights on land use an indication of the challenges that maybe encountered in the program when promoting communal rangelands resources management.
- When it came to grazing time and frequency there was a high involvement of households as reported (80.0%) of the households (100.0% males and 66.7% females) with 80.0% of these households spending less than 25% of the dry seasons on these communal lands grazing.
- Of those practicing agricultural production (n=7), 77.8% indicated land irrigation with furrow, localized and drip forms being the most predominant ones (5, 4 and 4 respondents).
- Inaccessibility of pastures were reported by 22.0% of the households and this was largely attributed to unavailability (64.8%) and insecurity (25.3%).
- Conflict over pastures and water in the preceding year were reported by 22.9% and 25.9%. Where clans and elders negotiated water and pastures access, these conflicts were easily averted. Specifically, these conflicts were largely intercommunal (81.9%).
- On a scale of 1 to 5 in an ascending order, trust for community's respondents had been in conflict with was rated 1.9/5. Being welcomed by other communities to access water and pastures were rated 2.32/5 and 2.29/5.
- In the year preceding the survey, incidences of SGBV related to water access, affecting household members were reported by 21.5% of the females and the survivors were largely women and girls (87.5%). In addition, 81.8% of these cases had actions taken by the households of which, the actions were largely arbitration by elders (83.3%).
- Private sector players in rangelands resources improvement in the County were the International Livestock Research Institute (ILRI), Kenya Society for Agricultural Professionals (KESAP), Blue band aviation, Mercy Corps Kenya, NDMA and the Arid Lands Development Focus (ALDEF).
- The top three known rangelands resources management practices in the County were: water harvesting (50.2%), destocking (38.0%) and pasture and fodder production and conservation (26.6%).
- At the household level, the top three practiced rangelands resources improvement practices were destocking (62.9%), fodder production (27.6%) and fodder bulking (17.8%). Specifically, fodder production, bulking and conservation was noted in the outskirts of Wajir town, Habaswein Ward and Burte Ward.
- Presence of rangelands management committees was reported by 24.4% of the respondents and so did water sharing plans (17.6%) and pasture sharing plans (17.3%)
- Two Rangelands Resources Management Committees (RMCs) were documented, and they were widely accepted by community members since they also included peace committees' representatives. However, they lacked skills and resources to execute their mandates. Their bylaws were not anchored on any County government framework hence nonadherence.
- All decisions relating to livestock purchase, feeding, sale and treatment were made by men (>80.0% for each) while those relating to sale of livestock products and crop production were predominantly made by females (>50.0% for each).
- There was little action in terms of climate change actions at the household level and those reported were executed by groups e.g., Solarization of boreholes. Livestock deaths related to

drought were noted during the field exercise despite households' indication that destocking was being done as part of climate change adaptation and mitigation.

11.2 Summary of the Program Indicators

Indicator	Wajir County	
Household water security (with a focus on water supply and not water risk management) in the targeted ASAL Counties	6.1%	
Percent of pastoral communities with sustainably managed rangelands resources in the target ASAL Counties	10.1%	
% Of households with increased access to safe and adequate water for basic domestic uses (disaggregated by gender, minority groups)	Gender	Female=2.7% Male=2.2%
	Group	Minority=5.0% Dominant=2.2%
Households accessing 350 liters of water per day	Rainy seasons=9.0% Dry seasons=8.8%	
Proportion of households taking less than 30 minutes to get to the water source and less than 30 minutes to collect water from the source (2 combined questions)	Rainy seasons=4.9% Rainy seasons=4.6%	
% Of people in the target area report their trust in members of communities they are in in conflict has increased	4.3%	
% Increase in volume of water available for livestock consumption in a catchment area	Wet seasons	65.1%
	Dry seasons	50.4%
% Of water services management groups adopting gender transformative approaches in water services management (Committees with at least 1/3 of the leaders as women)	100.0%	
% Of target households who increased their income from crop production as a result of improved access to water for multiple uses (Baseline Average in KSHs)	113,500.00 KSHs	
% Of people in the target areas who say they feel welcome by neighbouring communities to access water and grazing areas in times of needs	80.5%	
% Of women and adolescents reporting reduction time in accessing water (<30mins time)	Wet seasons	Youth=22.5% Women=29.6%
	Dry seasons	Youth=16.9% Women=26.1%
% Of women reporting GBV related to access to water and rangeland resources	21.5%	
% Of marginalized groups who believe they have equal access to water services	52.5%	
Effectiveness score of policies / legal frameworks supported in the water sector (score 1 – 4)	Degree of gender inclusion: 1/4 Impact on beneficiaries: 0/4 Level of implementation: 0/4 Allocation of budgets: 0/4	
% Of community members reporting increased knowledge in sustainable rangeland management. (Mentioned knowledge of >=3practices)	19.3%	
% Of community members reporting increased practice in sustainable rangeland management. (Mentioned practicing>=3practices)	11.2%	
% Of women and youth actively participating in rangeland resource planning and management activities	Women= (12.8%) Youth= (5.6%)	
% Increase in the grazing areas with pasture/fodder in the dry season across selected communities (those who reported no shortage in pasture in dry seasons)	15.1%	
# Of persons benefiting from concrete climate change measures	23.4% 96/410	

Output level indicators	
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# Of households reporting improved water access in terms of quantity and reliability (disaggregated by gender, minority groups) [Scores of 5/5 on reliability and quantity]		Total=2.0% F=1.3% M=2.7% M=10.0% D=1.1%
# Of rural water service providers/Community Water Providers (CWPs) recording reduced downtime of water infrastructure and water point		10.5 days
% Of women and youth involved in water resource management (including 3R interventions for catchment restoration and improved water access.) (Gender disaggregated)	Disaggregation	Youth=0.0% Adults=0.0% Male=0.0% Female=0.0% Total=0.0%
	Number (n)	Youths=2 Adults=16 Male=11 Female=7 Total=18
# Of smallholder farmers with increased incomes from agricultural production (Gender disaggregated)	Crop production	F=1,428.57 KSHs M=727.27 KSHs
	Livestock production	F=16,714.29 KSHs M=13,909.09 KSHs
# Of County livestock production/rangelands technical staff reporting increased knowledge on gender transformative rangeland management practices. (Gender disaggregated)		-

11.3 Recommendations

Water and Rangelands Resources Governance, Legislation and Financing

- During this inception and early implementation stage of the programme, review and align RAPID PLUS programmatic activities with clear policy, institutional and programmatic priorities of the County Government departments captured in the CIDPs, and the findings of this baseline evaluation, establishing clear connectors and gaps and capturing these clearly in improved overall, annual, and quarterly implementation plans.
- Engage in strategic advocacy and lobby campaigns aimed at placing water and rangelands development at the heart of policy development and implementation in the County. Such engagement must be multi-faceted, focused on lobbying County government executives and assembly members to prioritize investment in water and rangelands resources development through i) enhanced policy stewardship and funding, ii) support for in-depth participatory analysis and petitioning of the next generation CIDP to ensure capture of strategic water and rangelands resources development priority interventions, iii) support to enable full participation of program beneficiaries in key public policy platforms established at County level.
- Develop and share high impact IEC materials that create compelling stories and evidence in support of the two programme priority areas, such as targeted research, social audit toolkits and reports, policy and learning briefs, program information packages, and public media material, including video documentaries.
- Provide dedicated support (technical and financial) towards the completion and passage of selected key sector/departmental policies, strategic plans, and Bills currently stalled or in draft forms in the water, rangeland management gender sectors and thematic areas). Some of these were initiated through the support of RAPID I.
- Support forums and digital platforms for policies and legal frameworks wide dissemination. The survey team has struggled to access key County government documents since they were not traceable/published online, due to incomplete websites.

- Ensure all future policies, sectoral plans and laws developed have costed implementation and Monitoring and Evaluation (M and E) plans, and clearly articulate the gender and climate change implications for their implementation.

Water Interventions

- Promote the adoption of Ward Development Plans (WDPs) by the County government and the recognition of the WDPs as the foundation for water interventions at the ward level which has been shown to be effective in Marsabit County.
- Promote water stakeholders' coordination in the Counties by supporting/strengthening the County Water Forums.
- Deliberate and support innovative and cost-effective approaches and models towards the capacity development of WMCs, WUAs and WRUAs (including a strengthened role for women in these committees) and the Water Companies, along the areas of need (weaknesses and challenges) identified in this report. Focus here to include review and appropriate replication of successful models for cost-efficient (delegated) operation and management of these structures; partnerships to develop and use effective (well-gendered) IEC in O&M TOT and refresher trainings and in strategic planning sessions for these structures.
- Promote multi-use water resource development activities that underline the water-food-energy nexus, with a greater focus on the end use of water.
- Train male and female youths as village boreholes and solar installation attendants through apprenticeships with available private water sector players and supplying them with complete Operations and Maintenance (O & M) service tool kits as a way of reducing water points downtimes and providing viable employment.
- Provide structured trainings on resource mobilization and partnership development for teams in the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to increase their capacities for resource mobilization for increased investment within the sectors.
- Support County Government to revitalize and invigorate relevant sector working groups under the Departments of Water, Livestock, Environment, Natural and Rangelands Resources Management to promote knowledge sharing and collaborative problem-solving including investments in water and rangelands resources development.
- Support Water Resource Users Associations (WRUAs), Water User Associations (WUAs) and Water User Committees (WUCs) in their efforts to identify and grow partnerships for technical and financial resource mobilization
- Support WRUAs to identify the best modalities for charging for maintenance services.
- Promote preventive and pre-emptive approaches to O & M and sustainable management of water sources based on known principles, best practices, and financing models
- In view of the increasing livestock and human populations, explore partnerships leading to development of more strategically located community boreholes and other watering points across the County to increase available water and reduce waiting time and distances covered to access water.
- Promote and support inter-community and inter-associational (WRUA, WUAs and WUCs) exchange visits to enable benchmarking and sharing of experiences and best-practices in water resource and related catchment management
- Create/support peer platforms to connect WRUAs, WUCs and WUAs for purposes of learning and cross-fertilizing of knowledge and experiences.
- Support WUCs to develop and or strengthen their water resource business/revenue growth models based on proven models in order to ensure sustainable O & M of community water points and enable further infrastructure investment.
- Promote and support social accountability audits of allocated water and rangelands resources management budgets and allied resources in the County to promote prioritization and full and accountable utilization. This would involve supporting the WUA/Cs to develop user friendly social audit toolkits

Efficient Water, Irrigation and Solarization Technologies

- Promote participatory and demand driven approaches to water services delivery where communities decide which technologies best serve their needs-for example hybrid water pumps will be key to ensuring uninterrupted supply of water to communities, in view of growing economic and physical inaccessibility of diesel and petrol
- Ensure robust (digital) versatile (readable on the go) databases and management information systems for water services monitoring and improvement to address current dearth of data in this area-populations reached, facility yields, volumes abstracted, pump functionality, delivery costs, revenue streams
- Incorporate sensors in community boreholes to create alerts signalling imminent water systems breakages to facilitate pre-emptive and timely repairs and servicing to avert water shortages and reduce downtimes.
- Consider installation of water kiosks with prepaid meters as a mechanism of promoting payment for use of water, as documented in Marsabit and Turkana Counties. Institutionalize catchment protection and 3R (recharge, retain, re-use) approaches as the key bases for sustainable water resource conservation and management

Rangelands Resources Management Interventions

- Advocate for prioritization and enhanced visibility of the rangelands sub-sector, by lobbying for the development of rangelands development and management policies, laws and strategic plans and the creation of County Rangelands Units or Directorates and offices, with dedicated officers, programs, and budgets.
- Facilitate community and village sessions to come up with integrated Participatory Community Land Use Plans (PLUPs) to promote focused and effective community common natural resources use.
- Promote Participatory Community Action Plans (PCAPs) and dialogues on rangelands resources restoration.
- Identify and popularize existing inter-ethnic and transboundary resources sharing plans to promote communities' awareness of them, including the protocols guiding their usage.
- Identify, map, and assist communities to develop mechanisms for protecting livestock corridors and pastures across villages.
- Identify, map and support community peace committees towards an integrated approach to conflict resolution and peaceful sharing of common pastoralism resources
- Encourage and facilitate the registration of farmers groups with the relevant Social Services or Agricultural Departments and help them establish relationships of mutual support and assistance.
- Institutionalize Self-Learning Groups (SLGs) or Farmer Field Schools (FFSs) in the targeted villages to capitalize their positive impacts on community livelihood improvement, income intensification and diversification, and market mechanisms for home-grown agricultural products.
- Retrain all the Rangelands Management Committees (RMCs) with a focus on organizational development, record keeping, technical themes, gender equity, youth inclusion and alternative livelihoods.
- Support RMC to anchor their constitutions and bylaws in relevant County government Departmental Policies, plans or Acts to promote compliance by community members.
- Support RMCs to refine their business (revenue) growth models towards greater self-sustainability beyond donor program support.
- Train the County Departments of Livestock, Agriculture, Environment, Natural and Rangeland Resources Management on the Community-based Risk Screening Tool - Adaptation and Livelihoods (CRiSTAL) to integrate risk reduction and climate change adaptation measures into their community-level work.
- Support initiatives to promote alternative livelihoods for communities and community groups to diversify their income sources, increase their resiliency and reduce the pressure on dwindling rangeland resources.
- Support livestock farmers and pasture groups to set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems.

- Restore/support initiatives seeking restoration of degraded pastures and increase of vegetation over with different drought tolerant species and varieties.
- Promote fodder and pasture production and conservation, contour ridging and vertiva grass promotion, rangeland seeding and reseeding, catchment protection and other improved rangeland resources management practices through community groups (to mitigate potential community land use conflicts)
- Integrate modern drought early warning systems into traditional early warning systems and train community members on Drought and Disaster Risk (DRR) coping strategies.
- Support RMCs and other community groups to actively participate in the County Public Participation/Hearing Forums on water, livestock, and environment and climate change matters and in sector annual and multi-year planning.
- Enhance and promote sustainable management of the livestock sector through improved livestock management practices, such as crossbreeding and Index Based Livestock Insurance (IBLI) to cushion communities from recurrent droughts.

Gender Mainstreaming

- Support County Departments of Gender to finalize their gender policies, SGBV laws, and to develop costed and monitorable implementation plans.
- Adopt a multisectoral/multidepartment approach to the promotion of gender equity in water and rangelands resources management as opposed to the silo-based approaches currently practiced.
- In addition to increasing water access points to lessen the work burden on women and girls, promote the use of women and girls' freed time to pursue alternative productive livelihoods activities, including income generating activities, literacy, and education.
- Mitigate resource-based gender inequalities through Village Savings and Loans (VSLA) schemes linked to microfinance institutions within the County, in order to help change the narrative and redefine women's position in the families and their communities.
- Identify, support model women (HH Heads) champions in efforts to promote effective management of water and rangelands resources for shared benefits across all genders (in model farms, farmer field schools)
- Create more awareness at the community level on ramifications of SGBV and the medical, legal, psychosocial and protection remedies and referral pathways available for survivors.
- Explore jointly with County government and development partners, ways to strengthen existing SGBV referral pathways.
- Further engage men through elders and religious leaders to re-imagine and reconstruct gender roles and stereotypes thus ensuring that they are accountable for their actions and are participating in SGBV prevention and response.
- Promote gender mainstreaming through strategic support to County government Gender Departments and relevant Gender Thematic Working Groups with foundations anchored on water and rangelands resources access and use in the communities.

Private Sector Engagement

- For any Public Private Partnerships (PPPs) under the Kenya RAPID+ program, consider Semi-Autonomous Government Agencies (SAGAs) due to ease of engagement and the sustainability benefits thereof.
- Encourage water stewardship approaches and models that aim to bring in the contribution of the private sector to enhance sustainable market-based approaches, as identified already in the previous section.
- Engage the private sector to hasten the adoption of more efficient water delivery technologies, including borehole sensors, automated dispensing and billing technologies, repairs and maintenance and more wholesome water treatment beyond basic chlorine treatment and desalination.
- Engage the private sector to support value addition (processing of rangelands products in particular) and to increase their participation in marketing and sales of livestock, agricultural and other rangeland products in the County.

- Link local women groups involved in productive activities (pasture, vegetables, fruits, and poultry) with existing market agents and chains, and other institutions and structures focused on women's economic empowerment.

Climate Change Mitigation

- Explore ways to re-prioritize water and rangelands resources development and using them more strongly as entry points for climate, environment, and governance/decentralization interventions.
- Continuously monitor the ongoing processes of piloting of Community Land Rights Recognition Models (CLRR) as part of the Communal Lands Act implementation in pastoral Counties with the end goal of replicating the same in the five Counties to address perennial conflicts over grazing lands.
- Promote development and dissemination of knowledge products on climate change adaptation and resilience by the relevant Departments in the County governments (toolkits, vulnerability maps, spatial models, and hydrological models).
- Promote and provide seedlings with multiple rangelands benefits to communities for tree planting, especially in the rainy seasons.
- Introduce/support demonstration or model farms and farmer field schools for climate resilient and adaptive crop cultivation and animal husbandry to showcase best practices to local farmers in the County.
- Support agricultural management techniques adapted to intensive and prolonged droughts, including use of drought tolerant crop varieties, diversification of crops, use of climate change adapted cultivation practices and maintenance of seed banks.
- Advocate for the establishment of climate funds based on the lessons from Isiolo and Garissa Counties which have already rolled out these funds.
- Support initiatives aimed at increasing community members' knowledge, attitude and practice in climate change, resilience and disaster risk reduction through community mobilization events, production of relevant IEC materials, trainings, meetings, and workshops.
- Promote the use of renewable energy technologies, including, but not limited to modified versions of metallic improved cook stoves, parabolic and wooden box type solar cookers, portable and fixed type solar lamps, bio-briquettes and milk churners which will help reduce deforestation and loss of vegetation to firewood and charcoal production.
- Liaise with the Kenya Forest Service (KFS), to explore ways to support Plantation Establishment and Livelihood Improvement Schemes (PELIS).

Conflict Mitigation

- Use known or user-friendly Participatory Rural Appraisal (PRA) techniques to raise awareness among men and women about gendered topics with potential to amplify conflict.
- Since migration and cross-border movements will always be part of the pastoralist communities' way of life, adopt and strengthen cross-border and conflict-sensitive approaches or practices to conflict resolution and management, building on existing traditional systems and institutions and statutory regulations across the County.
- Promote a community centered approach to conflict resolution and management, based on inclusive and shared planning, management, and use of common-property communal resources.
- Invest adequate time and resources in the resolution of boundary and other conflicts, particularly those that are deeply rooted and complex.
- Promote inter clan, intercommunity and inter-tribal and cross-boundary dialogue forums and cultural exchanges on water and rangelands resources use, to promote peace among communities.

Huri hills in Marsabit County



SECTION TWELVE: LIST OF ANNEXES

Annex I: Distribution of Quantitative Interview Respondents

County	Program sites	No. of respondents per site
Marsabit	<ol style="list-style-type: none"> 1. Sagante/Jaldesa in Saku Sub-County 2. Kamboe in Laisamis Sub-County 3. Balesa & Elhadi in North Horr Sub-County 4. Turbi/Bubisa in North Horr Sub-County 5. Merille in Laisamis Sub-County 6. Illaut, Gurnit in Laisamis Sub-County 7. Uran in Moyale Sub-County 8. Amballo in Moyale Sub-County 	42
Isiolo	<ol style="list-style-type: none"> 1. Korbesa – Merti Ward 2. Manyatta Zebra – Ngaremara ward 3. Arow 4. Daaba – Ngaremara ward 5. Garbatulla – Garbatulla ward 6. Attir – Ngaremara Ward 7. Garbatulla town – Garbatulla ward 8. Borders of Samburu and Burat ward Isiolo 9. Borders of Wajir and Sericho/Garbatulla wards Isiolo 10. Burat ward 11. Oldonyiro ward 	31
Turkana (Turkana west sub-County)	<ol style="list-style-type: none"> 1. Kakuma - Rangeland, Smallholder famers, IWRM 2. Lopur - Rangeland, Smallholder famers, IWRM 3. Letea - IWRM, Rangeland, transboundary 4. Songot - Rangeland, Water 5. Kalobeyie - Rangeland, Smallholder famers, IWRM 6. Lokichoggio - Rangeland and transboundary peace building Rangeland 	64
Wajir	<ol style="list-style-type: none"> 1. Laghbohol- Wajir South 2. Habaswein- Wajir south 3. Ibrahim Ure- Wajir south 4. Hadado and Adhibohol ward - Wajir west 5. Arbajan ward- Wajir west 6. Basir/Lakole ward- Eldas 7. Dela ward-Eldas 8. Elnur ward- Eldas 9. Batalu ward - Wajir north 10. Bute ward - Wajir north 11. Tarbaj ward - Tarbaj 12. Elben ward- Tarbaj 13. Salman ward -Tarbaj 	32
Garissa	<ol style="list-style-type: none"> 1. Nanighi 2. Abakaile 3. Dertu 4. Sankuri 5. Saka 6. Baraki 7. Goreale 	54

Annex 2: KIIs and FGDs Conducted

RAPID + Program County	Key Informant Interviews (KII)					Focus Group Discussions (FGDs)							
	Location of Interview	Person interviewed	Dept. & Directorate	Designation	Date of interview	Location of Interview		Group interviewed	Group Gender			Date of interview	No. of Participant
						Sub-County	Ward		M	F	Category		
Isiolo	County HQ	Bashir Jillo	County water Sanitation energy, env, NRs & climate change	County Director of Water Services	13.04.2022	Merti	Merti	Buresa village Community members	8	0	General	13.04.2022	8
	County HQ	Mercy Mbae	Water Resource Authority (WRA)	Data/ surface water Officer	12.04.2022	Isiolo	Oldonyiro	RAAP community members	7	0	Males	15.04.2022	7
	County HQ	Mohamed Diba Dokata	Agriculture, Livestock and Fisheries	Director Livestock Production	14.04.2022	Garbatulla	Garbatulla/Sericho	Sericho community members	0	9	Females	16.04.2022	9
	County HQ	Sora Abdulahi & Nora Bonaya	Isiolo water and sewerage company	Director & Finance Officer	13.04.2022	Merti	Merti	Merti (RMC)	4	4	General	16.04.2022	8
	County HQ	Paul Muchiri	Davis & Shirliff	Branch Manager	14.04.2022	Isiolo	Oldonyiro	Nanappa (RMC)	3	3	General	16.04.2022	6
	County HQ	Andrew Phitsa	Nasuulu conservancy	Conservancy Manager	14.04.2022	Isiolo	Ngaremara	DAABA (WRUA)	7	6	General	13.04.2022	13
						Isiolo	Ngaremara Wad	ATTIR Maendeleo Group (WRUA?)	9	3	General	14.04.2022	12
						Garbatulla	Garbatulla/Sericho	Iresaboru Water Management (Committee?)	1	5	General	14.04.2022	6
						Isiolo	Ngaremara	Lowangila Hand pump (WUA)	7	4	General	16.04.2022	11

Sub-total - Isiolo		7 KIIs						9 FGDs	46	34			80 Participants
Marsabit	Marsabit Town	Gutu Bante	Tourism, Culture, gender & social services	Gender Officer	14.02.2022	North Horr	Elhadi	Elhadi Water Committee (WUA)	5	0	General	15.04.2022	5
	Marsabit Town	Asha Galgalo	Agriculture, Livestock & Fisheries	Livestock Production Officer	13.04.2022	Moyale		Sololo women group			Female	15.04.2022	9
	Marsabit Town	Stephen Riungu	Agriculture, Livestock & Fisheries	Senior Assistant Director	13.04.2022		Uran		0	9			
	Marsabit Town	Shakhe Stephen Katelo	Water, Env. & Natural Resources	Director, ICT	15.04.2022	Saku	Dogogicha	Hewa Safi Self-help Group (Dogo Gicha) (RMC)	4	3	General	13.04.2022	7
	Marsabit Town	Henry Halkano	Davis & Shirtliff	Branch Administrator/sales Engineer	15.04.2022	Saku	Dogogicha	Dogo Gicha youth group (community members)	9	7	Youth	13.04.2022	16
	Marsabit Town	Ndege Faio	Marsabit Water and Sewerage Company (MARWASCO)	Managing Director	12.04.2022	Laisamis	Merille	Merille community	4	0	Males	13.04.2022	4
	County HQ	Hussein Guyo	Water Resource Authority (WRA)	MD, Sub-regional Water	12.04.2022	Laisamis	Kemboe	Kemboe Water Providers Committee	3	2	General	13.04.2022	5
							SAKU	Jaldesa	Jaldesa Water Resource Users Association (WRUA)	9	4	General	16.04.2022
						Moyale	Uran	Uran Rangeland Committee (RMC)	3	3	General	15.05.2022	6
Sub-total Marsabit		7 KIIs						8 FGDs	37	28			65

Wajir	Wajir HQ	Osman Mohamed	Gender, Heritage and Social Services	Director	15.04.2022	Turkana west	Bulla-Hagar	Bulla-Hagar Community members	0	8	General	14.04.2022	8
	Wajir HQ	Eng. Farah Mohamed	Water Services	Director	13.04.2022	Turkana west	Bulla-Hagar	Bulla-Hagar Community members	8	0	General	14.04.2022	8
	Wajir HQ	Bernard Otieno	Department of Livestock Production	Deputy Director	13.04.2022	Turkana west	Griftu	Griftu village youth	6	0	Youth		6
	Wajir HQ	Shabdown Kasai Omar	Agriculture	Director	14.04.2022	Turkana west	Bulla-Hagar	Bullar Hagar Water Committee	4	1	General	14.04.2022	5
	Wajir HQ	Churchill Obiero	Davis and Shirtliff	Regional Manager	13.04.2022	Turkana west	Griftu	Griftu Water Group	3	2	General	14.04.2022	5
	Wajir HQ	Victor Ambuka Kaisha	Solargen Wajir	Program Manager	16.04.2022	Wajir north	Korondile	Korondile (RMC)	7	1	General	15.04.2022	8
	Wajir HQ	Samuel Kinyanjui	Boreal	Managing Director	20.04.2022								
Sub-Total – Wajir		7 Klls						6 FGDs	28	12			40 Participants
Turkana	Lodwar HQ	Herman Kiruaye	Water Resource Authority (WRA)	Sub-basin area Coordinator	25.04.2022	Turkana West	Nakalale/Lopur	Pelekech Peace/Border Group (RMC)	9	3	General	16.04.2022	12
	Lodwar HQ	Tito Ochieng'	Department of Water Services	Director	13.04.2022		Nakalale/Lopur	Lokore community members	9	3	General	16.04.2022	12
	Lodwar HQ	John Samale	Agric, livestock & fisheries	Deputy Director (livestock & rangelands)	13.04.2022		Letea (Nakoros)	Loritit WUA (committee)	6	3	General	15.04.2022	9
	Lodwar HQ	Kenneth Omondi	LOWASCO	Managing Director-ag	14.04.2022		Letea	Tarach WRUA (committee)	7	4	General	15.04.2022	11
	Lodwa HQ	Jones Ayaka	Davis & Shirtliff	Branch Manager	14.04.2022		Kalobeyei	Kalobeyei Women-	6	5	Youth	13.04.2022	11

								community members						
	Lodwar HQ	Kelvin Amayoti	EPICENTER	Field Engineer	14.04.2022		Lokichogio	Lokichogio Water Service Providers	4	2	General	14.04.2022	6	
	Lodwar HQ	Jonathan Amoit	County Livestock Marketing Council	Coordinator	14.04.2022		Songot (Nakururu m)	Nanyia Nakuurum Ngikeyokok Association (RMC)	13	1	General	14.04.2022	14	
	Lodwar HQ	Lotom Chammah	Irrigation and Land Reclamation	Director	14.04.2022		Kalobeyei	Oropoi (Community members)	5	6	Youth	13.04.2022	11	
	Lodwar HQ	Onderi Mollen	Youth And Gender	Deputy Director	13.04.2022									
	Kakuma	Humphrey Emuria	Dept. of Agri. Pastoral Economies and fisheries	TW Sub-County Agriculture Officer	12.04.2022									
Sub-total Turkana	-	10 KIIs					8 FGDs		59	27			86 Participants	
Garissa	Garissa HQ	Yahya Aden Dahir	Water Resource Authority	Water Quality & Pollution Control Officer	14.04.2022	Garissa Town	Care Kenya Garissa Office	Alikune Rangeland Committee (RMC)	9	0	General	14.04.2022	9	
	Garissa HQ	Ibrahim Farah	GARWASCO	Chief Executive Officer	14.04.2022	Garissa Town	Care Kenya Garissa Office	Nanighi Harajabu Rangeland committee (RMC)	7	1	General	13.04.2022	8	
	Garissa HQ	Eng. Chris Kamau	GARWASCO	Technical services Engineer	13.04.2022	Garissa Town	Care Kenya Garissa Office	Saka Water Management Association (water committee)	6	3	General	15.04.2022	9	

Garissa HQ	Eng. Abdi Hali Sheikh	Department of Water Services	Director Water Services	14.04.2022	Garissa Town	Care Kenya Garissa Office	Balich Water Committee (WRUA)	5	4	General	14.04.2022	9
Garissa HQ	Abdullahi Igle Gune	Gender and Culture	Director	15.04.2022	Garissa Town	Care Kenya Garissa Office	Dertu Water Users Association (WUA)	8	0	General	15.04.2022	8
Garissa HQ	Abdi Latiff Ahmed	Ministry of Environment	Assistant Dir. Env. Energy and Natural Resources	15.04.2022	Garissa Town	Care Kenya Garissa Office	Community Group Baraki, Goreale ward (Water users)	8	0	Men	13.04.2022	8
Garissa HG	Dr. Abdullahi	Livestock Development	County Director	14.04.2022	Garissa Town	Care Kenya Garissa Office	Community Group Shanta Abaq, Goreale Ward	8	0	Women	15.04.2022	8
Garissa HQ	Mr. Siyat Onle Takal	Agrovet	Manager	15.04.2022		Care Kenya Garissa Office	Community Group (Youth)	6	2	Youth	13.04.2022	8
Sub-total -Garissa	8 KIIs						8 FGDs	57	10			67 participants
Summary Total	39						40					

Annex 3: Water Resource Users Associations (WRUAs)

County	WRUA	Catchment and estimated population served	Background and activities	Strengths	Weaknesses	Challenges
Wajir	Does not have a WRUA					
Turkana	<ul style="list-style-type: none"> • Tarach WRUA • other WRUAs In Turkana west Implementing SCMP are • Lokanam • Lopirichich • Loya • Upper Kawalath e • Lorugum 	<ul style="list-style-type: none"> • For Tarach, hydrological units divided into. <ol style="list-style-type: none"> Upper Zone- Lokipoto; Katelmot, Loito, Nakitongo, Middle Zone- Loritit; Namarkiriono, Tulabalany Lower Zone- Letea; Loreng • The sub catchment was estimated to have 4,974 people in the year 2010 and was projected to increase to 14,939 people in the year 2020 	<ul style="list-style-type: none"> • Formed in 2020 • Registered with Registrar of Societies • Have a constitution • Administratively covers; Letea, Lokipoto, and Loreng locations • SCMP developed, yet to implement activities. • Management of membership contributions 	<ul style="list-style-type: none"> <input type="checkbox"/> WRUAs enjoy strong legal, institutional, and statutory framework nationally and at County level under the WRA and WASREB <input type="checkbox"/> institutional arrangement <input type="checkbox"/> There is a high demand for water and consumers will buy if well served. <input type="checkbox"/> County Government has been supportive <input type="checkbox"/> Any partners/NGOs involved in infrastructure development and in provision of software <input type="checkbox"/> Five-year SCMP in Place 	<ul style="list-style-type: none"> <input type="checkbox"/> WRUA is young association, and financially unstable, unable to expand access or move around to mobilize operational resources <input type="checkbox"/> WRUA lacks technical capacity in resource mobilization, proposal writing, and partnership development. <input type="checkbox"/> WRUA structure as it stands now does not seem strongly embedded in a clear membership base (it is not clear if it's a CBO, an institution representing WUAs, or just a community structure -this creates serious legitimacy questions (this was certainly the case with Tarach WRUA) 	<ul style="list-style-type: none"> • Inadequate awareness that water is a social and economic good, leads to unwillingness to pay for water services- communities consider water to be a public good. This constrains O & M operations • the costs of procuring, installing, and maintaining water infrastructure is prohibitive • Catchment protection and conservation is time consuming, requires considerable effort from WRUA members, with no immediate benefits to individual members. In an effort to improve their incomes, a livelihood component needs to be incorporated into the RWUA Development Cycle • Other challenged include • Water scarcity- long distances to available water sources, poor distribution • Lack of finance – for expanding access-

						<ul style="list-style-type: none"> • Lack of capacity-organizational, logistical, technical-no water management committees at water points • Lack of effective partnerships and networks • Flooding-infiltrates and spoils quality of existing sources, erodes the riparian basis/riverbanks/flood plain • Politics-different ideas on priority siting/location of water sources • Climate change-frequent flooding, drought, • Security and conflict over water resources. • Water pollution- waste dumping on riparian land, saline water, Invasive species [Prosopis], bad smell of water) • Catchment and Riparian degradation • Water Use Conflicts • Minimal Livelihood options
Marsabit	Jaldesa Water Resource Users Association		<ul style="list-style-type: none"> • Founded on 29th October 2018 • The association is new so, there is no water supply system established • Water sources <ul style="list-style-type: none"> a) Sagante wells 	<p>institutionally stable with a legal and institutional framework that is understood and followed by members, which includes:</p> <p>holding of regular members meetings (monthly, quarterly, annually maintenance of committee minutes and other records</p>	The association is new so, there is no water supply system established.	<ul style="list-style-type: none"> a) Wildlife conflict b) Overstocking c) Not following the rules d) Ignorance i.e., people not following rules

		<ul style="list-style-type: none"> b) Guyo Halakhe borehole c) Damliners in village d) El-Qarsa spring e) Jaldesa borehole f) Gotu Gombo pond g) Kob Athi pans h) Dogogicha pans <p><u>Activities</u></p> <ul style="list-style-type: none"> a) Planting of trees in catchment areas b) Control of livestock movements in the catchment areas c) Community education on protection of water catchment, planting trees and others. 	<input type="checkbox"/> hey, have experience through capacity building by NGOs. <input type="checkbox"/> 5-year SCMP in place		
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Annex 4: Private Sectors in the Water Sector Across the Five Counties

County	Private water stakeholder	Activities	Comments
Wajir	Solargen	<ul style="list-style-type: none"> • Solargen is an Energy, Water and Irrigation solution and service provider engaged in: • Irrigation water systems -largely drip irrigation • Solar water pumps • Agricultural extension services • Market support • Water desalination • Trainings in board rooms and in farms • Water tanks and towers 	<ul style="list-style-type: none"> • Installation upon payment of 30% down payment with 70% payable in 12 monthly instalments. No interest but normal market rates apply • They agricultural production and agricultural produce marketing • In Wajir County they undertake desalination and sale of water with no bottling • Technology adopted includes solar pumping of water, desalination machines, irrigation, and shade nets for irrigated crops • Clients in Wajir County include individuals, companies, County government, NGOs-projects, and farmers' groups such as Wajir milk traders who bought a cooler • From their experiences, water system breakages are caused by poor operation skills, poor operation even with training, inadequate ventilation, overheating, blockages, and salinity • Turnaround time for repair works is 3 days and is influenced by the distance to the installation point/location and local availability of spare parts/purchase and transportation of spare parts (e.g., from Nairobi) • No water catchment conservation activities (fencing and use of lockable gates as well as elevated installations are put in place to avoid destruction by wildlife, livestock and vandalization) • Climate change mitigation measures include use of solar pumps, drip irrigation and shade nets/greenhouse technology
	Davis and Shirtliff	<ul style="list-style-type: none"> • Drilling of boreholes • Boreholes repairs • Installing solar systems for borehole water pumping • Installing solar systems for home water heating • Water treatment systems installation • Supply of irrigation systems • Construction of swimming pools • Sale/supply and installation of generators 	<ul style="list-style-type: none"> • Covers all areas of Wajir and Mandera Counties • Regulations and guidelines for borehole drilling are outlined by NEMA • Technology used: solar power for boreholes, generators, and electricity within towns • Reported breakdowns are due to: Low operator skills, sucking of gravels by the pumps and wearing out of the motor (wear and tear)

		<ul style="list-style-type: none"> • Turnaround time in undertaking repair works is 24 to 48 hours but influenced by: availability of field teams, poor road networks, agreements with clients, local unavailability of spare parts, high costs e.g., for motor repairs and lack of finances in water committees • No dialogues on water with the County governments • CRS activities include annual trainings for County water departments • Solar and boreholes demand is on the increase in Wajir County • Fluctuating (up and down trend) is noted in purchase of irrigation and water treatment equipment • There is low demand for swimming pools • No water catchment conservation activities
Boreal	<ul style="list-style-type: none"> • Innovative water desalination systems designed to operate off-grid in the most remote areas • Dedicated to providing affordable water treatment facilities for low-income off-grid communities • Private entity but open to PPPs like we have done in Wajir with WAJAWASCO under RAPID program phase one 	<ul style="list-style-type: none"> • Serves: rural communities, urban communities, NGOs, and County governments • Volume desalinated in Wajir = 10,000 liters per day, 300,000 liters per month and 36,000,000 liters per year • Salinity of water and poor operator skills are contributors to breakage of the water systems they install • Repair works are done immediately but at times it takes 3 days to buy and transport spare parts from Nairobi to Wajir • No water catchment conservation activities
WAJASCO	<ul style="list-style-type: none"> • Wajir Water & Sewerage Co. Ltd, (WAJWASCO) was incorporated in 2013 under the companies Act 2002 (cap.486). • The company is currently regulated by WASREB, through a Service Provision Agreement (SPA) in 30/09/2014 to provide water supply and sewerage services within Wajir Town and its environs. • The County Government of Wajir has appointed WAJWASCO as a Water Services Provider (WSP) for the whole of Wajir County. • Activities: to provide water supply and sewerage services in urban and market growth areas; to enhance good governances and performance of rural water supply facilities; to increase access to good quality water and 	<ul style="list-style-type: none"> • Not available for interview

		sewerage /safe sanitation; to promote hygiene and safe sanitation (in partnership with other partners and players); and reduction of non-revenue water and unnecessary wastages.	
Turkana	LOWASCO	<ul style="list-style-type: none"> • Provides basic chlorination treatment for water • They produce between 178000-238000m³ of safe drinking water/month 	<ul style="list-style-type: none"> • The demand for water is much higher than the supply • LOWASCO serves Lodwar town only • No water catchment conservation activities
	Davis and Shirtliff	<ul style="list-style-type: none"> • Installation of water desalination and filtration units • Installation of community generators for pumping water 	<ul style="list-style-type: none"> • Engaged in CSR activities • No dialogues on water issues • No water catchment conservation activities
	Epicenter Africa Limited.	<ul style="list-style-type: none"> • Installation of solar powered borehole systems providing a continuous water supply to the communities • Water treatment 	
	<p>Catholic Diocese of Lodwar is a major player- infrastructure development, distribution O & M, Water Insurance.</p> <p>NGOs/UN Agencies- Oxfam, Practical Action, UNICEF, and Concern worldwide, WVI, CRS CARITAS, GiZ, over 20 NGOs involved in water services delivery.</p>	<ul style="list-style-type: none"> • Support for community groups • WASH/hygiene kits • Training of water committees 	<ul style="list-style-type: none"> • No dialogues on water issues • No water catchment conservation activities
Isiolo	<p>There is no known private water companies/providers in the County. The major stakeholders are those selling repair parts, water drilling companies and those selling and install pumps (solar and fuel powered).</p> <p>However, there are several humanitarian organizations</p>		<ul style="list-style-type: none"> • No private water suppliers in the County. Even the water tanks supplying water to communities during very dry seasons are paid either by the County government, NDMA or humanitarian agencies.

	involved in water issues in the County. These include NUSAID AWIRI, CRS, CARITAS, SNV, WSTF		
Marsabit	PACIDA	<ul style="list-style-type: none"> Addressing water infrastructure and solarization 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	USAID NAWIRI program	<ul style="list-style-type: none"> Strong WASH component integrated into nutrition programming 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	CONCERN Worldwide	<ul style="list-style-type: none"> Addressing livelihoods and water governance Supporting fast moving spare parts for water infrastructure 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	The Kenya Red Cross	<ul style="list-style-type: none"> Addressing water treatment at the household and point of use, and water rehabilitation 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	Maji Miele	<ul style="list-style-type: none"> Providing water ATMs and prepaid water meters 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	Water bourses	<ul style="list-style-type: none"> Transportation of water to the community level for human and livestock purposes 	<ul style="list-style-type: none"> No dialogues on water issues No water catchment conservation activities
	Davies and Shirliff	<ul style="list-style-type: none"> Bore excavation equipment, mortars, pumps Water desalination The company offers water and energy solutions by providing technical expertise through trained engineers and technicians. They address all water related solutions in the areas of boreholes, shallow well and dams Sale of borehole and abstraction equipment like pumps (and accessories) Sell water filtration equipment Davis and Shirliff used to monitor several parameters in boreholes to establish how much was used Prepaid water meters designed for communal water points to assist in electronic cash collection increasing transparency and reducing wastage. This is a new product, not yet heavily adopted. Available apps providing operations manual and other information regarding the products. An online presence where customers can interact on their website real time 	<ul style="list-style-type: none"> Engaged in CSR activities No dialogues on water issues No water catchment conservation activities
Sweet sense	<ul style="list-style-type: none"> Bore sensors and prepaid water meters 	<ul style="list-style-type: none"> No dialogues on water issues 	

			<ul style="list-style-type: none"> • No water catchment conservation activities
	MARWASCO	<ul style="list-style-type: none"> • Water desalination • Explore technical issue such as topography, water pressure • Evaluate the population density • Evaluate source of water available and distance from one point to another • Treatment of water • Distribution of water • Connecting to consumers • Generating income • Community empowerment • Sanitation • Conservation of water • Supply of water • Tanks rehabilitation • Underground water abstraction 	
	Acacia water	<ul style="list-style-type: none"> • Integrated water management 	<ul style="list-style-type: none"> • “3 R” approach for Retention, Recharge, and Reuse • No dialogues on water issues • No water catchment conservation activities
	KWS and KFS	<ul style="list-style-type: none"> • Forests protection and these are the water source catchment areas 	<ul style="list-style-type: none"> • No dialogues on water issues
Garissa	GARWASCO	<ul style="list-style-type: none"> • Manages and maintains all rural water supplies • Has a fully constituted board, CEO, other technical and administrative staff in place • Office located in Garissa town • Develops and signs MOUs with the communities and the users through their schemes, and then collect the revenue for every scheme, and every borehole 	<ul style="list-style-type: none"> • Has water quality testing equipment • Currently preparing a strategic plan

Annex 5: Act and Policies in Garissa County

Act	Date	Purpose
The Garissa County Water Management Act, 2018	22nd November 2018	Enacted to provide for the management, conservation, use of County water resources and for the acquisition and regulation of rights to use County water; to provide for the regulation and management of water supply and sewerage services; and for connected purpose.
The Garissa County Environmental Management and Co-ordination Act, 2018	13th November 2018	Enacted to provide for the establishment of the necessary legal and institutional framework for sustainable co-ordination and management of the environment within Garissa County, and for connected purposes.
Climate Change Fund Bill Garissa County 2018	2018	Enacted to establish a Climate Change Fund for facilitating community-initiated Climate Change Adaption and Mitigation projects; and for connected purposes;
Gender Policy	2022	Passed with the aim to provide a sectoral-based framework toward attainment of gender equality.
Disaster Risk Management policy	2022	Passed to help in preparedness, prevention, protection, recovery, and provision of relief to the victims of drought, floods, conflicts, human and livestock disease epidemics. Supports in building resilience to the communities prone to disasters, ease response, and prevent risks of disasters.

Annex 6: Water and Rangeland management related policies, Isiolo County

Existing Act/Bill/Policy	Objective	Referenced by KIIs respondents	Reference
Isiolo County Water and Sanitation Services Bill (2020)	To provide for development, regulation and management of County public works related to water and sanitation services, storm water management systems, water conservation, establishment of water services corporation and for connected purposes	Yes	http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2020/IsioloCountyWaterandSanitationServicesBill2020.pdf
Isiolo County Customary Natural Resource Management Bill (2016)	To provide for customary management of natural resources and for connected purposes	No	http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2016/2016/IsioloCountyCustomaryNaturalResourceManagementBill2016.pdf
Isiolo County Community Conservancies Bill (2021)	To guide in establishment of the framework for the support of community conservancies in Isiolo County and for connected purposes	Yes	http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2021/IsioloCountyCommunityConservanciesBill2021.pdf
The Isiolo County Wildlife Management and Conservation Bill, 2021	To guide on protection, conservation, and sustainable utilization of wild animals in Isiolo County, and to provide for matters connected therewith	Yes	http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2021/IsioloCountyWildlifeManagementandConservationBill2021.pdf
The Isiolo County Climate Change Fund Act (2018)	To guide the establishment of a Climate Change Fund to finance, facilitate and coordinate financing Climate Change Adaption and Mitigation projects; and for connected purposes	No	https://www.adaconsortium.org/index.php/component/k2/item/download/89_720ca1cd874220461cba f03a92491967#:~:text=The%20object%20of%20this%20Act,Mitigation%20activities%20at%20the%20community
The Water Act (2016)	It regulates ownership, use and management of water resources in the County	Yes	http://kenyalaw.org/kl/fileadmin/pdfdownloads/RepealedStatutes/WaterAct_Cap372_.pdf
Isiolo County Livestock Sales Yards Bill (2016)	To guide establishment and management of livestock sale yards To guide on sale, auction, and transport of livestock	Yes	http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2016/IsioloCountyLivestockSalesYardsBill_2016.pdf
Isiolo County Animal Welfare Act (2021 – 2025)	Makes provisions on welfare of animals and matters related to health services and connected purposes	No	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/IsioloCountyAnimalWelfareAct_No8of2015.pdf
Gender Policy, (2021-2025),	To guide institutionalization and operationalization of gender Mainstreaming in all sectors of County Government functions.	Yes	https://home.creaw.org/wp-content/uploads/2022/03/Isiolo-County-Gender-policy-Abridged-f2_compressed.pdf
Isiolo County Integrated Development Plan-CIDP (2018-2022)	It is a comprehensive effort to drive its economic growth and development. It provides the platform to guide, harmonize and facilitate coordinated development within the County through a framework upon which all stakeholders in the County	Yes	https://repository.kippra.or.ke/bitstream/handle/123456789/1409/2018-2022%20Isiolo%20County%20CIDP.pdf?sequence=1&isAllowed=y

	will base their development programs and activities set for the benefit of local communities.		
The following Policies and Bills are at various stages of formulation			
Rangeland Management Policy (2021)			
Livestock Strategy (2021)			
Agricultural Sector Plan (2018-2021)			
Livestock Development Bill is under development			

Annex 7: Reasons for feeling unwelcomed by other Communities to access water

	Garissa	Isiolo	Marsabit	Turkana	Wajir	Female	Male	Total
Hostility by the neighboring communities	99.7% (385)	51.0% (224)	39.8% (133)	53.6% (215)	94.6% (388)	65.3% (884)	74.8% (461)	68.3% (1345)
Traditional boundaries in excess of water	0.0% (0)	45.6% (200)	35.6% (119)	29.9% (120)	2.9% (12)	25.5% (345)	17.2% (106)	22.9% (451)
Fear	0.0% (0)	1.4% (6)	1.8% (6)	1.7% (7)	1.7% (7)	1.1% (15)	1.8% (11)	1.3% (26)
No reason	0.3% (1)	0.9% (4)	20.4% (68)	13.0% (52)	0.2% (1)	6.9% (94)	5.2% (32)	6.4% (126)
Don't know/not sure	0.0% (0)	0.0% (0)	1.2% (4)	0.5% (2)	0.2% (1)	0.4% (5)	0.3% (2)	0.4% (7)
Attacks in the rivers	0.0% (0)	0.9% (4)	1.2% (4)	0.7% (3)	0.2% (1)	0.7% (10)	0.3% (2)	0.6% (12)
Total	100.0% (386)	100.0% (439)	100.0% (334)	100.0% (401)	100.0% (410)	100.0% (1354)	100.0% (616)	100.0% (1970)

Annex 8: Data Collection Tools

Provided Separately.

Annex 9: References

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Annex 10: Terms of Reference

Baseline Evaluation of Kenya Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) Program

A-Introduction

The Millennium Water Alliance (MWA) is a permanent global alliance of leading humanitarian and private organizations that convenes opportunities and partnerships, accelerates learning and effective models, and influences the WASH space by leveraging the expertise and reach of its members and partners to scale quality, sustained WASH services. Founded in the year 2002, MWA seeks to advance high standards for program quality, transparency and accountability and work with its members, governments, communities, private sector partners and other key stakeholders to bring to scale effective and sustainable water, sanitation, and hygiene education solutions.

The Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) program is convened and led by the MWA with primary funding from the Swiss Agency for Development and Cooperation (SDC) alongside match and investment funds from private sector actors, implementing partners and participating County governments. RAPID+ builds on the successes and lessons learned from RAPID (implemented between 2015 and 2021) and seeks to not only continue the positive impacts of RAPID but to further build and improve upon them. RAPID+ combine the opportunities presented by the national and devolved water sector institutions, the rangelands resource management capacities, and the assets and experience of the private sector to address the complex problems created by inadequate water access and poor governance of rangeland resources. This five-year program (2021-2026) has a geographic focus on five northern Arid and Semi-Arid Lands (ASALs) Counties of Garissa, Isiolo, Marsabit, Turkana and Wajir.

The goal of RAPID+ is: Improved access to safe and sustainably managed water and rangelands in RAPID+ Counties contribute to resilient livelihoods for communities in a peaceful environment. The goal will be achieved via two outcomes: (1) Pastoralist communities have increased access to sustainable and safe water for multiple uses benefiting men, women, and youth, and (2) Pastoralist communities have improved access to safe and ecologically healthy rangeland resources that promotes greater integrity, social cohesion, and gender equity. RAPID+ targets to provide first-time or improved access to water and rangeland services for more than 200,000 people in Garissa, Isiolo, Marsabit, Turkana, and Wajir Counties. The facilitating partners of this program are CARE (Garissa), Catholic Relief Services (Isiolo and Turkana), Food for the Hungry (Marsabit), World Vision (Wajir).

B. Evaluation Purpose

This is a baseline evaluation of select indicators in the RAPID+ log frame. The baseline evaluation report will predominantly be used by RAPID+ partners for three purposes: 1) as foundation to use when setting annual and five-year targets for the program, 2) as a baseline from which to measure progress on outcomes and outputs during mid-term and end line evaluations and 3) as a tool to measure and understand changes in the broader systems and actors in these Counties.

C. Select Evaluation Questions

- 1) What is the percentage of households with access to safe and sufficient water for basic uses in rural and urban areas in the five target Counties?
- 2) What is the volume of water available for livestock consumption in the five target Counties?
- 3) What is the percentage and location of degraded rangelands in the five target Counties?
- 4) What is being done currently to promote reseeding or rangeland restoration?
- 5) What is the current status of women and girls in the five target Counties and their responsibilities and time consumption related to accessing water?
- 6) What is the percentage of youth that are currently involved in rangeland planning and management activities in the five target Counties?
- 7) What percentage of women and youth are closely involved with water resources management activities in the five target Counties?
- 8) What are current strengths and weaknesses in the operation and maintenance of water points in the five target Counties?

This is not a comprehensive list of evaluation questions for the RAPID+ baseline evaluation. Additional questions and sub questions will be discussed with the consultant during the first meeting between MWA and the consultant.

D. Methodology

This baseline evaluation is intended to provide data from which to measure progress and change over the subsequent five years in the five target Counties. This evaluation will adopt a non-experimental research design. The evaluation team is expected to propose an evaluation methodology and analysis tools that guarantee the highest degree of rigor to ensure credible findings. Data collection methods could include desk reviews, household surveys, key informant interviews, focus groups discussions and other quantitative data collection. Data collected should be linked explicitly with the program's log frame to answer specific baseline questions linked to outcomes and outputs and to provide a platform from which to understand system and actor changes over time. Data should be presented using tables, charts, graphs, and narratives both on a County-by-County basis and cumulatively across the five Counties.

E. Expected Deliverables

The following are the expected deliverables from the consultant:

- 1) Inception Report: The consultant must submit a detailed inception report to MWA within five days after the first meeting between MWA and the consulting team. The report shall detail the evaluation methodologies, limitations, and ways to mitigate them, and operational work plan, which must include the proposed data collection and analysis methods to address the key evaluation questions and required indicators. The inception report shall also include questionnaires and interview protocols.
- 2) Weekly Reports: During field work, the consultant must submit weekly reports to update on progress and any logistical challenges that require mitigation.
- 3) Draft Evaluation Report: Within 10 calendar days after the end of fieldwork, the consultant must submit a consolidated draft evaluation report, including all data aggregated per County and combined, for preliminary comments. This will facilitate effective review by MWA in preparation for the presentation during the validation meeting. A cleaned quantitative dataset (for quantitative data collection methods) in excel must be submitted alongside the draft evaluation report.
- 4) Debriefing/Presentation of Report: Within two weeks after submission of the draft report, a debriefing/presentation of the results will be done. During this meeting, the team will present the major findings of the evaluation to key stakeholders, either in person or virtually. A PowerPoint presentation will be made by the evaluation team and submitted two days before the presentation. The debriefings shall include discussions of methodology, limitations, key findings, conclusions, and recommendations.
- 5) Final Report: Within 7 calendar days of debrief, a final baseline evaluation report shall be presented. The final report shall incorporate the comments and suggestions from MWA and stakeholders. The format shall include an executive summary (highlighting key findings and lessons learned), table of contents, list of acronyms, background information, evaluation design and methodology, limitations, findings, lessons learned, conclusions and annexes. The report shall be submitted electronically in English. The final report must not be more than 50 pages excluding annexes. The report will be presented as one consolidated report with County specific reports as annexes.
- 6) A summary of the final baseline evaluation report (the popular version), not exceeding 15 pages, excluding any potentially procurement-sensitive information shall be submitted (also electronically, in English) for dissemination among implementing partners and stakeholders. The summary will be submitted together with the final report.

All primary source data, both quantitative and qualitative including cleaned quantitative dataset, focus group discussion (FGD) score sheets/reports/recordings and key informant interview forms/reports, related codebooks, and data analysis files (SPSS syntax files), generated during the evaluation must be provided to MWA in an electronic file in an easily readable format; organized and fully documented for use by those not fully familiar with the activity or the evaluation. In addition, all background documents collected for this evaluation and data analysis files must be provided to MWA, along with the final report.

F. Role of MWA, Partners and Consultant

The MWA together will collaborate with the selected consultant to undertake the following roles:

- 1) Provide consultant with background documents, reports, and available secondary data for review.

- 2) Arrange and pay for travel, accommodation and per diem for the consultant during site visits for data collection. Travel must be approved by MWA in advance of any booking.
- 3) Organize validation and dissemination workshop for the presentation of preliminary findings to the program stakeholders.
- 4) Review and provide input on all consultant's deliverables.
- 5) Ensure smooth flow of consultancy engagement processes including contractual obligations.
- 6) Share the final evaluation report with all key stakeholders, including key program staff, partners, and donor representative, national and County governments.

The roles of the facilitating partners shall include the following:

- 1) Approve the list of enumerators that the consultant will recruit.
- 2) Review documents and confirm that all enumerators have been paid by the consultant after successful completion of tasks.
- 3) Support the consultant in community sensitization and mobilization of respondents.

The roles of the consultant(s) shall include the following:

- 1) Conduct desk-review of relevant program documents and other secondary sources.
- 2) Develop an inception report, detailing the agreed upon study design, methodologies for data collection and analysis, indicators, data-gathering tools, work plan schedule and budget to conduct the assignment, in consultation with MWA. Methodologies must be detailed enough to support replication for midterm and end line evaluations.
- 3) Develop or refine quantitative data gathering tools in consultation with MWA.
- 4) Recruit and pay enumerators in each County.
- 5) Plan and coordinate quantitative and qualitative data collection.
- 6) Conduct training for the data collection teams including pre-testing of data collection tools.
- 7) Work with the facilitating partners in evaluation planning and logistics.
- 8) Review, clean and analyze collected data.
- 9) Incorporate data from other studies such as the RAPID end line evaluations and a gender study to develop baseline indicators and the comprehensive baseline situation to learn from in subsequent studies.
- 10) Write baseline evaluation report capturing findings and recommendations.
- 11) Present preliminary findings and draft report to program stakeholders for validation.
- 12) Incorporate input from program stakeholders and develop and submit the final baseline evaluation reports (full and summary versions).

F. Expertise Required for the Evaluation

- 1) Eligible consultants must possess post graduate qualifications in one or more of the following fields: Livestock Production, Range Management, Water and or other relevant training.
- 2) The evaluation will require a multi-disciplinary team with expertise in RAPID+ core areas of Water, Rangelands Management, Market Systems Development and Gender. The consultants should demonstrate how they are structured for the assignment and the role each staff will play including the CVs of the key personnel who will take part in the consultancy.
- 3) Demonstrated skills in research, data collection, monitoring and evaluation of Water, Rangelands, Market Systems Development and Gender donor funded programs in ASAL areas with at least 8 years of practical experience.
- 4) A proven track record of professional execution of similar consultancies/assignments and demonstrable capacity to deliver high quality outputs within a short timeframe.
- 5) Proof of experience in conducting quantitative and qualitative studies using mobile data collection.
- 6) Excellent report writing, analytical, communication skills are essential.
- 7) Excellent English language writing and communication required.
- 8) Experience with quantitative and qualitative statistical analysis packages (SPSS, STATA) and excellent experience in mobile data collection.
- 9) Previous work experience in and knowledge of the context of the five Counties is preferred.
- 10) Consultants based in Kenya are preferred.

G. Duration of the Assignment

The baseline evaluation will be conducted during March and April 2022 and is expected to take a maximum of 45 consultancy days.

Rangelands near Mt. Kulal in Marsabit County

