



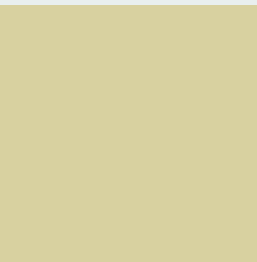
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Private Sector Participation in the Water and Rangeland Markets in Arid and Semi-Arid Lands (ASALs)



Document Title: Private Sector Participation in Water and Rangeland Markets in Arid and Semi-Arid Lands (ASALs)

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List of Acronyms

ASAL	Arid and Semi-Arid Land
B2B	Business to Business
BGS	British Geological Survey
BOT	Build, Operate, Transfer
BRRT	Borehole Rapid Response and Repair Team
CAPEX	Capital Expenditure
CETRAD	Centre for Training and Integrated Research in ASAL Development
CIT	Corporate Income Tax
DCED	Donor Committee for Enterprise Development
ENNDA	Ewaso Ng'iro North Development Authority
EPC	Engineering Procurement Construction
EPZ	Export Processing Zone
FEWS	Famine Early Warning Systems Network
FGD	Focused Group Discussion
GARA	Gums and Resins Association
GARUWASCO	Garissa Rural Water and Sanitation Company
GAWASCO	Garissa Water and Sewerage Company
GDP	Gross Domestic Product
HoAGWRP	Horn of Africa Ground Water for Resilience Project
IBT	Increasing Block Tariff
ICRAF	International Council for Research in Agroforestry
IFC	International Finance Corporation
ILO	International Labour Organisation
ILRI	International Livestock Research Institute
IWASCO	Isiolo Water and Sewerage Company
KALRO	Kenya Agriculture and Livestock Research Organization
KEPHIS	The Kenya Plant Health Inspectorate Service
KFS	Kenya Forest Services
KII	Key Informant Interview
KKCF	Kakuma Kalobeyei Challenge Fund
KWTA	Kenya Water Towers Agency

LLC	Limited Liability Companies
LMA	Livestock Market Association
LMS	Livestock Market System
LOWASCO	Lodwar Water and Sanitation Company
MARWASCO	Marsabit Water and Sanitation Company
MCM	Million Cubic Meters
MSD	Market System Development
MSME	Micro, Small, and Medium Enterprise
NACOSTI	National Council for Science and Technology
NALEP	National Agriculture and Livestock Extension Program
NEMA	National Environment Management Authority
NGARA	Network for Natural Gums and Resins in Africa
NGO	Non-Governmental Organisations
NLC	National Land Commission
ODA	Overseas Development Aid
OND	October, November, December
PayGo	Pay as you Go
PES	Payments for Ecosystem Services
PPP	Private Public Partnerships
PSD	Private Sector Development
RAPID+	Resilient Arid Lands Partnership for Integrated Development Plus
SACCO	Savings and Credit Cooperative
TNC	The Nature Conservancy
UNHCR	United Nations High Commission for Refugees
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax
WAJWASCO	Wajir Water and Sewerage Company
WAS	Water, Sanitation and Hygiene
WFP	World Food Program
WRA	Water Resource Authority
WRUA	Water Resource User Associations
WSP	Water Service Providers
WSTF	Water Sector Trust Fund



Executive Summary

The Arid and Semi-Arid Areas of Northern Kenya have been historically marginalized by successive government regimes since before independence. Resultingly the region is characterized by low development indicators, high poverty incidence, food insecurity, weak institutions, and poor infrastructure.

In alignment with the global push to leave no one behind, Kenya is trying to improve development in all regions of the country.



One way it is achieving this is through **devolving power to sub-national units known as counties.** While the devolved

system undoubtedly has its own challenges, it has brought about significant growth and development in the ASALs counties.



The other way stakeholders are trying to enhance economic growth in the region is **through private sector players.** The private sector has a critical role in ending extreme poverty and realizing sustainable development, specifically through job creation, technology development, and investments. However, the how of attracting, retaining, and growing private sector businesses in the ASALs has eluded governments and donors for a long time.



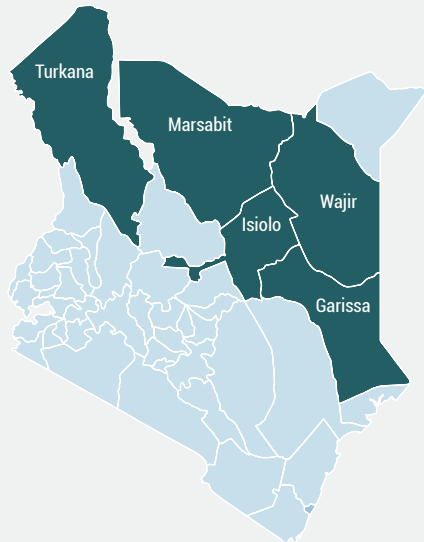
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The main livelihood of communities in the Northern ASALs of Kenya is **pastoralism.** Pastoralists in turn are dependent on natural rangelands, grown fodder and adequate water supplies. Resultingly, the rangelands, fodder and water sectors present viable entry points for private sector players. These three were the focus of this assessment that sought to assess the barriers to private sector participation in the region, isolate viable business opportunities and businesses in the three sectors, and identify business models that are currently being implemented across the three sectors by private sector stakeholders.





This assessment was carried out in five Northern ASAL counties- Garissa, Isiolo, Marsabit, Turkana and Wajir representing the counties where the Resilient Arid Lands Partnership for Integrated Development Plus project (RAPID+) under which the assessment was financed is being carried out



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We collected data for the assessment primarily through qualitative methods including Key Informant Interviews (KIIs), literature reviews and Focused Group Discussions (FGDs). A total of 183 KIIs were conducted with private sector business owners, county government officials, donors, and Non-Governmental Organisations (NGO), while 39 FGDs were conducted with community members, conservancy groups, water users' association, rangeland management committees among others. This assessment was carried out in five Northern ASAL counties- Garissa, Isiolo, Marsabit, Turkana and Wajir- which represent the counties where the Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) project under which the assessment was financed is being carried out. RAPID+ is convened and led by the Millennium Water Alliance 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.

A summary of private sector participation in water resource management, water service delivery, rangeland management and fodder production in the Northern ASALs is provided below.

Private Sector Participation in Water Resource Management

It is only in the recent past that the private sector began to take an active interest in preserving and managing water resources. Water resource management (WRM)- the process of planning, developing, and managing water resources to ensure quantity and quality across all water uses – has long been the province of national government institutions in Kenya and community-based associations known as Water Resource User Associations (WRUAs)

The assessment determined some of the roles that the private sector can play in WRM in the ASALs of Kenya include;





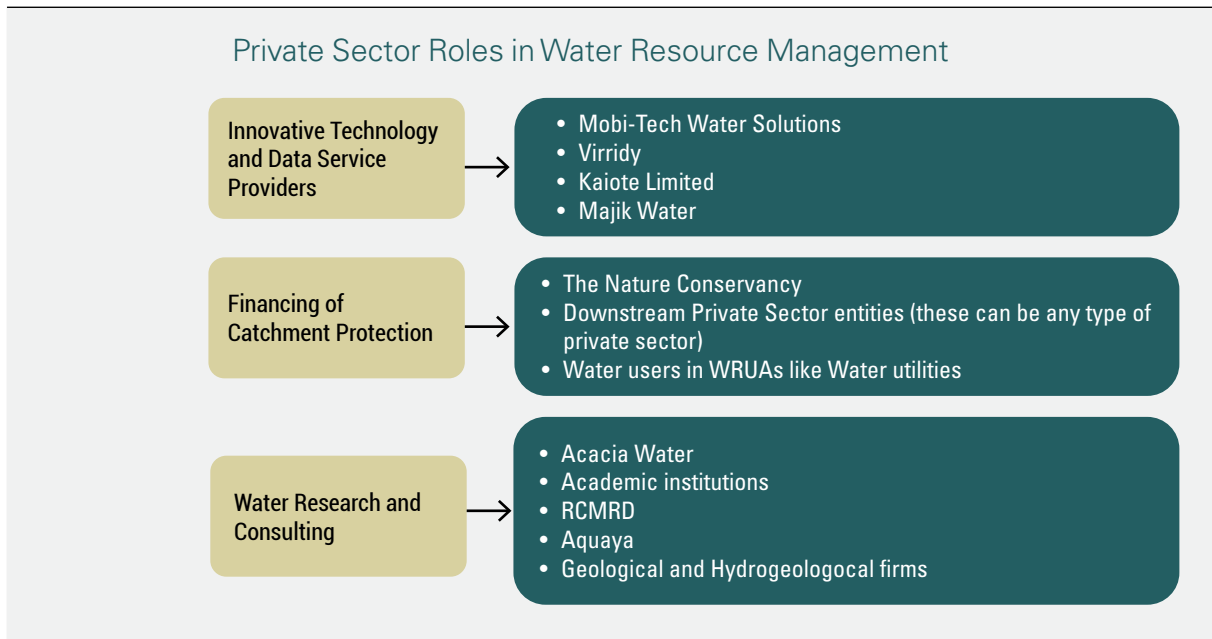
1.  generating water resource data to help inform decision making by county governments, donor organisations, NGOs, and research institutions,
2.  constructing and maintaining catchment protection structures like water pans, underground tanks, rock catchments, spring protection structures among others,
3.  developing new technologies to diversify water resources and minimize water inefficiencies, and
4.  financing water conservation and protection.

Figure 1: Different approaches taken by private sector players in WRM in ASALs



The diagram on the above summarizes different stakeholders already participating in three of the four roles envisioned for the private sector in WRM in ASALs.



Challenges to Private Sector Participation in WRM

- Lack of market:** The biggest challenge is that county governments, parastatals and other stakeholders do not pay for data on water resources generated by private sector entities. This prevails even though there is a paucity of data on the type, location, amount, availability, and use of various water resources in Northern Kenya. This could discourage private sector entities from offering these services.
- Poor regulations:** Another challenge is that regulations guiding the participation of the private sector in WRM are missing both at the national and local levels in the counties surveyed under the assessment.
- The Nature of Water :** This is because ground water and surface water reserves are common pool resources that may be subject to the tragedy of the commons, a situation where individuals with access to a common good/ public resource overconsume it driven by their own interests and ultimately deplete the resource. The fact that water resources are non-excludable- meaning one cannot exclude others from using it- makes it difficult to regulate their use and may potentially render the exploitation of the resources less appealing for private sector investment.



Private Sector Models in WRM

- Payments for Ecosystem Services (PES):** PES schemes for water shed services typically involve downstream users of a river (potentially private sector players) paying upstream users within a watershed for the preservation and sustainable use of the resource.
- Strengthening Water Resource User Associations:** Another business approach would be to ensure that Water Resource User Associations (WRUAs) can generate their own sources of income required to protect water resources within the sub-catchments.



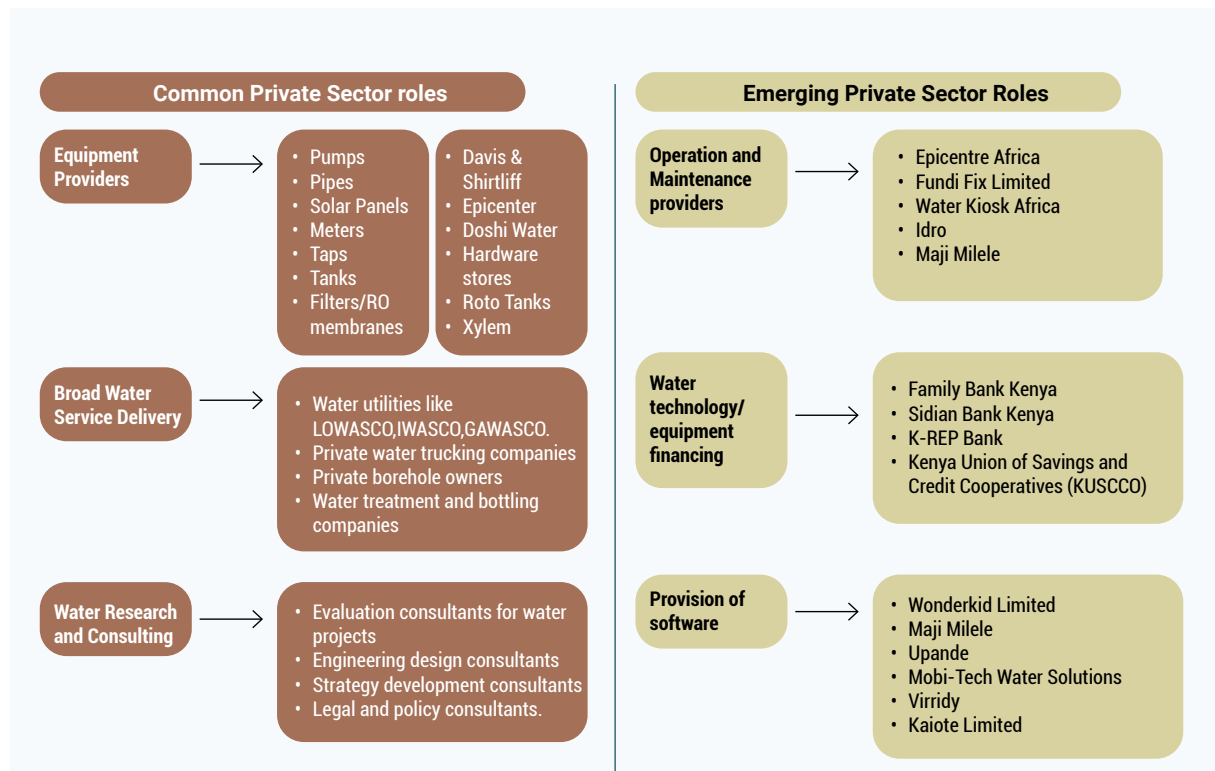
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Private Sector Participation in Water Service Delivery

Private Sector Participation is much more common in water service delivery. The diagram exemplifies

the various roles that private sector players undertake in water supply in Northern ASALs.

Figure 2: Roles of private sector in water service delivery in ASALs



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Challenges to Private Sector Participation in Water Supply

Although many private sector players have invested in water service delivery, they continue to face challenges that cripple their growth and discourage others from participating. These include:

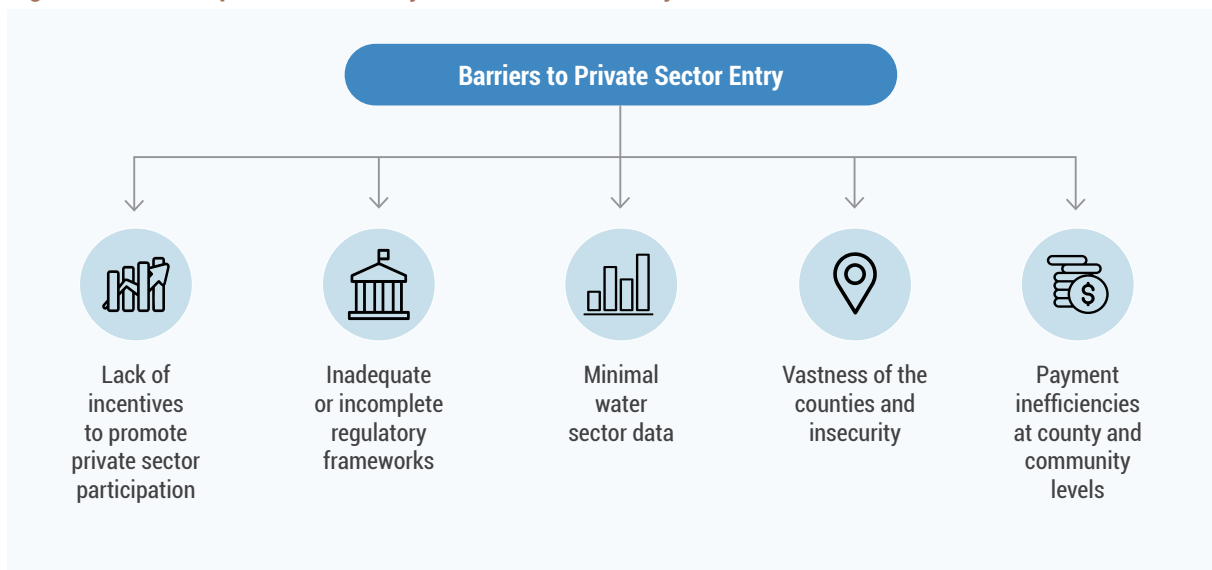
- adequate incentives like subsidies to promote private sector participation in thin markets like those in the ASALs;
- inadequate or incomplete regulatory frameworks around private sector participation in water services delivery;
- minimal water sector data which the private sector can use to make investment decisions;
- vastness of the ASAL counties and insecurity which complexifies private sector operations; and
- logistics and payment inefficiencies (delayed payments/non-payments) by the county governments and the communities.



Private Sector Water Supply Models

- **Commercial Financing:** An example of this is the Water Credit model by Water.org where commercial banks (like Family Bank) are supported with technical assistance and financial resourcing to add water and sanitation loans to their product portfolios. Water.org also works with development finance entities to de-risk commercial banks which may be reluctant to lend to consumers.
- **Water maintenance:** These seek to address the challenges around operation and maintenance of rural water systems. Examples include the water point insurance model by the Catholic Diocese of Lodwar, the maintenance service provision model by Fundi-Fix, the Preventative Maintenance Model by Epicenter Africa, the Build Operate Transfer/Build Operate model by WaterKiosk Africa and Water utility private sector contracting model.
- **PayGo Model:** for the purchase of water supply equipment like pumps.
- **Franchising model:** for water purification companies or water refilling companies.

Figure 3: Barriers to private sector entry in water service delivery in ASALs



Private Sector Participation in Rangeland Management and Fodder Production

It is important to highlight that the information on rangeland management and fodder production derived through the assessment is not comprehensive due to difficulties faced in securing both secondary and primary data.

The management of rangelands, much like water resources, has traditionally been conducted by the government and community structures known as rangeland management committees. However, rangeland products other than grass are largely traded by private individuals and organisations. These include plant-based products like gums and resins, medicinal herbs and dyes, animal-based products like honey, skins, and wool, naturally occurring minerals to mention a few. Fodder production is also pre-dominantly undertaken by private sector players.

Gums and resins

Gum arabic, myrrh, hagar, and frankincense are all commercially valuable gums and resins in Kenya. They are primarily harvested in Marsabit, Wajir, Garissa, Mandera, Turkana, Samburu, and Isiolo Counties and exported in raw form except for a small quantity that is processed for essential oils. There are three main processors of gum resins in Kenya namely: Lubanchem Limited, Northern Gums Limited, and Arbor Oils of Africa Ltd. This assessment found the industry is relatively new in Kenya and has good returns which could be attractive to private sector entities.

For example, raw gums and resins in Isiolo and Marsabit are bought from collectors for an average of KES 170 per Kg. Once processed it is then sold for KES 8,000 per Kg, a 4,600% difference in price. The main challenge facing the sector is therefore exploitation of small-scale collectors of the raw product. This is indicative of the need for regulation within the sector to protect small-scale industry players.



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Honey

The ASALs account for 80% of honey production in Kenya and have potential to produce even more. The assessment determined that beekeeping in the 5 RAPID+ counties is mainly carried out through small-scale farming. There are few large private companies engaging in the business meaning there is potential for the entry of additional private sector players. An example of one large company carrying out beekeeping in the ASALs is the Hive Group. It works through assisting beekeepers to increase honey production while also providing a ready market as it is a primary buyer. The main challenge facing private beekeepers in the ASALs is deforestation which minimizes the habitats for cultivating bees. The perception of bee keeping by communities in the ASALs is also skewed as they consider it an activity for the destitute in the society, which discourages its uptake.

ASALs account for

80%

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Fodder

Fodder production is aimed at supplementing natural range and is particularly important during drought periods when natural range resources have been depleted. This assessment found that fodder production is primarily done by communities in the Northern ASALs for subsistence use and is rarely commercialised. Most fodder farms are established along rivers such as River Turkwel and River Kerio by individuals and groups supported by NGOs and the national government.



The fodder market faces several challenges including: the free distribution of fodder and seeds by NGOs and the government which distorts the market and makes it an unviable business opportunity; the poor perception of ASAL communities around grown fodder; and, the seasonality of the fodder business (fodder markets suffer during the rainy season when natural range is more readily available). Nonetheless, we found that with increasing droughts in the region, the perceptions of communities towards fodder production and utilization are changing. Further to this, the increased uptake of feedlot farming in the Northern ASALs creates a means to curb the seasonality of fodder purchase.

During the assessment several trucks ferrying fodder in from the Southern parts of Kenya were seen supplying major town in Northern Kenya like Isiolo, Garissa and Marsabit with fodder. This is indicative of the potential intervention of the private sector in augmenting fodder production in Northern ASALs.

Conclusions

This assessment is by no means exhaustive and continued research is required to improve and further catalyse private sector participation in Northern ASALs. However, it is instrumental because it adds to the limited body of knowledge on private sector participation in promoting economic growth in the ASALs of Kenya. The overall findings of the research are outlined below.

- Private sector participation is not novel in the ASALs. There are already various local, national, and international players operating in the water and rangeland sectors in the ASALs.
- Data gaps around private sector participation in Northern ASALs in the water, rangeland and fodder sector remain significant.
- There is a need to set up enabling frameworks for private sector participation in the fodder, water, and rangelands sectors.
- Financing and de-risking private players to facilitate their entry into Northern ASAL markets is necessary.
- For successful participation of the private sector, various community perceptions and

cultures of Northern ASAL dwellers must be taken into consideration and addressed. For example, communities typically find it difficult to view fodder as an income earning good due to their perceptions that natural range should not be charged, and that natural pasture far supersedes grown/farmed fodder. This impedes commercial fodder production at a large scale.

- The private sector is not a silver bullet to address the socio-economic challenges in ASALs in general and propel the water and rangeland sectors in particular. County governments, the national government and development partners still have a significant role to play in water supply and rangeland management.

Recommendations

Recommendations from this assessment are targeted at national and sub-national governments, development partners and private sector business owners. They have been disaggregated into water sector specific recommendations, rangeland recommendations and cross-cutting recommendations as captured in the table below.

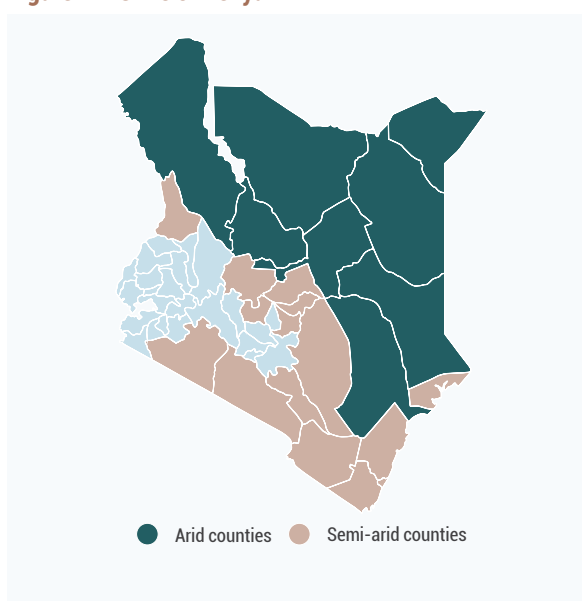
Cross-Cutting Recommendations	Water Sector Recommendations	Rangeland Recommendations
Replicate the Kakuma Kalobeyi Challenge Fund (KKCF) which is currently running in Turkana in other selected ASAL counties in Kenya. The five-year program is designed to support private sector investment and unlock the economic potential of refugees and their hosts in Turkana County.	The Nature Conservancy's (TNC) Water Fund Model could be deployed in ASAL areas. This is a form of Payment for Ecosystem Services (PES)	Strengthen the Gums and Resins sub-sector and improve the regulation within the sector to minimize exploitation of players along the supply chain.
Establish rules and regulations to guide private sector participation in Northern ASALs	Water Resource User Associations (WRUAs) should be strengthened and made financially independent in order for them to execute catchment protection activities.	Scale private sector bee keeping activities e.g., the model currently being used by the Hive Group
Improve information flows around private sector participation in Northern Kenya	Commercial financing of water service provision should be augmented.	Curb seasonality in fodder production by linking fodder producers with feedlot owners.
	Support unique private sector led Operations & Maintenance models for water service provision.	

Introduction

The Arid and Semi-Arid Lands (ASALs) of Kenya (see figure 4)¹ face intractable challenges borne by a combination of systemic marginalization, a challenging climatic environment, chronic poverty, insecurity, weak economic integration, and limited political leverage².

This is despite the fact the ASALs make up 89% of the land area of Kenya and host 38% of the country's population. Economically the region carries 70% of the national livestock herd with an estimated value of KES 70 billion,³ and 90% of Kenya's wildlife that is the backbone of the tourism industry and contributes 12% to the Gross Domestic Product (GDP) of the county⁴. The region also has untapped solar and wind energy resources as well as minerals.

Figure 4: ASALs of Kenya



Decades of concerted efforts by development organisations and local communities have yielded minimal progress in fostering development in the region.⁵ Additionally, focused attention by the central government on the growth of Northern Kenya, while positive, has barely moved the needle. With the introduction of the devolved system of governance in Kenya in 2013, improvements have been registered across

various sectors in the ASALs.⁶ For example, in the health sector, research indicates that new health centres have been built, facilities in referral hospitals have been upgraded, and several Kenya Medical Training Colleges (KMTC) have opened in the region⁷ In the transport sector, improved networks of several major roads in the region has substantially shortened travel time. Despite this progress garnered through devolution, significant gaps remains.

The gaps presents an entry point for the private sector. There is growing cognizance of the pivotal role that the private sector can play in supporting development partners and the government to accelerate development in the region and to make projects and activities more sustainable.

Unfortunately, not much information exists on the status of private sector participation in Northern Kenya, including a lack of clarity on the challenges hindering their entry into region, inadequate data on the private sector entities currently providing services there, and more importantly, limited knowledge on the business models that can successfully be rolled out in this uniquely challenging environment.

This report will provide this information with a specific focus on the water and rangelands sectors due to their centrality in the livelihoods of communities in the ASAL areas.

1.1 The Purpose of the Assessment

This assessment has been commissioned under the Resilient Arid Lands Partnership for Integrated Development+ (RAPID+) program that is convened and led by the Millennium Water Alliance 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. The project commenced in 2021 and is set to run until 2026. RAPID+ seeks to improve access to safe and sustainably managed

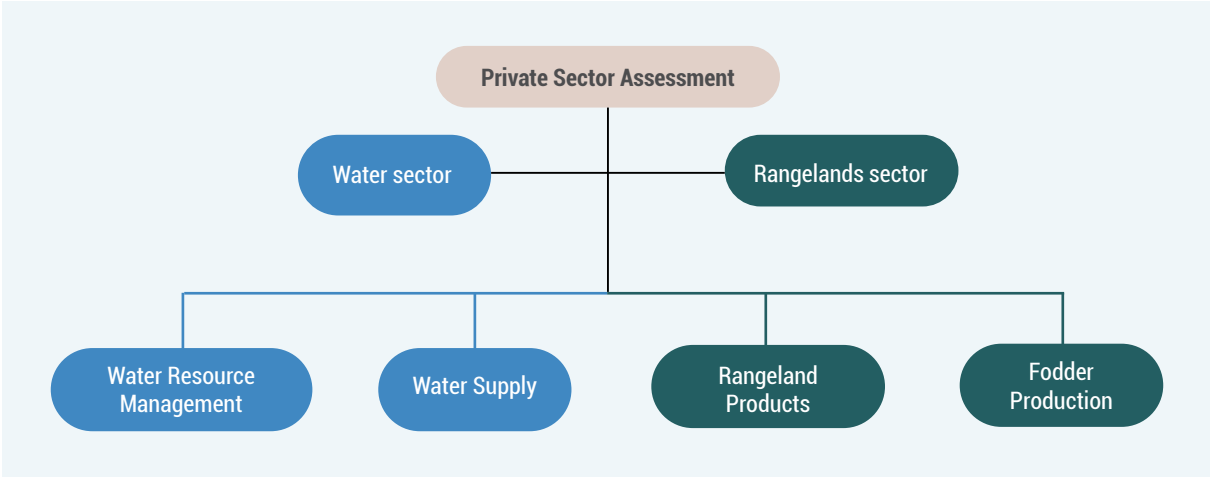
water and rangelands in five counties in the ASALs (Garissa, Isiolo, Turkana, Wajir and Marsabit) to contribute to resilient livelihoods for up to 200,000 beneficiaries. RAPID+ has two key objectives:

- i) ensuring pastoralist communities have increased access to sustainable and safe water for domestic use, irrigation and livestock keeping, and
- ii) ensuring pastoralist communities have improved access to safe and ecologically healthy rangeland resources that promote greater integrity, social cohesion, and gender equity

RAPID+ has elected to focus on these sectors because they are the backbone of economic production in the ASALs and their effective functioning has the capacity to reduce poverty, minimize resource-based conflicts and promote environmental conservation. Consequently, they are the key focus of this assessment.

The sectors have been further sub-categorized into water resource management, water supply, rangelands and fodder production as captured in Figure 5 below.

Figure 5: Key Sectors Covered Under the Private Sector Assessment



This study seeks to:

1. > Determine the barriers to private sector entry and engagement in ASALs.
2. > Isolate and specify business opportunities in water supply, water resource management, rangelands, and fodder production in the ASALs.
3. > List 15 or more successful county-based, national, and international private sector organisations or businesses in water supply, water resource management, rangelands, and fodder production in Northern Kenya.
4. > Identify business models (both successful and unsuccessful) that have been implemented or are currently being implemented by private sector stakeholders in the ASALs.

The findings of this assessment will be pivotal in promoting increased private sector participation in Northern Kenya and more broadly in the ASALs. Development partners and county governments will also use them to develop programs or projects centred around promoting private sector participation to drive development in the region. Much needs to be done in the ASALs of Kenya and success can only be achieved through the collaborative action of all players.



Why the Private Sector?

2.1 Why Private Sector Participation is Key in the ASALs of Kenya



The private sector creates an estimated **90%** of all jobs in developing countries, accounts for **60%** of gross domestic product and **80%** of total international capital flows in developing countries.

The private sector plays a critical role in ending extreme poverty and realizing sustainable development, specifically through job creation, technology development, and investments. Indeed, the private sector creates an estimated 90% of all jobs in developing countries⁸. Further, it accounts for 60% of gross domestic product and 80% of total international capital flows (including foreign direct investment, portfolio equity flows, commercial debt, and remittances) in developing countries.⁹ While the place of the private sector in ending poverty is clear, attracting and sustaining long-term private sector investments remains a challenge for areas that need it the most – poor and marginalized regions.

ASAL counties in Kenya are characterized by low and erratic rainfall, low population density, low

development indicators, high poverty incidence, food insecurity, weak institutions, and poor infrastructure. This combination of traits presents complex challenges that require creative and innovative approaches by both government and development partners to attract and retain private sector players.

One method development practitioners are using to stimulate private sector participation in economic growth and poverty reduction is the Private Sector Development (PSD) approach. The Donor Committee for Enterprise Development (DCED) defines PSD as *“a range of strategies that aims to establish markets that function vibrantly and fairly, providing economic opportunities of quality to poor people at scale”*¹⁰.



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The three principal strategies under the PSD are:

- i. **creating enabling environments for growth** by minimizing or eliminating bureaucracies that hamper the private sector from supporting economic growth and generating opportunities for the poor,
- ii. **addressing market constraints** by conducting an in-depth assessment of markets to isolate constraints that prevent private sector participation, then designing interventions to redress the identified constraints, and
- iii. **conducting private sector engagement** which involves bringing governments and development partners together to co-create, co-finance, co-manage and co-implement activities with identified private sector partners for greater scale and sustainability of impact. Public Private Partnerships (PPP) provide a good example of private sector engagement.

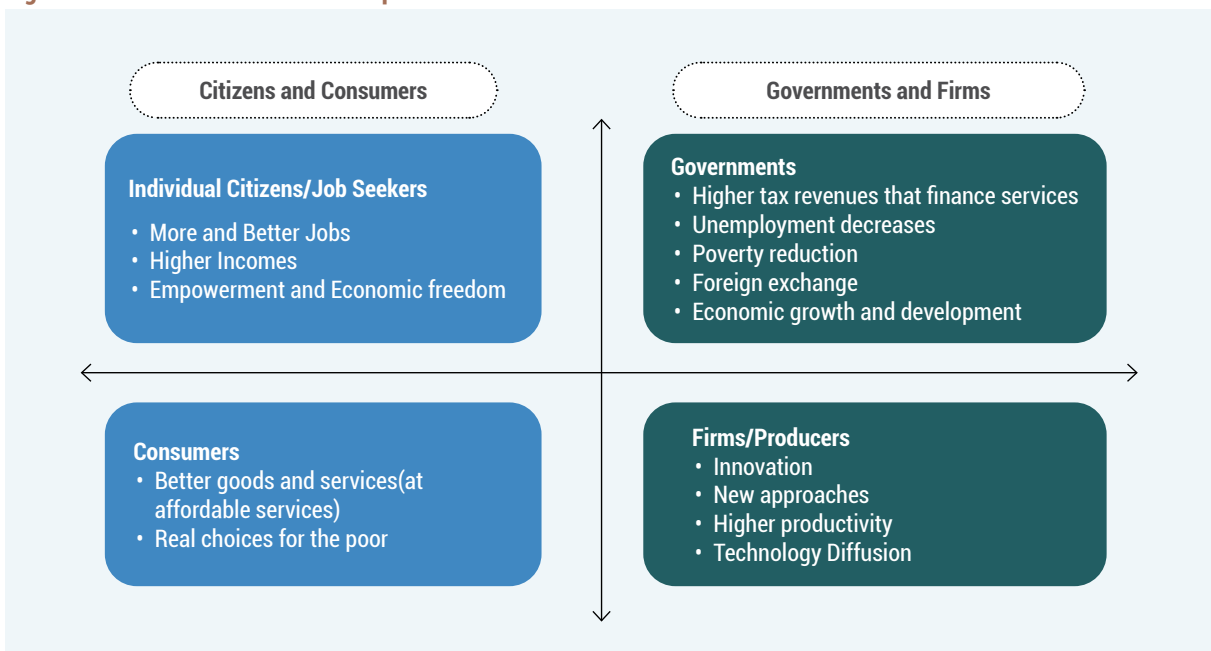


For economic growth to be realised in ASALs, all three strategies under PSD need to be employed to attract new private sector players to the region and augment the work of local and existing private sector entities.

It is however important to emphasise that while private sector participation is necessary for development, it is not a panacea. A broad-based

assumption cannot be made that the private sector can succeed where governments and development entities have struggled to stimulate reform. Instead, the assessment emphasizes how the private sector can work in tandem with other stakeholders in the region to drive much needed economic growth.

Figure 6: What Private Sector Development Offers¹¹



2.1.1 The Private Sector as an Engine for Job Creation

The private sector provides a larger share of jobs globally than the public sector. This is largely due to jobs created by self-employed individuals and Micro, Small and Medium Enterprises (MSMEs). A 2019 study conducted by the International Labour Organisation (ILO) found that MSMEs account for up to 62% of employment globally underscoring the important role they play in economic growth particularly in developing countries.

ASALs in Kenya require the economic development and political stability that can be attained through job creation. Currently ASAL counties have an unemployment rate of 62% which is much higher than the average national unemployment rate in Kenya of 39%, and the highest of any regional block in the country¹². This is indicative of the need to support the growth of MSMEs in these regions and their eventual transition into formal sector entities. The growth of MSMEs in ASALs can also contribute to livelihood diversification which is a key agenda in the 2018-2022 strategic plan for ASALs developed by the Kenyan State Department for Development of the ASALs.

Communities in Northern Kenya predominantly rely on livestock keeping as their main source of household income. However, factors including recurrent drought incidences, growing populations and heightened resource-based conflicts are forcing communities to turn to other non-pastoral activities like collecting and selling gums and resins, beekeeping, harvesting sand and gravel for construction, and cultivating fodder for sale, among others¹³. These emerging economic activities represent a strong entry point for the private sector.



Currently ASAL counties have an unemployment rate of

62%

which is much higher than the average national unemployment rate in Kenya of 39%.

2.1.2 Private Sector Support to the County Governments

Governments in the ASAL counties of Kenya face the challenge of not only stimulating growth in the region but also bringing their communities up to par with the rest of the country following decades of marginalization. To achieve this, county governments require a substantive amount of investment coupled with new approaches, technology, and infrastructure. Private sector entities can help ASAL counties to roll out their mandates through arrangements like Public Private Partnerships (PPPs) to support new sectors such as construction, energy, and manufacturing to promote livelihood diversification.

Further, fluctuating and inconsistent investment and participation by foreign governments and development partners in Kenya means that counties are increasingly turning to the private sector as a source of new investment to drive development¹⁴. Overseas Development Aid (ODA) can be quite transient and volatile. For example, fiscal support from the development sector dropped from 3.3 billion USD in 2013 to 2.19 billion USD in 2016, but it later increased to USD 3.99 billion in 2020¹⁵. The private sector presents a more sustainable and stable form of support because private entities are incentivized to continue providing services due to the returns they receive

2.1.3 Promising Private Sector Opportunities in the ASALs

A study on economic growth in Northern Kenya highlights the consistent undervaluing of the economic potential of ASALs¹⁶.

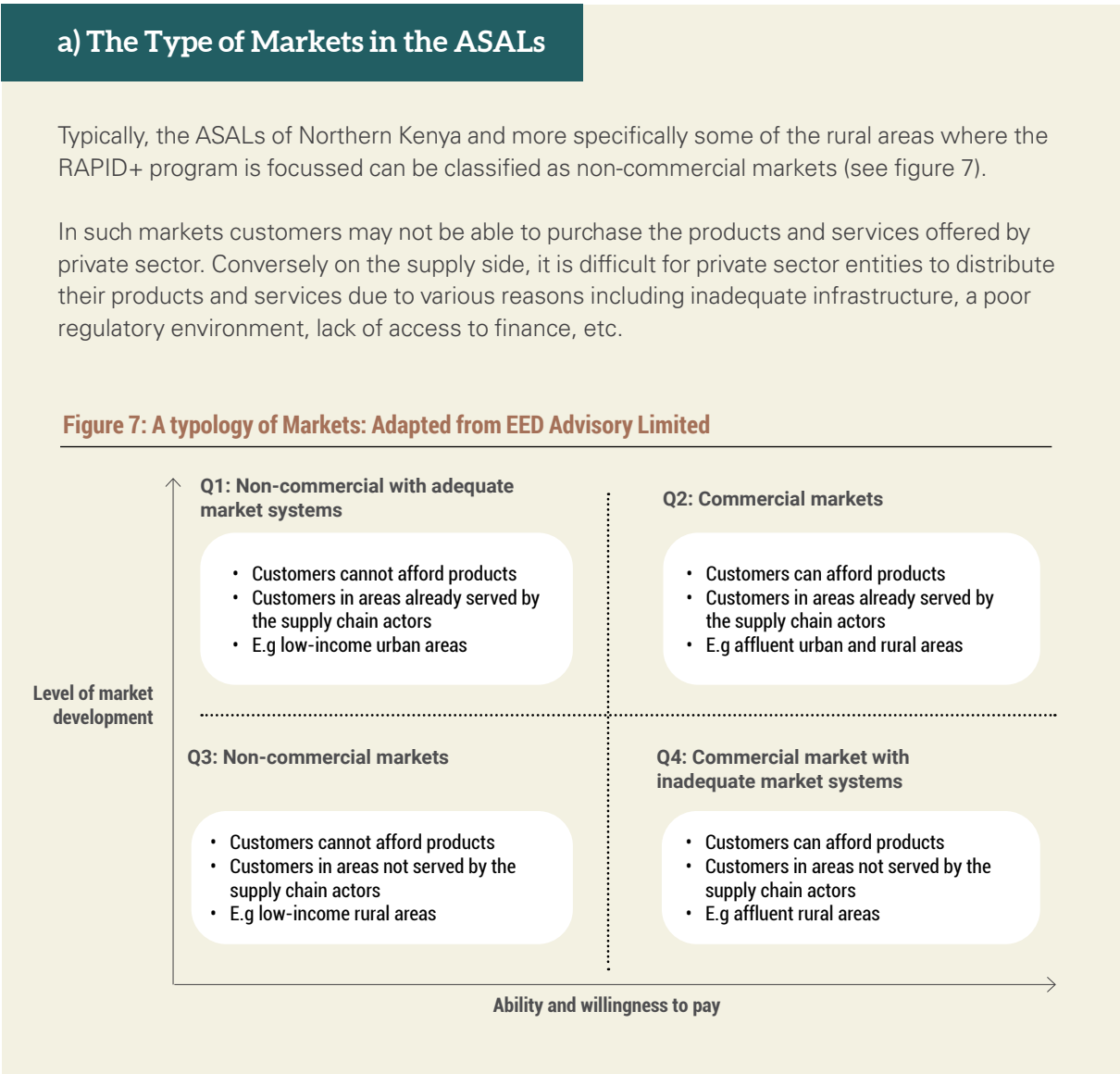
This is partly because a large proportion of the trade and business in ASALs takes place informally, while government data only captures services and products sold and marketed through official channels¹⁷. ASALs are also viewed as a region where only livestock production takes place which fails to capture the myriad investment opportunities in the region including tourism, fishing, mining energy generation, construction, beekeeping, among others¹⁸.

A policy on the development of Northern Kenya passed in 2012 created impetus for increased development of the region. The policy was deliberately crafted to undo the harm and systemic marginalization of the ASALs entrenched by the influential Sessional Paper No. 10 of 1965, which perpetuated the biased distribution of public investment established under colonial rule. The 2012 policy, coupled with devolution, led to the establishment of suitable policies, laws, and regulations to create the right kind of environment for private sector activities. Devolution also stimulated the growth of urban centres in the region where local, national, and international private sector entities can grow their businesses in the ASALs.

Overall, the ASALs have latent potential which can be tapped by interested and innovative private sector entities.

2.2 Constraints to Private Sector Participation in the ASALs

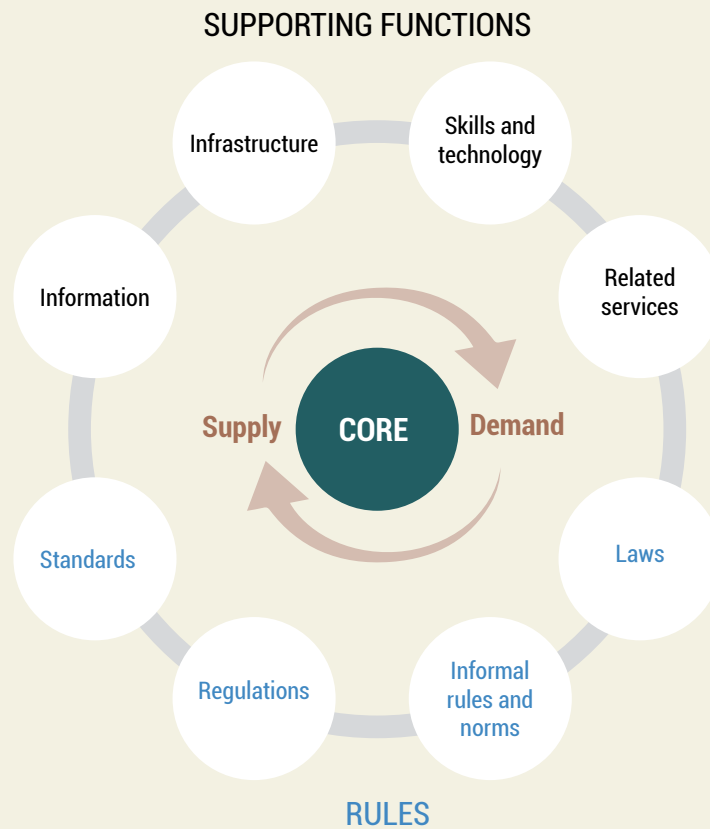
While the need for private sector driven growth and development in Northern Kenya is obvious, there are several challenges that may hinder participation of private sector entities. To better understand these constraints, it is necessary to evaluate the structure and type of markets in ASALs and gain a more nuanced understanding of the sectors RAPID+ is focusing on.



In urban areas of ASALs, markets can be classified as either commercial markets with inadequate market systems or purely commercial markets. In commercial markets with inadequate market systems, customers can afford the products but the supply chains for delivering the products are poor or non-existent.

Rural ASAL areas can also be classified as thin markets according to the market system development approach.¹⁹ is Thin Markets: "These are markets that are relatively uncompetitive, in which there are few market players engaging in supply and demand, and where there are several 'absent' supporting functions and rules"²⁰. (See figure 8).

Figure 8: A market system diagram based on the market system development approach²¹



b) The Nature of the Sectors RAPID+ is focusing on

RAPID+ is focused on improving access to water and rangelands which are the bedrock for economic activity in Northern Kenya. Water sector work under the program encompasses both water supply and water resource management while rangeland sector work focuses on enhancing fodder production as well as improving access to natural rangelands. The two sectors are termed as common pool resources²² that suffer from the tragedy of the commons. This is a situation where individuals with access to a common good/public resource (like groundwater, a

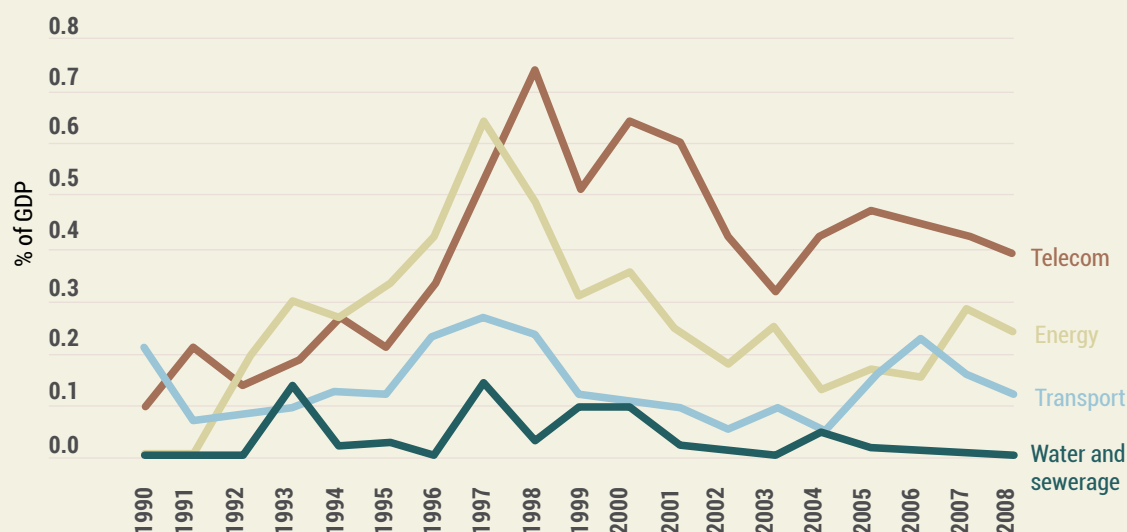
river, rangelands), overconsume it driven by their own interests and ultimately deplete the resource^{23,24}.

This unsustainable utilization of resources may also make them very expensive putting them out of the reach of more vulnerable groups. The fact that the two goods are non-excludable- meaning one cannot exclude others from using them- makes it difficult to regulate their use and may potentially render them less appealing for private sector investment.

Water, for instance, was enshrined as a human right in 2010 through a resolution adopted by the United Nations General Assembly. This entitles everyone access to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use. While this right is important in ensuring governments provide potable water for all citizens, it may also inadvertently make it harder to attract private sector entities to participate in water supply and resource management (see figure 9

below). This is because the right justifiably ensures there are more regulatory controls and price caps in the sector to ensure everyone is included which may deter profit-focused private sector players, especially in thin markets like the ones present in rural ASALs. In other words, the dichotomy between water as a human right and water as an economic good could contribute to limited private sector engagement in the water sector at large.

Figure 9: Trends of private sector participation in the water and sewerage sector²⁵



With a good understanding of ASAL markets and RAPID+ focus, we can now dive into the constraints limiting private sector engagement in Northern Kenya. They are categorized into four:

- i) High poverty levels
- ii) distortionary aid programs
- iii) cultural biases
- iv) lack of an enabling environment.

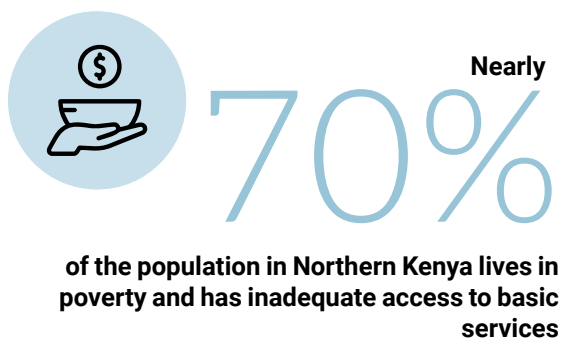
These are the broader constraints affecting the region. This report elucidates more county/sector specific constraints in the subsequent chapters.

2.2.1 High Poverty Levels

Nearly 70% of the population in Northern Kenya lives in poverty and has inadequate access to basic services²⁶. Communities and households in the region have limited purchasing power which hampers their ability to participate in markets or pay for products/services. Communities in ASALs face multiple and complex barriers that keep them trapped in poverty including recurrent droughts, frequent insecurity, and general lack of opportunity due to decades of marginalization²⁷. Consequently, these households require intensive support to overcome these barriers and engage with the private sector.

2.2.2 Distortionary Aid Programs

Communities in ASAL areas have long relied on aid for products and services following decades of marginalization by various regimes in Kenya. However, the steady stream of aid in Northern Kenya is paradoxically reported to limit development and minimize private sector participation.²⁸ Non-governmental entities and other development partners can sometimes edge out private sector players by providing products or services for free or at a highly subsidized cost. Consistent aid in the ASALs has also conditioned communities and county governments negatively, fostering dependency. This makes it difficult for private sector entities to competitively offer their products and services since communities may be accustomed to hand-outs.



2.2.3 Cultural Biases

Communities in the ASALs in Northern Kenya have long-held beliefs that natural pasture far supersedes grown/farmed fodder which curtails commercial fodder production at a large scale²⁹. This belief is however waning due to recurrent droughts in the region. Another belief is that water should be provided for free particularly at solarized water points, making communities reluctant to pay for it. Anecdotal information also highlights the detrimental roles clannism plays in curtailing the growth of private sector businesses. For example, a clan may fail to support a particular business because the owner hails from a different clan.

2.2.4 The lack of an enabling environment

ASALs are a challenging business environment for private sector players because of the challenges listed below, among others:

- lack of a sound policy and regulatory environment.
- inadequate infrastructure such as road networks, and telecommunication structures.
- threat of insecurity due to resource-based conflicts and terrorism.



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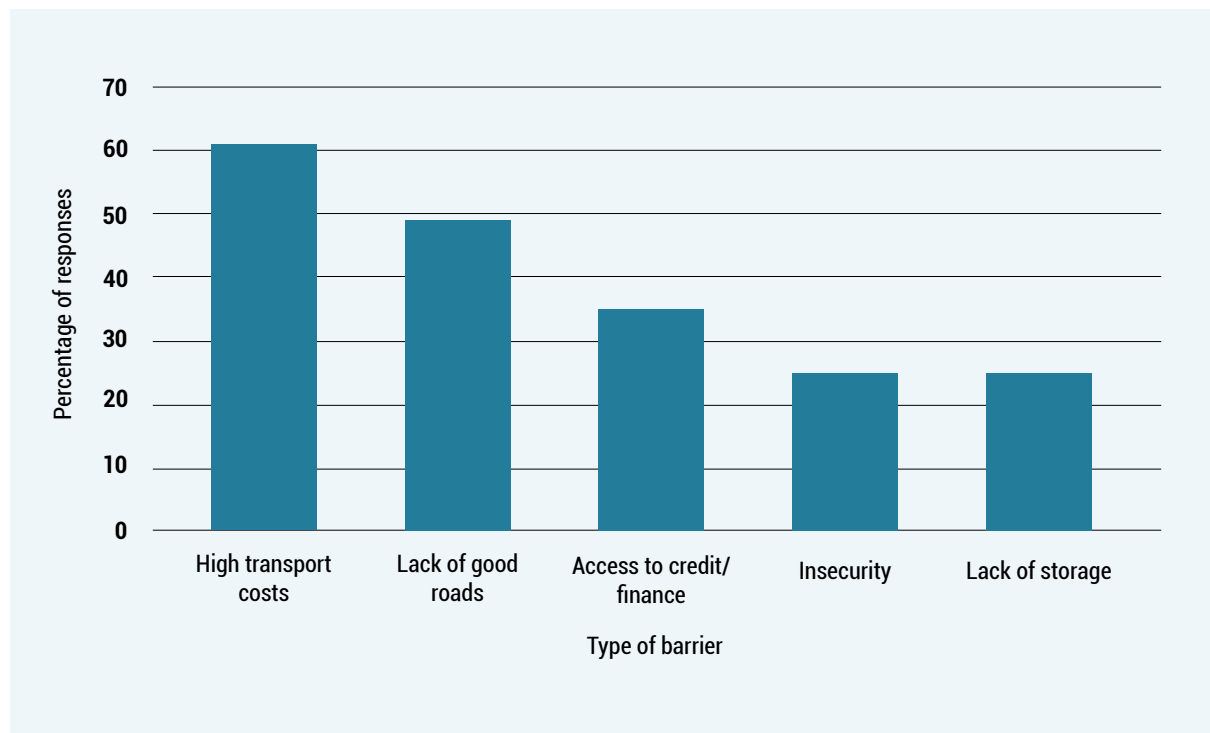
- unclear land tenure systems because large proportion of land in the ASALs is communally owned which may not favour private investment³⁰.
- county governments in ASALs and other regions of Kenya have gained a poor reputation for non-payment of suppliers which makes the private sector wary of dealing directly with the county when conducting business.
- working with the county exposes private sector entities to political interference which can slow down business.
- inadequate access to credit and limited incentives and risk guarantees to venture into ASALs.
- limited information about the opportunities available in ASAL areas not just for the water and rangeland sectors but across the board³¹

A 2013 report by the World Food Program (WFP) attempted to rank some of the barriers to private sector engagement, as seen in Figure 10 below.



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Figure 10: Barriers to Private Sector Engagement³²



2.3 Methods that can be used to stimulate Private Sector participation

Both the 2012 policy on development of Northern Kenya and the 2018-2022 strategic plan for the ASALs advocate for increased private sector investment. Some of the documented strategies for stimulating this are elaborated below.

2.3.1 Tax Incentives and Risk Guarantees

Foreign and national private sector entities are typically reluctant to invest in early-stage concepts, unfamiliar markets, or small-ticket projects³³. To incentivize them to engage in nascent markets like those in the ASALs, development partners and government organisations need to provide the requisite tax incentives and risk guarantees to enable them to launch in the market.

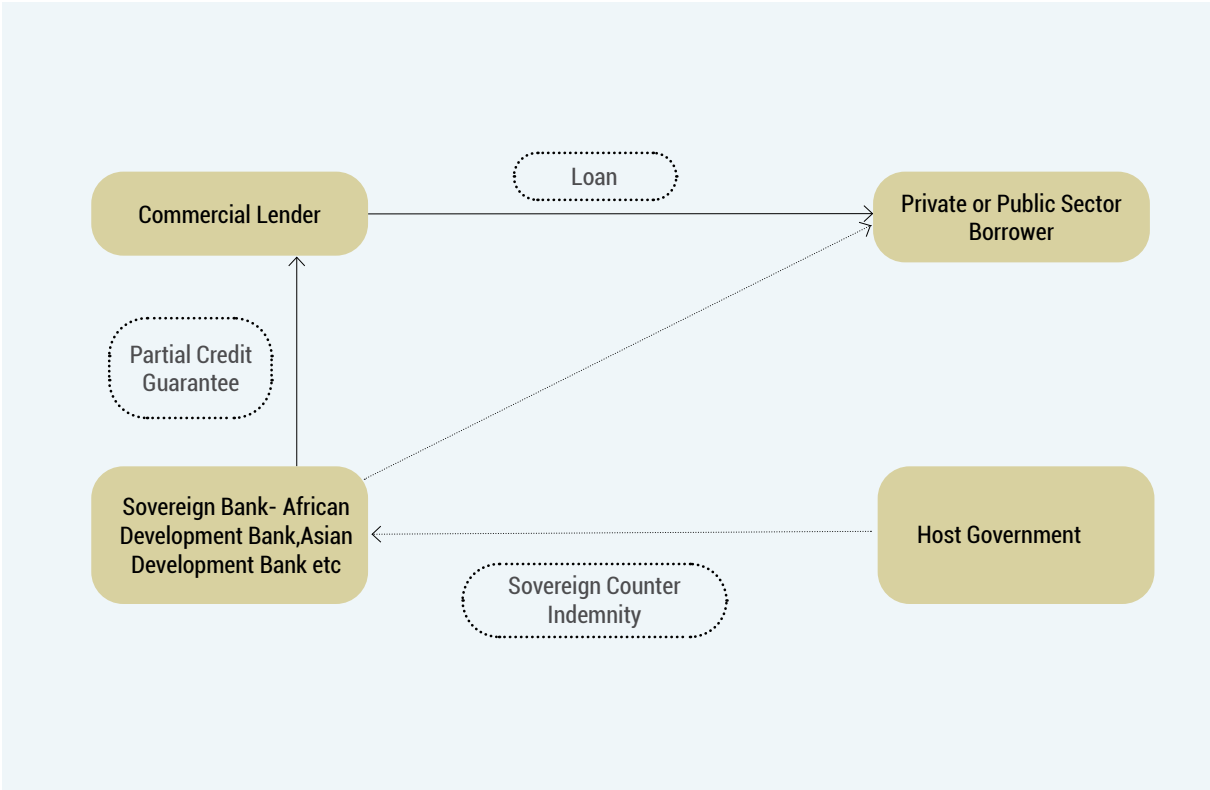
A World Bank analysis indicates that despite the high expense of these incentives and potential fiscal risk, the likelihood of attracting private sector

participation and investment in thin markets without them is slim³⁴.

Examples of tax incentives include tax holidays (temporary tax breaks), reduction on Corporate Income Tax (CIT) rates for certain sectors, investment tax credits, and removal of import duties and Value Added Tax (VAT) on certain products. A good example is what happened in the renewable energy sector when the government of Kenya introduced VAT exemptions for Stand-Alone Solar Products in 2012 catalysing substantial private sector participation and investment in the off-grid market³⁵.

Another example from the water sector is the provision of tax rebates or tax refunds to individuals who purchase water efficient/water saving products from certain firms engaged under a water efficiency program known as WaterSense in the United States³⁶. Risk guarantees, just like tax incentives, are instruments that mitigate against political, credit, currency or general risks and provide the private sector with the confidence to venture into new markets.

Figure 11: An example of standard partial credit guarantee model to stimulate private sector participation: Adapted from the Asian Development Bank (ADB)³⁷



2.3.2 Public Private Partnership Arrangements

Public Private Partnerships (PPPs) are not new globally and have pre-dominantly been used to finance large-scale infrastructure projects. PPPs not only bring in private sector investment, they also ensure that projects are delivered more efficiently and cost-effectively by leveraging the risk management capabilities of the private sector. Long term PPP arrangements where private sector entities are required to operate the infrastructure or deliver the services are also important for improving the consistency of service delivery and enhancing asset maintenance over the long-term³⁸.

For PPPs to be operational and successful, a robust framework/regulatory environment must be in place. Additionally, the legal and technical capacities of central and county governments to deal with the private sector must be built. In the case of Africa and other developing regions of the world, PPP proponents must be flexible in their delivery or adopt customized approaches to tackle challenges around limited bankable projects, underdeveloped financial systems, small-ticket projects, and real and perceived project risks³⁹.

2.3.3 Use of Subsidies

Subsidies are a catalytic tool used by governments and development partners to stimulate private sector participation and investment particularly in thin markets like those present in the ASALs of Kenya. Research by the Overseas Development Institute (ODI) underscores the two core objectives of subsidizing the private sector- *“to send private sector investment where it would not otherwise go and to have a positive impact on development”*⁴⁰.

Subsidies can be categorized as either supply-side subsidies which are provided to private sector entities or demand-side subsidies issued to households/consumers to increase their purchasing power.

Examples of [supply-side subsidies](#) could include tax exemptions for certain products or output based aid financing.

→ Output-based aid refers to a financing mechanism where service providers are provided with incentives to serve remote communities with great needs like those in the Northern ASALs. The provision of incentives is contingent on the delivery of specified outputs. Caution needs to be taken when structuring and issuing supply-side subsidies. For instance, development partners and governments need to be careful not to push subsidies without ensuring that there is actual demand in the market⁴¹. Supply-side subsidies must also not create perverse incentives, promote rent-seeking behaviours, or mistakenly subsidize the wrong projects or ill-suited private sector entities⁴². For example, if governments provided subsidies to private sector entities to improve the uptake of irrigation equipment without the necessary regulations in place, it could promote the over-abstraction of ground and surface water resources causing environmental harm

→ An example of an efficient supply-side subsidy in Kenya is the tax exemption provided for selected solar-off grid products. This move significantly jump-started private sector investments in provision of these products across Kenya.

[Demand-side subsidies](#) are utilized in situations where consumers lack the ability to pay for products. It is important to target the subsidies to ensure the neediest consumers receive the subsidy and to avoid market distortion.

→ One example of demand-side subsidies is the Increasing Block Tariff (IBTs) used by water utilities to subsidise low-income households. Under the IBT the price paid per unit of water increases as the volume consumed increases. It is hinged on the premise that low-income households typically consume very little water compared to higher-income households⁴³.

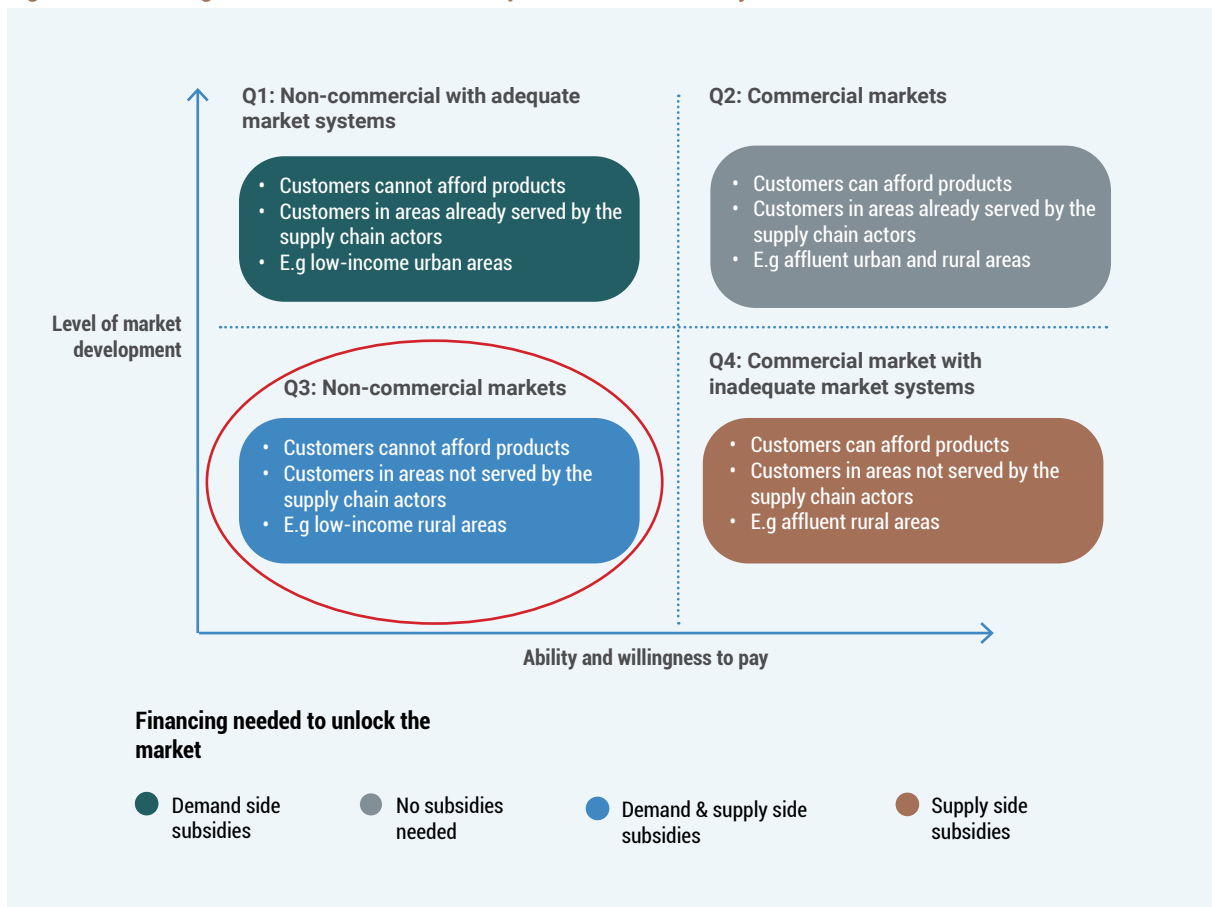


→ Another type of demand-side subsidies is blended loans where part of the interest payments is covered by grants to attract consumers to purchase products from the private sector.

→ An example of this type of demand-side subsidy was the output-based aid program rolled out by the Water Sector Trust Fund (WSTF) for urban water utilities in Kenya to secure commercial financing from banks. The utilities (in this case the consumers) were provided with loans (the private product) from the banks (the private sector entity). They were required to pay back 40% of the loan while the remaining 60% was subsidized by grant funding from the WSTF⁴⁴.

The diagram below illustrates which kind of subsidies need to be applied in which kind of market.

Figure 12: Matching markets with subsidies: Adapted from EED Advisory Limited



2.3.4 Showcase the Opportunity

Private sector entities often highlight that they are unaware of the market opportunities that exist within the ASAL areas. In addition to this, they may have skewed perceptions of insecurity in ASALs, the ability and willingness of consumers to pay, and the status of infrastructure in Northern Kenya. This may deter them from investing in the region or participating in the markets. To address this issue, it is important to support private sector entities to conduct market entry assessments, organize market facilitation forums that bring together private sector entities with prospective consumers in ASALs, and provide information on resources in the ASALs like gums and resins, fodder etc.

2.3.5 Focus on Local Private Sector Entities Within ASALs

*"No development can be exogenously driven."*⁴⁵ While the methods above typically apply to very large private sector entities, a focus on MSMEs in Northern Kenya is also vital. Strengthening local MSMEs by improving their access to finance, access to markets, and business acumen (through business development and training) can go a long way in jump-starting markets in ASALs. Further, such private sector entities will have already demonstrated willingness to work in ASALs and will likely understand the markets in the region, so it may be easier to work with them.

2.4 Defining a business and a business model

For the purposes of the assessment, it is important to differentiate the terms business and business model. A business can be defined as *"organized efforts of individuals to produce and sell, for a profit, the goods and services that satisfy a society's needs."*⁴⁶ There are four main types of businesses are listed below:

- **Sole proprietorships**- business owned and operated by one individual;

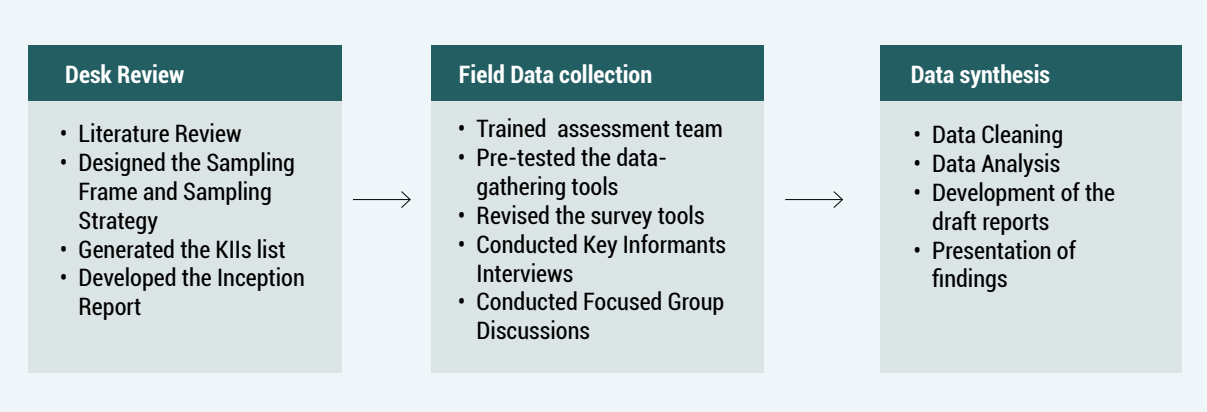
- **Partnerships**- businesses owned by two or more individuals who share responsibilities and profits;
- **Corporations**- legal entities created by individuals or shareholders, with the purpose of operating for profit. Corporations are allowed to enter contracts, sue, and be sued, own assets, remit taxes, and borrow money from financial institutions⁴⁷. Profits of corporations are taxed twice- at corporation level, then at personal level when the dividends paid out to shareholders are taxed;
- **Limited Liability Companies (LLC)/Private Limited Companies** - a type of business structure where owners of the business have all the protections of a corporation plus the ability to pass through any business profits and losses to their personal income tax return thus avoiding double taxation.

A business model, on the other hand, explains how the organisation or enterprise works or creates value. A good business model should answer questions on what product or service the company sells, who the customer of the business is, what the customer values and how the business will generate revenue among others⁴⁸ Examples of business models are myriad and vary from sector to sector (largely because there is no set/agreed upon definition of a business model⁴⁹). However, a few well-known examples of business models include franchising models, freemium models, subscription models, Build, Operate, Transfer (BOT) models, Lease to Own models, Pay as you Go (PayGo) models, Peer-to-Peer models, and delegated management models at water utilities, among several others.

Methodological Approach

This assessment employed a non-experimental research study methodology that collected qualitative data through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Secondary data was also collected through a comprehensive literature review.

Figure 13: Assessment methodological approach



3.1 Desk Review

The desk review activities included scanning existing peer-reviewed and grey literature, analysing secondary data, and developing field work data collection instruments including KII and FGD guides. We scheduled field interviews with assistance from the RAPID+ county coordination teams. This phase culminated in the development of an inception report. Table 1 below captures some of the documents that we consulted during and after the desk review stage.

Table 1: A non-exhaustive list of literature consulted for the assessment

No.	Document Name	Author	Year of Publication
1	2019 Population and Housing Census: Volume I	Kenya National Bureau of Statistics (KNBS)	2019
2	2019 Population and Housing Census: Volume IV	Kenya National Bureau of Statistics (KNBS)	2019
3	Why Subsidize the Private Sector: What donors are trying to achieve and what success looks like	Overseas Development Institute (ODI)	2015
4	Determinants of pastoralists' participation in commercial fodder markets for livelihood resilience in drylands of northern Kenya: Case of Isiolo.	Mohamed Sala et.al	2020
5	The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC & DFID	Springfield Center	2015
6	North and Northeastern Development Initiative (NEDI) - Boosting Shared Prosperity for the North and Northeastern Counties of Kenya	World Bank	n. d
7	Kenya Groundwater Governance Case Study	World Bank	2011

8	Treading Water. Corporate Responses to Rising Water Challenges	CDP	2018
9	Final Program Evaluation of the Kenya Resilient Arid Lands Partnership for Integrated Development (Kenya RAPID).	Millennium Water Alliance	2021
10	Baseline Evaluation for the Kenya Resilient Arid Lands Partnership for Integrated Development Plus (RAPID+) project	Millennium Water Alliance	2022
11	Rethinking the economics of rural water in Africa	Rob Hope, Patrick Thomson, Johanna Koehler, Tim Foster	2020
12	Development of the gum Arabic sub-sector in Kenya	Chikamai.B., Muga. M., Marangu. M.	2011

3.2 Field Data Collection

Field data collection took a period of 10 days commencing on 25th July 2022 and concluding on 5th August 2022. The fieldwork was done concurrently across five counties- Garissa, Isiolo, Marsabit, Turkana and Wajir- and comprised of a combination of KIIs and FGDs. The five counties were selected because these are the areas where activities under the RAPID+ project will be taking place, and they cover the bulk of the Northern ASALs in Kenya which made them suitable for the study. Later further interviews were conducted with relevant stakeholders based in Nairobi County.

3.2.1 Key Informant Interviews (KIIs)

We interviewed RAPID+ private sector partners, existing private sector actors/entities within the counties, county government staff, program staff, and individuals as key respondents. A more detailed list of the KIIs conducted per county is contained in Annex 1. The interviews were largely conducted by the lead consultants with support from research assistants. A total of 183 key informants were interviewed across the five RAPID+ counties and Nairobi.

Table 2: Total number of KIIs conducted

Counties	The target number of FGDs	Number of FGDs conducted
Garissa	32	32
Isiolo	31	29
Marsabit	31	25
Turkana	32	41
Wajir	32	43
Nairobi	10	13
Total		183

3.2.2 Focused Group Discussions (FGDs)

The FGDs primarily targeted community groups involved in water and rangeland activities such as fodder trading, water resource management, and water trucking. The focus groups had between eight and 12 participants, with a mix of male, female, old, and young participants. Each FGD interview was conducted by a facilitator and a note-taker. During the assessment, we held 39 focus groups discussions with private actors, community groups, and community members in the water, rangelands, and fodder sectors across the five counties.

Table 3: The total number of FGDs conducted.

Counties	The target number of FGDs	Number of FGDs conducted
Garissa	6	6
Isiolo	6	7
Marsabit	6	10
Turkana	6	8
Wajir	6	8
Total		39

3.3 Data Synthesis and Analysis

We used a thematic data analysis approach to analyse the data. This involved coding and clustering transcripts into concepts, from which themes such as barriers to private sector entry, existing and potential business opportunities, and descriptions of successful business models emerged. We treated data from secondary literature the same way, categorizing it into similar themes to corroborate and support our findings from the field.

3.4 Data Collection Limitations and Challenges

The assessment faced three primary data collection limitations, for which we devised workable solutions:

- a scarcity of secondary literature on private sector participation in the ASALs of Kenya. Documents were either outdated or very high-level and general, talking broadly about private sector participation in sub-Saharan Africa. Some of these gaps were addressed through the field data collected.
- the complexity of the concepts and terminologies around private sector development and engagement, which made it hard to properly engage grass-root communities and local private sector entities. To address this we translated the interview guides into local languages to make them easier to administer. The lead consultants also worked intensively with their research assistants to make sure they understood the concepts to effectively administer the guides.
- the assessment took place right before the Kenyan 2022 election making it difficult to schedule appointments with Key Informants, particularly those working for the county governments. This was remedied by conducting remote/online/phone interviews with the county government officials even after the set timelines for data collection.



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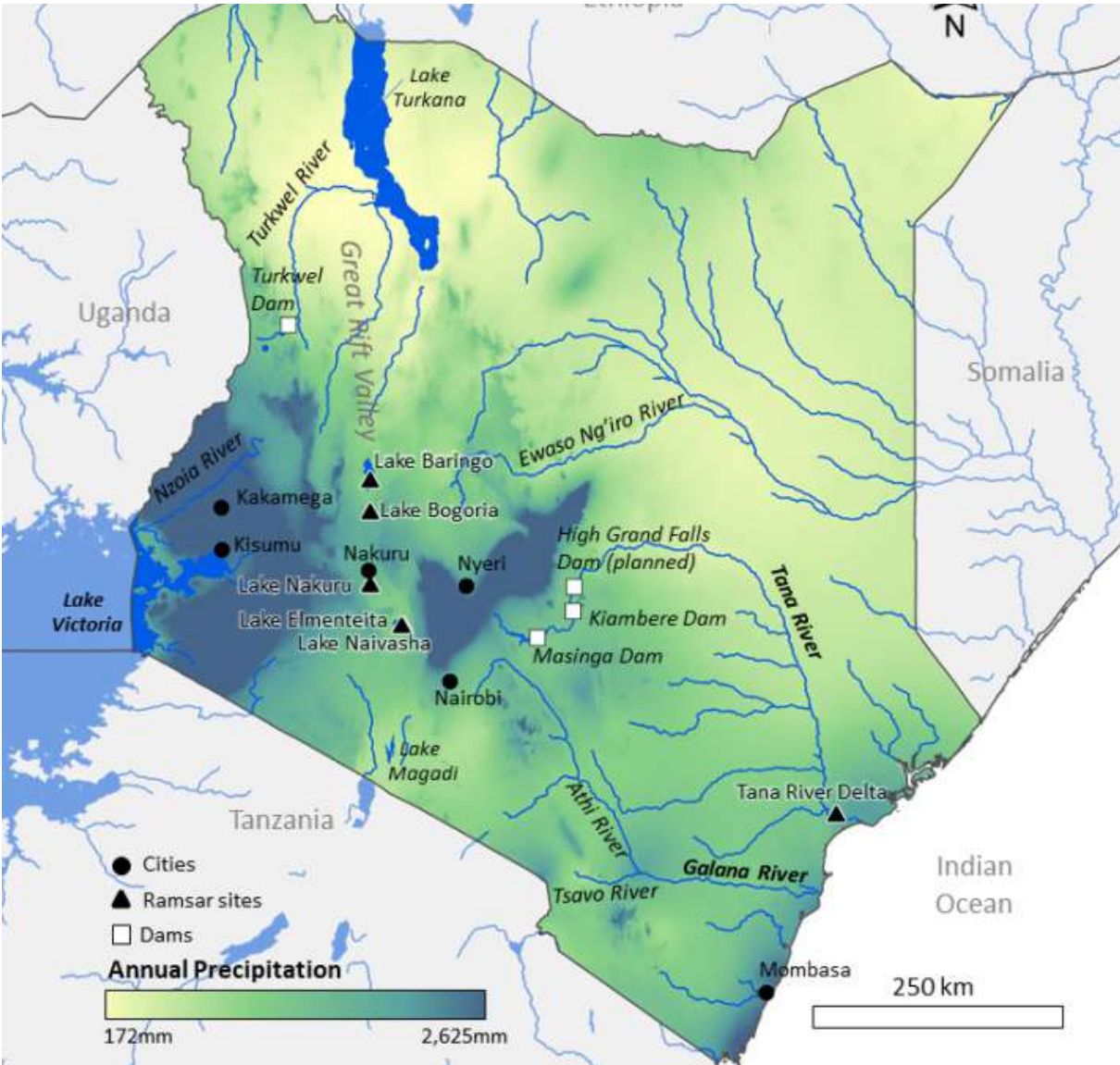
Water Resources

4.1 The Status of Water Resources in Northern Kenya

Due to the adverse climatic conditions of high temperatures and scarce, highly variable rainfall, Northern Kenya has few natural surface water sources. The region has four perennial rivers- Turkwel, Kerio, Ewaso Ng'iro, and Tana- and one major lake, Lake Turkana which is also the world's largest permanent desert Lake. Other lakes include Lake Paradise in Marsabit National Park and Lake Yahut (a quarry turned lake on the periphery of

Wajir Town). The region has several seasonal rivers or laggas which due to increasingly scarce rainfall have become unreliable. The North also has relatively fewer springs than other areas in Kenya. Large-scale man-made dams are hard to develop because there are few permanent surface bodies with adequate volumes of water. Instead, Northern Kenya has a multiplicity of check dams which are smaller temporary dams and water pans.

Figure 14: Map of Water Resources in Kenya: Source USAID



The region is more endowed when it comes to ground water sources with reports indicating that the Ewaso Ng'iro basin (which covers 3 of the RAPID+ counties except Turkana and parts of Garissa) has some of the highest-yielding aquifers in the country⁵⁰.

Some of the key aquifers in Northern Kenya include the Lotikipi Aquifer in Turkana County, which was discovered in 2013, the Lodwar Aquifer (also in Turkana County), and the Merti Aquifer which is a transboundary aquifer between Kenya and Somalia lying pre-dominantly beneath Wajir County.

All these aquifers have been categorized as moderate to high productivity aquifers by the British Geological Survey (BGS)⁵¹.

→ The **Lotikipi Aquifer** contains an estimated 250,000 million cubic meters of water (MCM) but has been reported to be highly saline making this water inaccessible in the interim⁵².

→ The **Lodwar Aquifer** is key in supporting the population in Lodwar town and is reported to have good quality water during the dry season. Pollution levels however increase during the wet season⁵³ as it is highly susceptible to anthropogenic contamination⁵⁴.

→ The **Merti Aquifer** is used to meet domestic water needs and livestock keeping. It also supports the refugee community in Dadaab Refugee Camp. However, it is currently being over-abstracted- more water is being taken out of it than can be naturally replenished- which poses a significant threat as the aquifer is pre-dominantly made of non-renewable fossil water⁵⁵.

To add to this, water demand within the Ewaso Ng'iro basin is projected to increase 13-fold by 2030 which will increase the current use of groundwater by 40%.⁵⁶ Further evidence that Northern groundwater resources are strained is the drying of previously productive boreholes, an issue that becomes exacerbated during droughts.

The current over-abstraction of the Northern Aquifers, widespread salinity issues, inherent threats from anthropogenic pollution and general

scarcity of groundwater underscore the need for proper water resource management.

4.2 Water Resource Management

Water resource management is the process of planning, developing, and managing water resources to ensure quantity and quality across all water uses⁵⁷. For a long time, there has been a disproportionate focus on water supply instead of holistic water resource management in Northern Kenya.

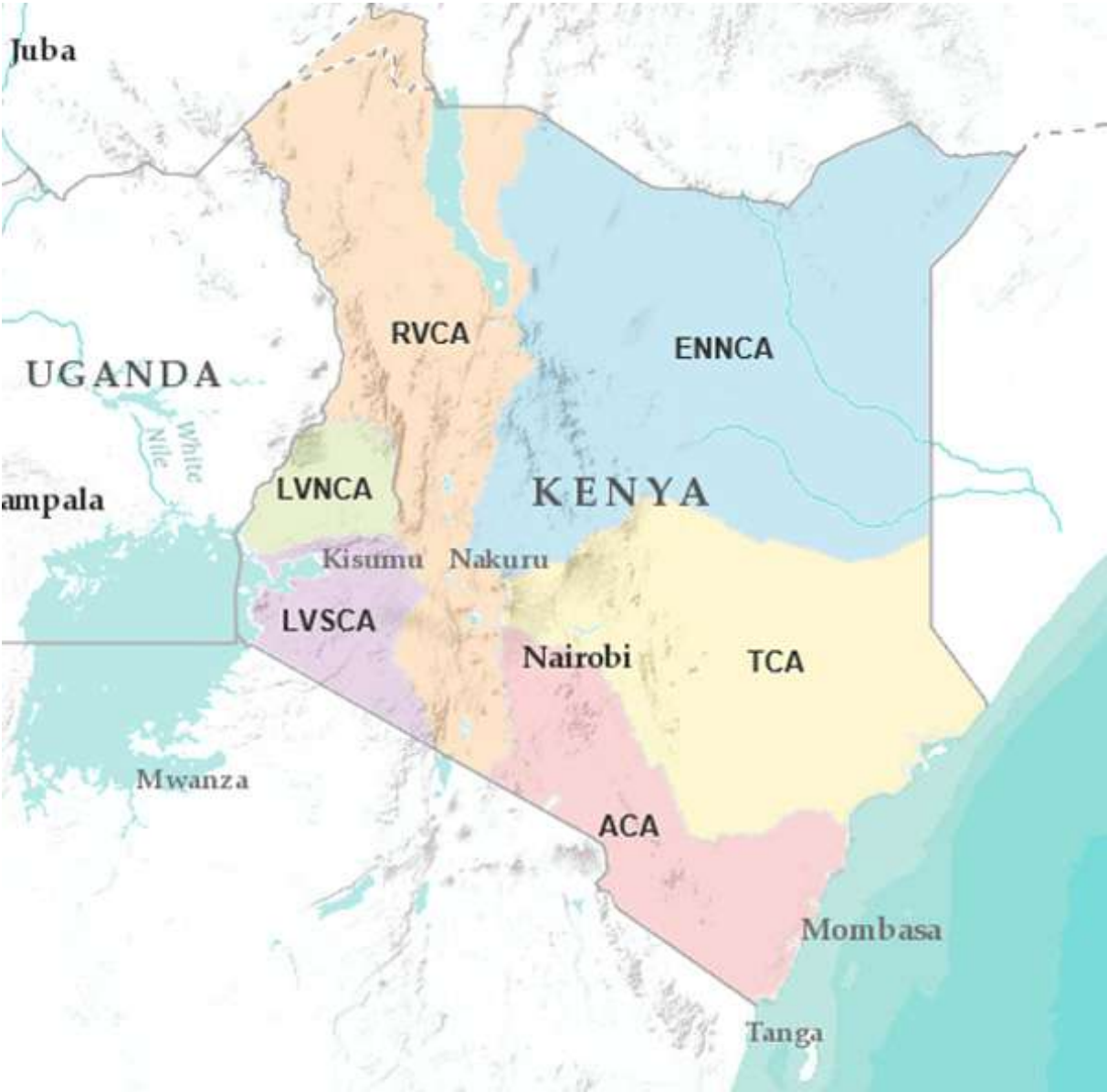
➤ One reason for this is that the communities in Northern ASALs have very little access to adequate water which means stakeholders have been more focused on increasing the per capita water availability for individuals rather than preserving water resources.

➤ Another factor is that water sources in Northern Kenya are pre-dominantly ground water sources which are invisible. It is thus more challenging to observe and measure their use and potential depletion. This is exacerbated by the fact that there are inadequate measuring stations and capacity within the government.

➤ A third factor has been the general population scarcity across Northern Kenya counties, which may not pose a serious threat to overuse of water resources. Marsabit County, for instance, had a population density of 6.9 persons per Square Km according to the 2019 census. However, the population is growing increasing the imperative to manage water resources.

The government body mandated to oversee the management of water resources across Kenya is the Water Resource Authority (WRA). It has six Basin Water Resource Committees overseeing the management of water resources in the six major basins/catchment areas of Kenya which include the Athi Basin, the Tana Basin, the Lake Victoria North Basin, the Lake Victoria South Basin, The Rift Valley Basin, and the Ewaso Ng'iro Basin (see Figure 15 below).

Figure 15: Map of the six key basins/catchment areas in Kenya⁵⁸



At local level, the six basins are further sub-divided into sub-catchments which are managed by community groups known as Water Resource User Associations (WRUAs). While water resource management is conducted by a national level entity due to the trans-boundary nature of water resources, WRA and its regional and local institutions need to work closely with county governments that are mandated to supply water within the counties. WRA also works with various parastatals like the National Drought Management Authority and the Water Sector Trust Fund (WSTF) to coordinate activities and to supplement financing.

Various sector players are now cognizant of the need to holistically approach water-related issues in Northern Kenya. The World Bank launched the Horn of Africa Ground Water for Resilience Project (HoAGWRP) in 2022. HoAGWRP is 385-million-dollar initiative covering Northern Kenya, Ethiopia, and Somalia⁵⁹. A central pillar of the project is promoting the sustainable management and use of ground water sources. The project has several activities aimed at strengthening WRA and WRUAs to effectively carry out their roles in catchment protection.

So why should the private sector be interested in water resource management?

The increasing scarcity of water resources has begun to affect the bottom lines of organisations dependant on the resource. The CDP, an international not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts, indicates that water risks are disrupting production in the private sector, damaging company brands, and even causing organisations to lose operating licences in some countries⁶⁰.

In a region of India, two major beverage companies were forced to shut down in 2004 by farmers who thought they were depleting their ground water reserves⁶¹. In Northern Kenya, residents living in the outskirts of Wajir town have accused a bottling company of reducing the water available for domestic consumption⁶².

Reports indicate that even companies that have limited financial exposure to water risk could soon be disrupted due to the growing scarcity of the resource⁶³

With the global push for increased preservation of natural resources, there are various initiatives that compensate private organisations for improving their water use efficiency and managing their water resources well. Organisations like Aqua for All⁶⁴ and the Common Good Market Place are two examples of entities with schemes to compensate private sector organisations for generating positive impacts in the water sector. The Kenyan Water Act 2016 also broadly provides a framework for the proper management and utilization of water resources. The act mandates the Water Resource Authority (WRA) to persecute all entities, including private sector players, that are found contravening the laws around the protection of water resources.



4.3 The Role of the Private Sector in Water Resource Management in ASALs

While the long-term imperative for the private sector to preserve water resources is clear, the business case for water resource management, unlike water supply, is not obvious. What roles can the private sector play that would allow them to contribute to water resource management while simultaneously making a return?



Research: The private sector can generate water resource data to help inform decision-making by county governments, other private sector players, donor organisations, NGOs, and research institutions. Measuring the location, quantity and quality of water, rate of usage and depletion, and recharge requires innovative technologies and skilled personnel. Private sector entities have been doing this in various capacities from developing and selling the instrumentation to collect the data e.g., sensors, water meters, and satellite systems to maintaining the platforms and systems for sharing the information.

An example of a private sector organisation doing this is Virridy, an American organisation that was engaged in the previous phase of the RAPID+ program to develop borehole monitoring sensors and to maintain a dashboard that would be used by county water department officials to view information collected using those sensors. There is an increasing need for these services in Northern Kenya to provide robust data that can inform how to preserve groundwater resources, improve functionality of water points, minimize diffuse and point pollution of water resources and plan for future demand in the region. Part of data generation is the provision of research and knowledge by private consulting companies.

Such organisations can support WRA and WRUAs to conduct water supply and demand assessments and develop catchment protection plans.



Infrastructure: Another role of the private sector is constructing and maintaining catchment protection structures. This can be through Engineering, Procurement and Construction (EPC) arrangements. Catchment protection structures include water pans, underground tanks and djabias, check dams, rock catchment rainwater harvesting, spring protection structures, gabions among others.

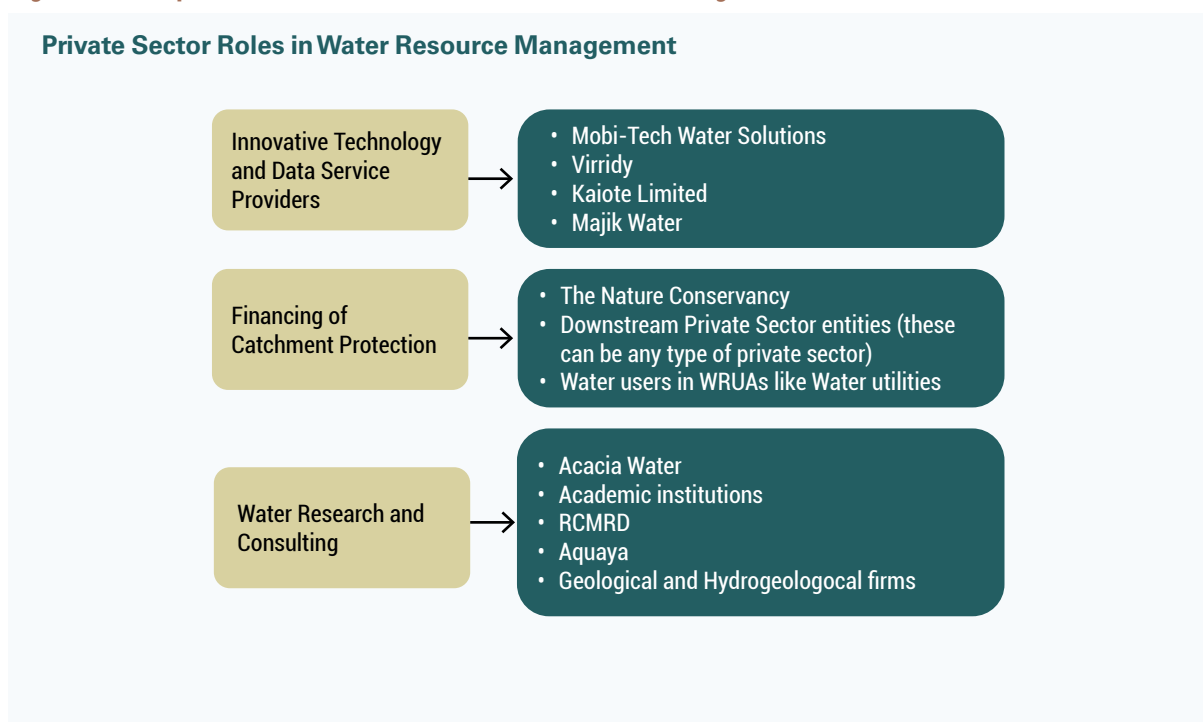


Technology: The private sector can develop new technologies to diversify water resources and to reduce inefficiencies. For example, Majik water, a social enterprise in Kenya, has developed a technology to harness drinking water from the atmosphere which effectively minimizes the demand on scarce water resources in arid areas⁶⁵.



Financing models: The private sector can also finance water conservation and protection through instruments like Payments for Ecosystem Services (PES). Downstream users, typically large private sector entities, can pay upstream users and WRUAs to maintain the quality and quantity of water flowing downstream. A good example of this is the work being undertaken by the Nature Conservancy that has a Water Fund Model (see section 4.5.1).

Figure 16: Examples of Private Sector Roles in Water Resource Management.



4.4 Barriers to Private Sector Participation in Water Resource Management

4.4.1 Inadequate, Unclear or Absent Regulation

Regulations guiding water resource management within the Water Acts in the five RAPID+ counties are still missing. Although water resource management is a national level function, authorities like the WRA need to cooperate with the counties to effectively protect catchments. There is no explicit mention of engaging the private sector in water conservation in the Kenya 2016 Water Act. The Water Act and the Kenyan Water Policy also lack provisions on how to navigate arrangements like Payments for Ecosystem Services (PES) which present an avenue for private sector entities to engage in water resources management.

Research indicates that there is a need for government entities to develop policies, rules, and regulations around PES systems⁶⁶. The Turkana County Water Act for example, conflates the roles of WUAs and WRUAs. The same issues arise in the Isiolo County Act where the WUAs are given a mandate to monitor the implementation of sub-catchment management plans, yet this is a function WRUAs.

4.4.2 The Nature of Water

Water is a common pool resource. This means that it is not easy to exclude people from utilizing it, nor is it right to do so, but unsustainable exploitation of the resource decreases its availability and benefit for other users⁶⁷. The fact that it is difficult to control its use means that it is subject to overexploitation and degradation, especially by private sector entities seeking to maximize their profits. Even if there are some entities that invest in protecting the common pool resource of water, there are others that may benefit without contributing to its management⁶⁸. This serves as a major disincentive for attracting private sector parties to manage water resources.

For example, a water bottling company harnessing ground water in Northern Kenya is unlikely to invest in catchment protection unless there is a clear benefit for their business to do so. Consequently, the nature of water has been a big barrier in attracting private sector companies to manage the resource. This is however changing because private sector parties are now beginning to feel the effects of the overexploitation and have an incentive to ensure that water resources are preserved for their own survival.





Insight Box 1

The Tragedy of the Commons at Play: Groundwater Usage

Groundwater is a vital resource for domestic water use and more importantly irrigation. However, in various areas where farmers rely on groundwater for irrigation, there is extensive over-abstraction and degradation of the resource. Water levels in the Ogallala Aquifer in North America, for example, have declined by 30 meters across many parts of the aquifer. Reports indicate that the blame cannot be placed squarely on a changing climate or over abstraction by farmers but a poor regulatory and policy environment that does not provide the farmers/users of the aquifer with a way to preserve the resource.

Several research papers describe the depletion of groundwater in India. A paper found that in Karnataka in India, the decline in aquifer levels was not because of reduced rainfall levels but rather a proliferation of boreholes and shallow wells. Excessive consumption of groundwater in the region without rules, regulations and enforcement has dried up the wells leading many of the private households to revert to using rainwater.

The box above uses these references^{69,70}.

4.4.3 Limited Use of and Value for Data

Data on the type, location, amount, availability, and use of various water resources in Northern Kenya is still inadequate or entirely missing meaning government agencies are making decisions blind⁷¹. This was evidence established during the final impact assessment of the RAPID+ program whereby only two counties- Marsabit and Isiolo - were actively using the E-Maji platform developed by IBM Research to facilitate faster borehole repair.

An interview with Virridy, an organisation that generates data on water demand based on a network of borehole sensors across the five RAPID+ counties, corroborates the challenges with usage of data. Virridy indicated that despite training county officials to interpret and use the data generated by the borehole sensors, there was still limited action on rapidly repairing malfunctioning boreholes. They said that while county officials may in some instances find the data useful, they may be unable to act on it due to

unavailability of spare parts required to carry out borehole repairs.

Further to this, counties are still not paying for the data generation and maintenance of platforms, likely because they still do not see the value of the systems. This challenge extends to the national government and relevant parastatals in the water sector. FEWS NET, a platform for early warning and analysis on acute food insecurity that has been around for 38 years, provides vital data on managing drought. However, the platform is still majorly propped up using donor funding⁷². While this is not a bad thing, the fact that county and national governments or relevant parastatals in Kenya have yet to assign monetary value to supporting the production of such data is problematic. This means that generation of such data and use of the platforms is still contingent on donor and NGO funding which is transient.

4.5 Water Resource Management Business Models

4.5.1 Payment for Ecosystem Services

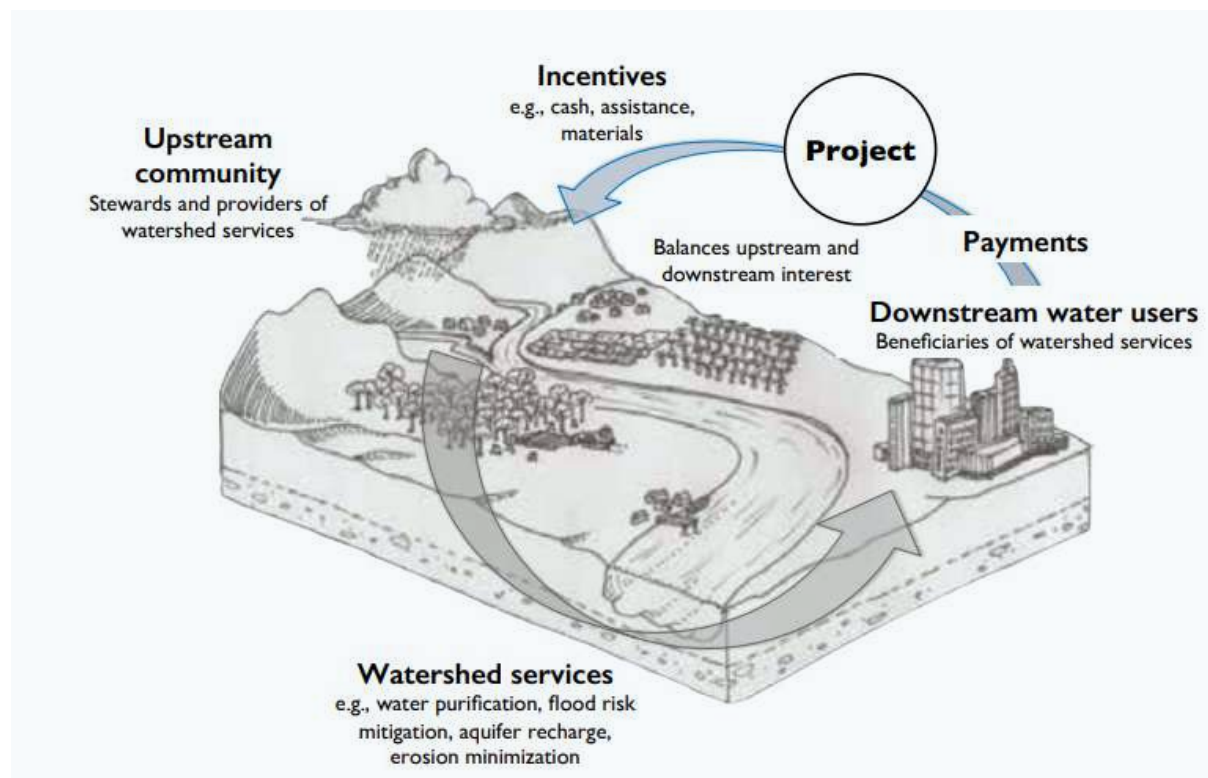
Payment for Ecosystem services is the term used to describe arrangements where beneficiaries of any type of environmental service such as carbon sequestration, watershed conservation, and forest preservation pay individuals, communities or landowners who support the production of these services⁷³. They represent a tool/model to address market failures where ecosystem services are common pool resources. The main ecosystem services covered by PES schemes globally include watershed services, carbon sequestration, landscape beauty and biodiversity conservation. PES schemes for water shed services typically involve downstream users of a river paying upstream users within a watershed for the preservation and sustainable use of the resource.

In Kenya, the World Wildlife Fund (WWF), has been leading the development of PES schemes in the Lake Naivasha Catchment area that hosts over 50

large scale horticultural farms and 30,000 small-scale farmers. In the scheme, the Lake Naivasha Growers Group (a conglomerate of horticultural farm owners,) and downstream WRUAs, purchase ecosystem services from upstream farmers represented by two WRUAs. Upstream users are required to minimize soil erosion hence improving the quality of water that flows downstream. They are also required to regulate their abstraction to ensure that a reasonable amount of water flows downstream. The farmers received a collective financial incentive of USD 10,000 in the first year of the program (2010), to conduct auxiliary activities to limit soil erosion⁷⁴. A report from 2013 indicates that the current payment per farmer in the Lake Naivasha PES scheme is USD 17 per year.⁷⁵ This amount may have since increased or decreased. This low amount awarded to the upstream farmers is indicative of a weakness of this model- the potential exploitation of upstream users/WRUAs by powerful downstream users due to existing power imbalances.

The diagram below represents a typical PES model arrangement.

Figure 17: Diagram depicting a PES arrangement in a watershed: Source: Centre for International Forestry Research (CIFOR)⁷⁶

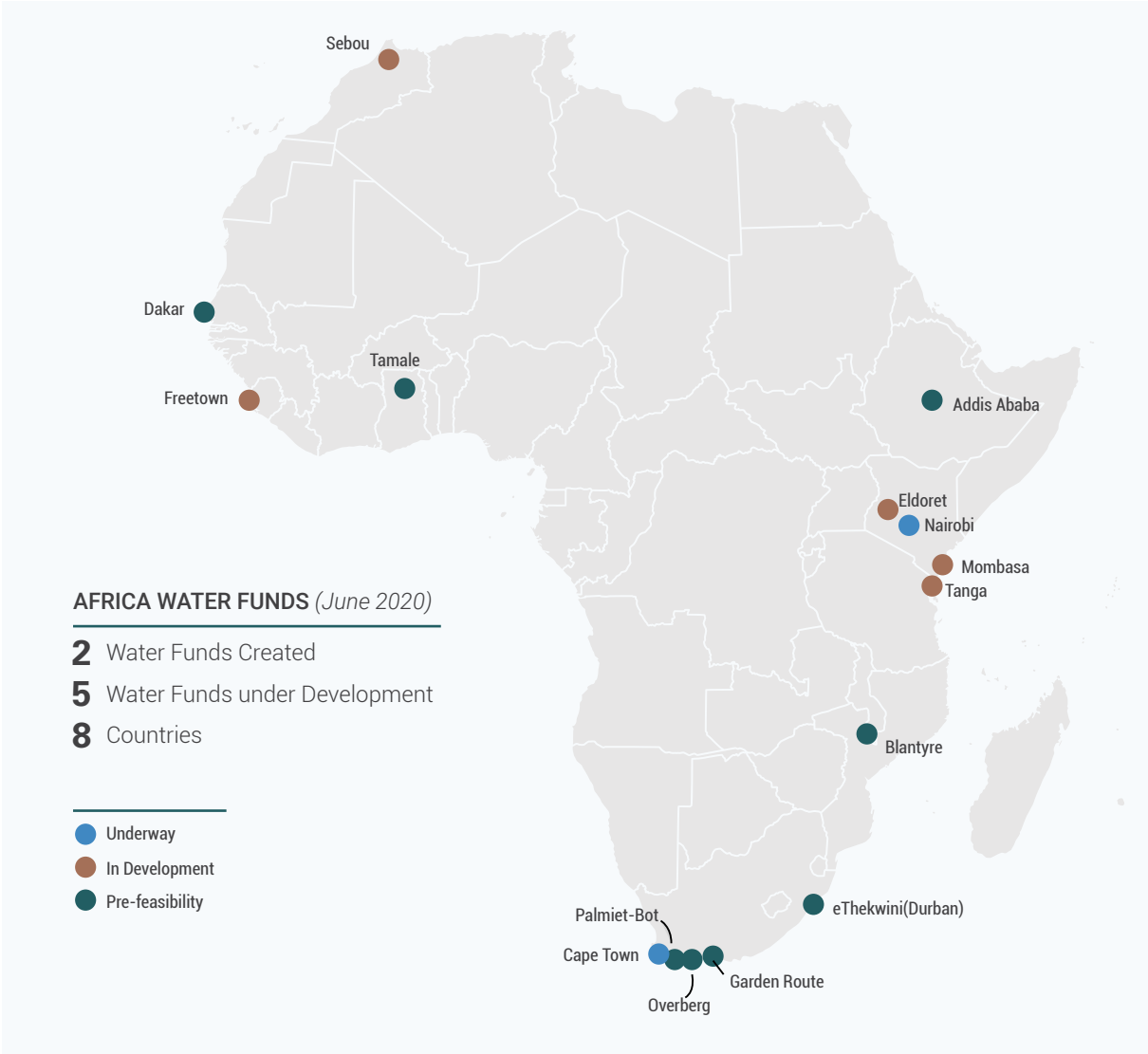


One of the main challenges of PES schemes is the low buy-in from the purchasers of the services. The Nature Conservancy has attempted to remedy this through their work around Water Funds where they bring together multiple stakeholders in major cities to preserve the sources of water upstream. The upstream users do not only receive funds but also receive training and technical assistance from the TNC. It is easier to secure financing when focusing the approach on cities rather than a few large-scale downstream users in rural settings. Cities have a multiplicity of stakeholders so finding interested entities to pay for the preservation of upstream catchment resources is easier.

So far TNC has created two Water Funds in Africa with five more under development (see Figure

18). In Kenya TNC has established the first water fund in Africa, the Upper Tana- Nairobi Water Fund and is developing the Mombasa Water Fund. For the Upper Tana- Nairobi Water Fund, part of the initial \$18 million dollars used to kickstart the fund was secured from various businesses heavily reliant on water including East Africa Breweries Limited (EABL), the vegetable processor Frigoken, the Caterpillar Foundation, UPS, and the Coca-Cola Foundation⁷⁷. The funds have been used for a variety of catchment protection initiatives including terracing steep farmlands, agroforestry, construction of water pans and retention ponds, creating vegetation buffer zones along riverbanks, and reforesting degraded lands at forest edges to mention a few⁷⁸.

Figure 18: TNC map of African Water Funds: Source TNC⁷⁹



4.5.2 Strengthening Water Resource User Associations (WRUA)



According to section 5b of Part ten of the Kenya Water Resource Regulations 2021, b) WRUAs will receive and utilize funds with approval from the Water Resource Authority (WRA) in related water resource management activities, so even as the proposed WRUA strengthening model is explored, extensive consultation with WRA is required.

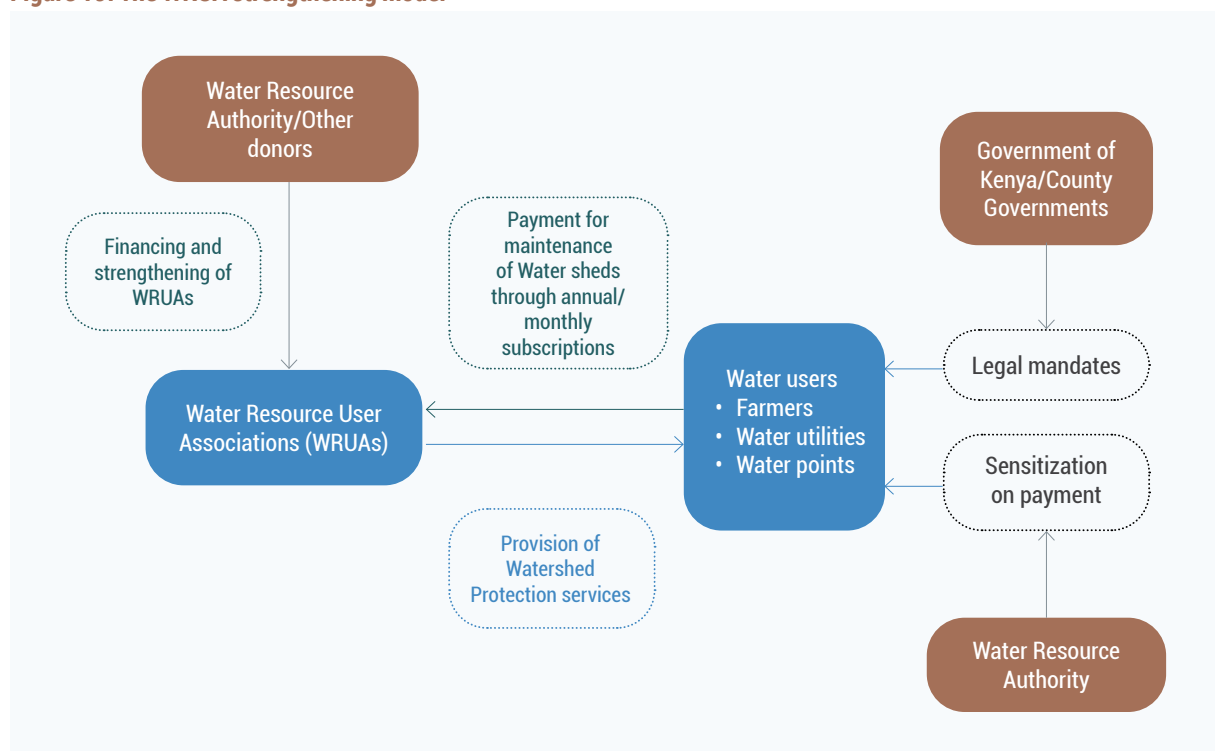
Water Resource User Associations (WRUAs) are the grass root level structures which the Water Resource Authority uses to protect catchments. They provide an opportunity for local communities and local water stakeholders to make decisions regarding water resource management. WRUAs are legally registered bodies with elected representatives. Their mandate is to:

- oversee the promotion of controlled and legal water use activities,
- promote sustainable water resource use,
- safeguard reserve flows for downstream

- ecological demands and basic human requirements,
- implement water conservation practices to ensure sufficient water reserves, and
- reduce and solve water-use conflicts⁸⁰.

Unfortunately, very few WRUAs carry out their mandate effectively due to lack of financial resources for basic operations⁸¹. WRUAs can be funded by the WRA or source for funding from the Water Sector Trust Fund. More importantly, WRUAs can also generate their own source of income. One WRUA in Laikipia, Ngusishi WRUA, is collecting adequate income from water users in the Ngusishi catchment to fund protection activities⁸². A caveat is that this WRUA manages a catchment where there are large commercial farms capable of making substantial and regular payments. Another, Isiolo WRUA, collects an annual subscription fee from the users in the water catchment to support with the protection of water resources. Strengthening WRUAs must go hand in hand with sensitization of water users and particularly private sector users on the benefits of a functional WRUA. Adding legal ramifications can also help this model to work as illustrated below. By ensuring that WRUAs are economically independent, this can minimize their dependence on transient donor funding.

Figure 19: The WRUA strengthening model






4.5.3 The SACCO financing model




Closely related to the strengthening of WRUAs is the financing of catchment protection through SACCOs. SACCOs have become an alternative financial partner for communities that have limited access to financial services and products offered by banks. An example is the Ewaso Maji Water User Savings and Credit Cooperative (EMU-SACCO) which was developed under Mount

Kenya- Ewaso Water Partnership (MKWEP), a consortium of water actors in the Upper Ewaso Ngiro North Catchment Area. The SACCO is mainly comprised of small-scale farmers who understand the importance of conserving water resources for increased agricultural production. The plan by MKWEP is to secure private sector financing worth USD 300,000 to set up a revolving fund for the SACCO which SACCO members can then borrow to purchase catchment protection technologies⁸³.

4.6 Private Sector Business and Opportunities in Water Resource Management

Table 3: Water Resource Management Business Opportunities

Company/Organisation	Description	Potential Business Support
Virridy 	Virridy Inc. develops and deploys technologies to manage water, energy, and agricultural resources in remote, off-grid environments. The organization has low-cost satellite-connected sensors that are compatible with a wide range of fixed infrastructure. Virridy leverages machine learning to enable responsive remote management of the environment.	<ul style="list-style-type: none"> • Payment for the data produced using the borehole sensors developed by Virridy. • Support for the Drought Resilience Impact Platform developed by Virridy that provides vital data on water demand. • Development of additional sensors that monitor things like ground water quality, ground water levels etc.
Mobi Water 	Mobi-Water is a Cloud-Based, Remote Water Monitoring, Management, and Billing Platform for Utilities, Businesses, and Homes.	<ul style="list-style-type: none"> • Mobi Water can expand into the Northern Kenya market by offering water utilities solutions to meter water consumption. This will result in a reduction in non-revenue water and better management of water resources.
Acacia Water 	This is a research and consulting firm made up of a team of hydrogeologists and groundwater experts. They advise governments, donors, NGOs, private sector firms, households, and individuals on how to manage water resources.	<ul style="list-style-type: none"> • Acacia Water has developed robust data for the 5 RAPID+ counties and requires support to disseminate data to the relevant stakeholders. • Payment to generate additional data on groundwater reserves in the area. This is largely by NGOs at the moment, but if county governments could be sensitized as to the importance of the groundwater data, they could also become clients of Acacia Water and other firms generating data on water resources.

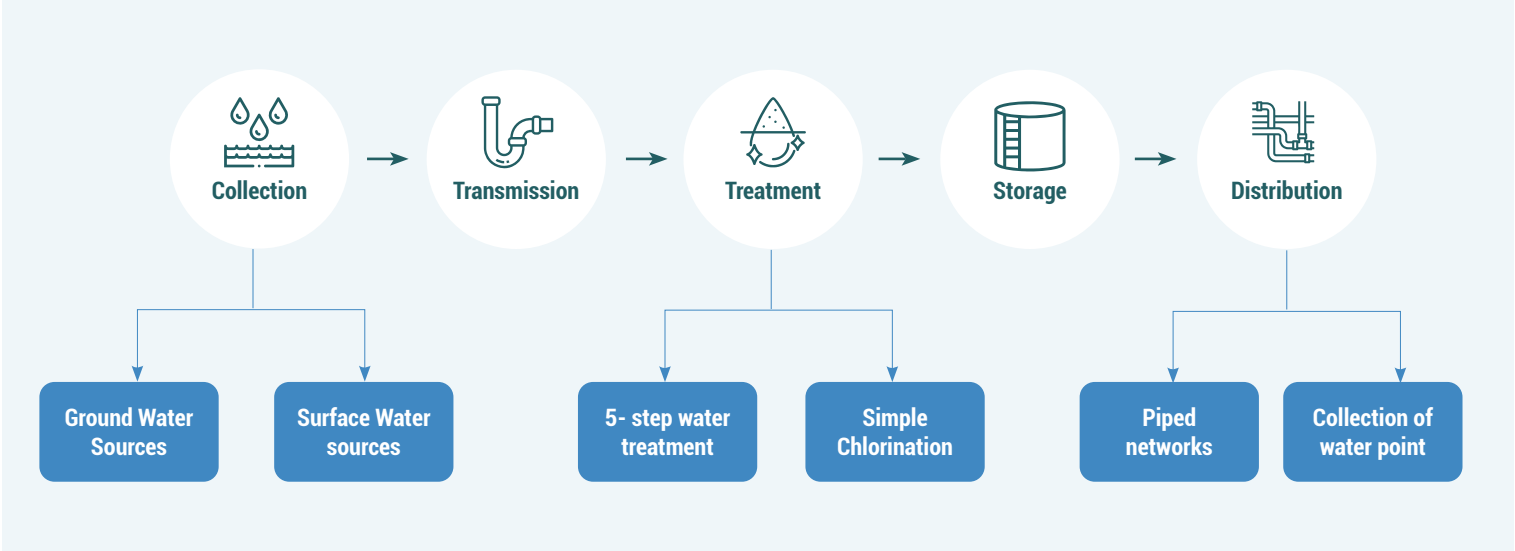
Company/Organisation	Description	Potential Business Support
<p>Majik Water</p> 	<p>Majik Water is a social enterprise that specializes in air to water technologies in arid and semi-arid regions. The organisation creates a new source of affordable, clean drinking water for water scarce communities. The organisations systems can generate between 25L- 500L of water per day.</p>	<ul style="list-style-type: none"> The entity should be supported to set-up in RAPID+ counties and other ASALs so that households can have alternative sources of water to reduce pressure on existing water resources.
<p>The Nature Conservancy</p> 	<p>The Nature Conservancy is a global environmental non-profit that is working to create a world where people and nature can thrive. The organisation currently impacts conservation in 76 countries and territories: 37 by direct conservation impact and 39 through partners. TNC spearheaded an initiative known as the Water Funds as a response to the challenge of water security in order to conserve water sheds. Water Funds are organisations that design and enhance finance and governance mechanisms that unite public, private, and civil society stakeholders, around a common goal to contribute to water security through nature-based solutions.</p>	<ul style="list-style-type: none"> Assess the viability of setting up a water fund for the management of water resources in one or more of the Northern ASALs.
<p>Limited or Obsolete data on water resources ASALs</p> 	<p>There are multiple data sets on ground water and surface water in the ASAL counties developed by multiple organisations e.g., the Water Point Data Exchange (WPDx), Virridy, UNICEF, USGS, SNV the Water Resource Authority, Acacia Water to mention a few. These data resources need to be harmonized and centralized to allow for easier access and to avoid duplication of efforts and wastage of resources in data collection.</p>	<ul style="list-style-type: none"> NGOs and donors should invest in harmonization of data sets in addition to the generation of more data. The fact that the data is fractured or housed with different entities makes it difficult for the private sector to effectively manage water resource.

Water Supply, Operation and Maintenance

5.1 The State of Water Supply Across the Five RAPID+ Counties

According to the Organisation for Economic Co-operation and Development (OECD), water supply involves the collection/harnessing, transmission, treatment, storage, and distribution of water to end users⁸⁴. These consumers can utilize the water for domestic, business, agricultural or industrial purposes, among others.

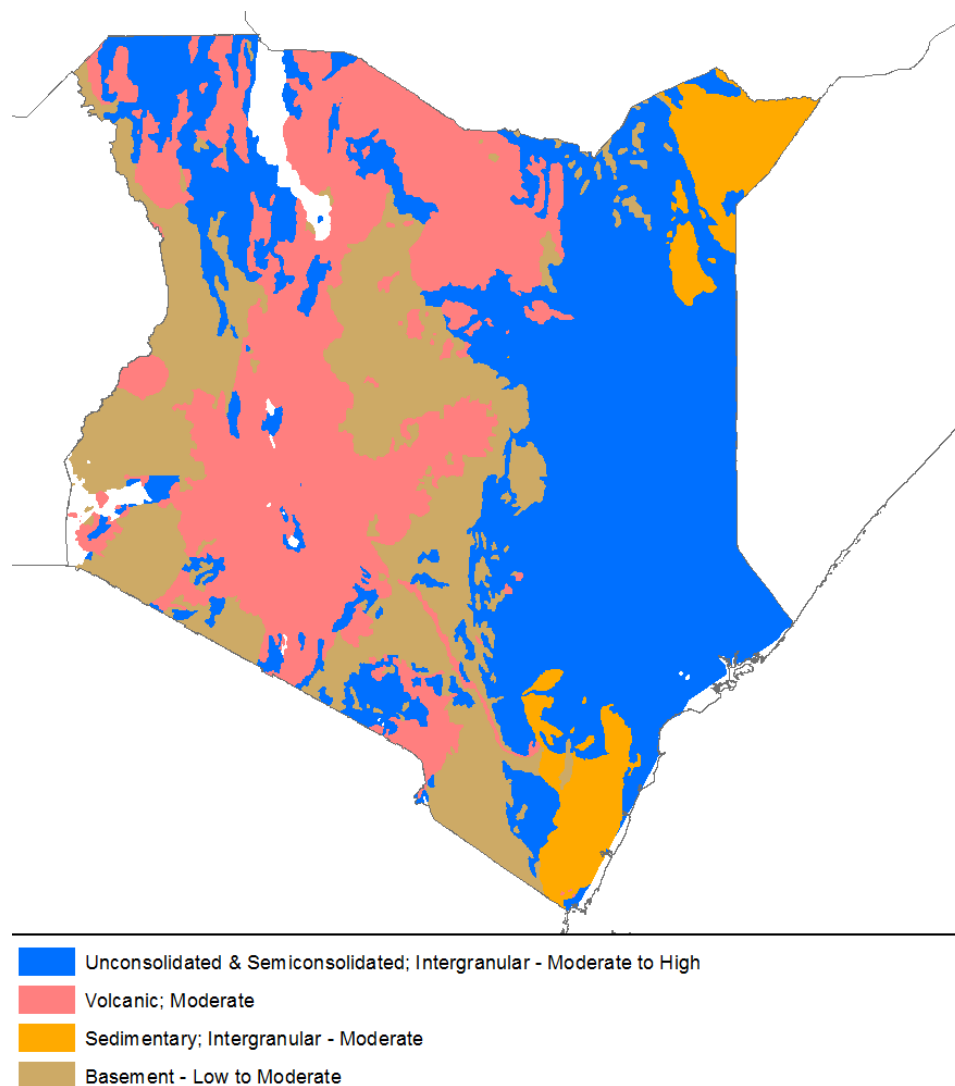
Figure 20: Typology of Water Supply



Water supply systems can also be categorized by size, complexity, and type of water source. There are sophisticated water utility systems that harness, treat, store, and distribute large volumes of water to millions of users within a specified geographic area. These systems are typically reticulated and deliver water to individual homes and business premises predominantly in urban areas, and are run by large-scale privately owned water utilities. Conversely there are small-scale, simple water supply systems that supply small communities within rural areas. These systems may lack complex reticulation or distribution networks, requiring households to fetch water from a central point. They are mainly community-run. ASALs have a mix of complex/large-scale and simple/small-scale water systems.

Water is mainly harnessed from ground water sources in Northern Kenya due to the general abundance of ground water reserves in the region (See figure 21 below)⁸⁵. The ground water is harvested through deep boreholes, shallow wells, hand-dug wells, springs, artesian wells, and qanats. Surface water sources in the area, including rivers, streams, and water pans, are unreliable and ephemeral because the region receives low amounts of rainfall ranging between 150 mm -500 mm annually^{86,87}. Despite the low reliance on surface water sources, in Isiolo and Garissa Counties, the main water utilities, Isiolo Water and Sewerage Company (IWASCO) and Garissa Water and Sewerage Company (GAWASCO) harness water from Isiolo River and Tana River respectively. These are both permanent surface water sources.

Figure 21: Ground water availability across Kenya: Source the British Geological Survey (BGS)



The table below provides a breakdown of the number of water supply sources in each of the 5 RAPID+ counties.

Table 4: Number of Water Sources per County⁸⁸.

Type of Water Source	Wajir	Garissa	Turkana	Marsabit	Isiolo
Water Pans	260	195	129	53	No Data
Perennial Rivers	0	1	2	0	0
Seasonal Rivers (Laghas)	No Data	No Data		No Data	6
Boreholes	272	109	1,267	60	No Data
Shallow Wells	More than 14,000	25	531	853	No Data
Springs (Protected and Unprotected)	No Data	No Data	45	35	No Data

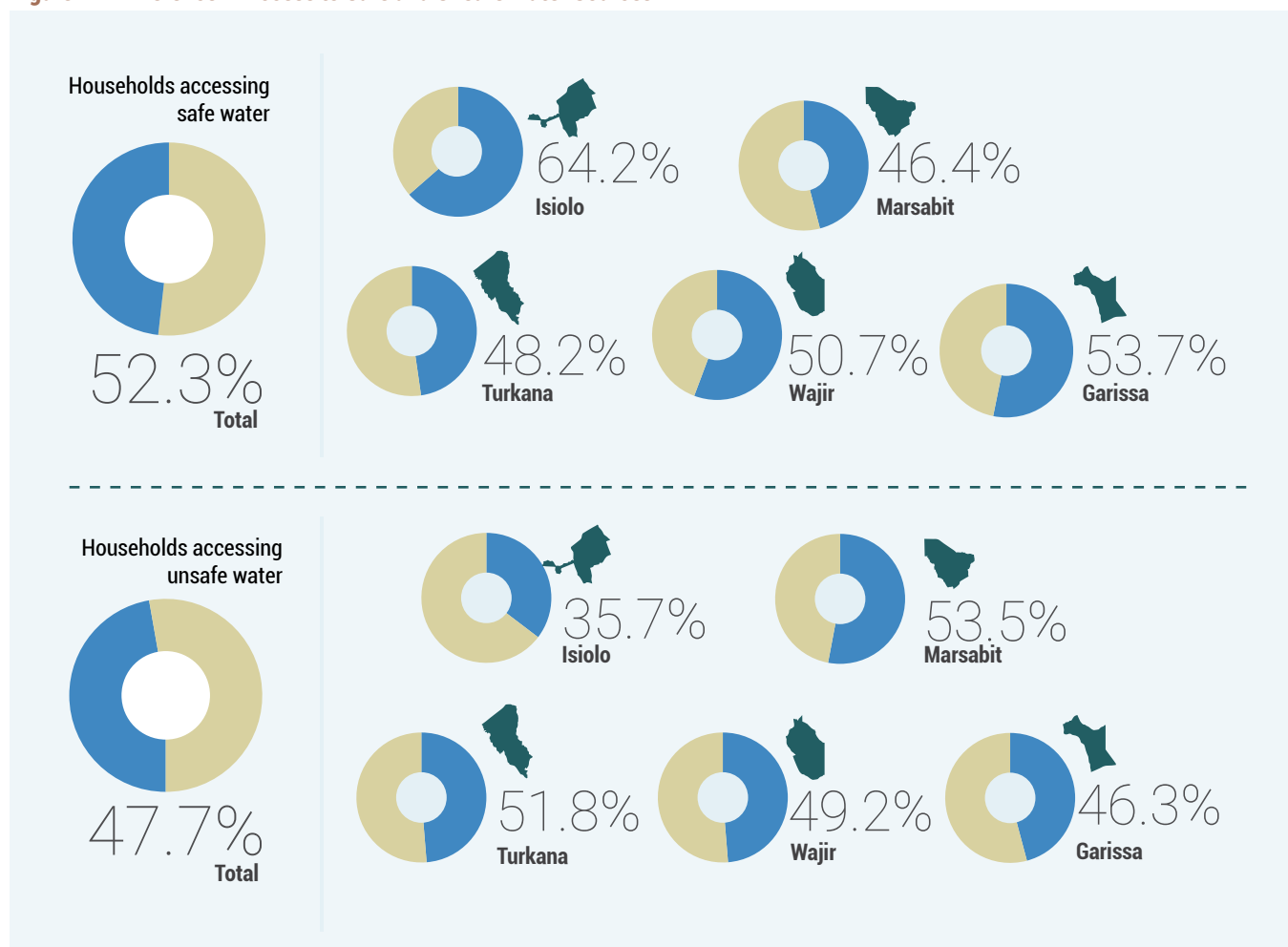
5.1.1 Water Access Coverage

According to the 2019 census, only half the population (52.3 per cent) has water access coverage in Northern Kenya and the 5 RAPID+ counties. This is lower than the national water access coverage of 64.8%. The chart below illustrates the percentage of households with access to safe and unsafe water sources in the five counties



Only half the population (52.3 %) has water access coverage in Northern Kenya and the 5 RAPID+ counties

Figure 22: Difference in Access to Safe and Unsafe Water Sources



The low safe water access coverage in the RAPID+ counties can be attributed to both economic and physical water scarcity.

➤ Physical scarcity arises from inadequate surface and sub-surface water resources in Northern Kenya due to limited and erratic rainfall and exacerbated by frequent drought occurrences in the ASALs.

➤ Economic water shortages result from limited water infrastructure which is indicative of the need to construct more water supply infrastructure to meet growing demand in the RAPID+ counties. Economic water shortages also arise from poor operation and maintenance of existing water reticulation systems as elaborated in section 5.1.3.

5.1.2 The Water Service Delivery Models

Water is mainly delivered through the community-owned water point model across rural areas in the RAPID+ counties, while in some major urban centers including Lodwar, Garissa, Wajir, Moyale, and Isiolo water is reticulated and delivered by regulated urban water utilities. Smaller urban centres like Merti and Garbatulla in Isiolo and Giriftu in Wajir have piped water systems managed by community water user associations. There are also a few boreholes operated and maintained by private sector individuals and companies.

Although the community-owned water point service delivery model is by far the most widespread approach for rural water supply in the ASALs, it has often failed to deliver the expected level of sustainability⁸⁹. This is because of the inherent difficulties communities face in collecting and utilizing revenues for the operation and maintenance of the systems. In cognizance of this, the RAPID+ counties are in the early stages of setting up rural water utilities to oversee the management of rural water schemes. For example, Garissa County has set up the Garissa Rural Water and Sanitation Company (GARUWASCO) with support from RAPID+, and Wajir County has the Wajir Water and Sewerage Company (WAJWASCO).

Payment structures at the community-owned and operated water points vary: payment while fetching, payment monthly, payment when the water point breaks down and no payment at all.⁹⁰ Anecdotal evidence based on interviews with water point operators and one on one discussions with communities during focused group discussions indicates that more money is collected at water points that serve livestock. In some instances, people may not even be required to pay for domestic water consumption but are required to pay for livestock⁹¹. Reports illustrate the same case for water points where irrigation is done⁹².

5.1.3 The State of Water Operation and Maintenance

The operation and maintenance of water systems remains poor in both urban and rural areas of several African countries. Small-scale water

systems in rural areas particularly suffer, with evidence showing that up to one in four water supply systems in rural areas are non-functional at any given time⁹³. The situation is not different in the five RAPID+ counties where most of the population (an estimated 72%⁹⁴) live in rural areas and rely on community water points, several of which are broken down. Investment decisions by both governments and donors are currently still geared to increase access to infrastructure rather than access to sustainable water services, consequently operation and maintenance of these systems is not prioritized⁹⁵.

County Governments in the five RAPID+ counties have attempted to establish Borehole Response and Repair Teams (BRRTs); however these teams are often understaffed and ill-equipped. They are therefore unable to rapidly respond to breakages around the counties. In addition, Turkana, Marsabit, Wajir and Garissa are the four largest counties in Kenya⁹⁶, making it very challenging for understaffed BRRT teams to cover such vast distances. BRRTs particularly struggle during drought seasons when breakdowns of community water points are more frequent.

In Turkana, the Turkana Water Project, set up by the Catholic Diocese of Lodwar has been addressing the issue of maintenance of community owned water points through an insurance model. Under this model, communities are required to register their water systems with the diocese and pay an annual fee to ensure that when the systems breakdown, the diocese repair teams can be called to fix them. It also remains to be seen how BRRTs will be integrated with rural water utilities that are being formed in some of the ASAL counties to address issues of water point maintenance.

According to the RAPID+ endline report 41% of households reported repair times of greater than one week in the five counties⁹⁷. This may be due to overstretched BRRT teams, the community failing to pay for the repairs, lack of availability of spare parts, and inadequate repair workshops within the county. While attempts have been made by various players to install telemetric monitoring systems for reduced repair times, monitoring of borehole functionality by county governments and NGOs remains inadequate.



5.1.4 The State of Water Regulation

At the national level, there are several legislations that guide water supply and delivery.

- a. The Constitution of Kenya 2010.
- b. The Kenya Water Act 2016.
- c. The National Water Master Plan 2030
- d. The Kenya Water Resource Regulations 2021.

At the county level, 4 out of the 5 RAPID+ counties were supported to develop and enact water acts in the first phase of the program. The acts were developed based on the Kenyan 2016 water act but aligned to the realities of the different counties. They provide a framework for water service delivery within the counties. Wajir County has yet to pass its county water act.

Some of the key sections across the four acts in Garissa, Marsabit, Turkana and Isiolo elaborate on public-private partnerships in water supply, provisions for the set-up of county water funds, establishment of rural water utilities, and modalities for regulating community-owned systems⁹⁸. While the passage of the acts was commendable, they need to be operationalized through the development of rules and regulations as well as the creation of the institutions stipulated in the acts. Execution of water acts and policies is a much more challenging task than their development⁹⁹.

Over and above this, the counties lack water strategies and master plans to underpin the coordinated development of water supply infrastructure and the institution of proper operation and maintenance mechanisms. Isiolo County is currently being supported under RAPID+ to develop a County Water Strategy while in Turkana, the Lodwar Municipality is concluding the development of a 25-year master plan to guide water provision in the town. These master plans are a vital tool that private sector entities can use to determine how they can support water service delivery within the county.

County water departments however conflate policy development and regulation with water service delivery instead of ceding service delivery to utilities or private sector entities. This makes

it difficult for the counties to deliver on either mandate.¹⁰⁰

5.2 The Current Role of Private Sector Entities in Water Supply

The roles of the private sector in water supply centre around the water service delivery chain exemplified in Figure 20:



→ **Collection:** private sector organisations support county governments and donor organisations to drill boreholes and construct water points and reticulation networks.



→ **Treatment:** private sector entities provide treatment chemicals and equipment like reverse osmosis units, filtration equipment, among others. They also provide household-level water treatment equipment.



→ **Distribution:** local private sector entities carry out the trucking of water.

Water utilities represent a type of private sector entity that provides all the services across the water service delivery chain. Broadly, for all steps of water service delivery, private sector entities are the key suppliers of water technologies, equipment, and spare parts, and are often involved in their repair. These may include solar panels, pumps, inverters, tanks, water ATMs, water meters, pipes among others. It is also the private sector that pre-dominantly bottles and sells water. The private sector additionally provides consultancy services for research and policy development.

Emerging and growing roles of the private sector in water supply in the North include:

- i. Water software provision for purposes of billing consumers and monitoring reticulation networks,
- ii. Private sector participation in operation and maintenance of rural systems, and
- iii. Private financing of the water sector in the 5 counties.

The diagram below summarizes the roles of the roles of the private sector in water service delivery.

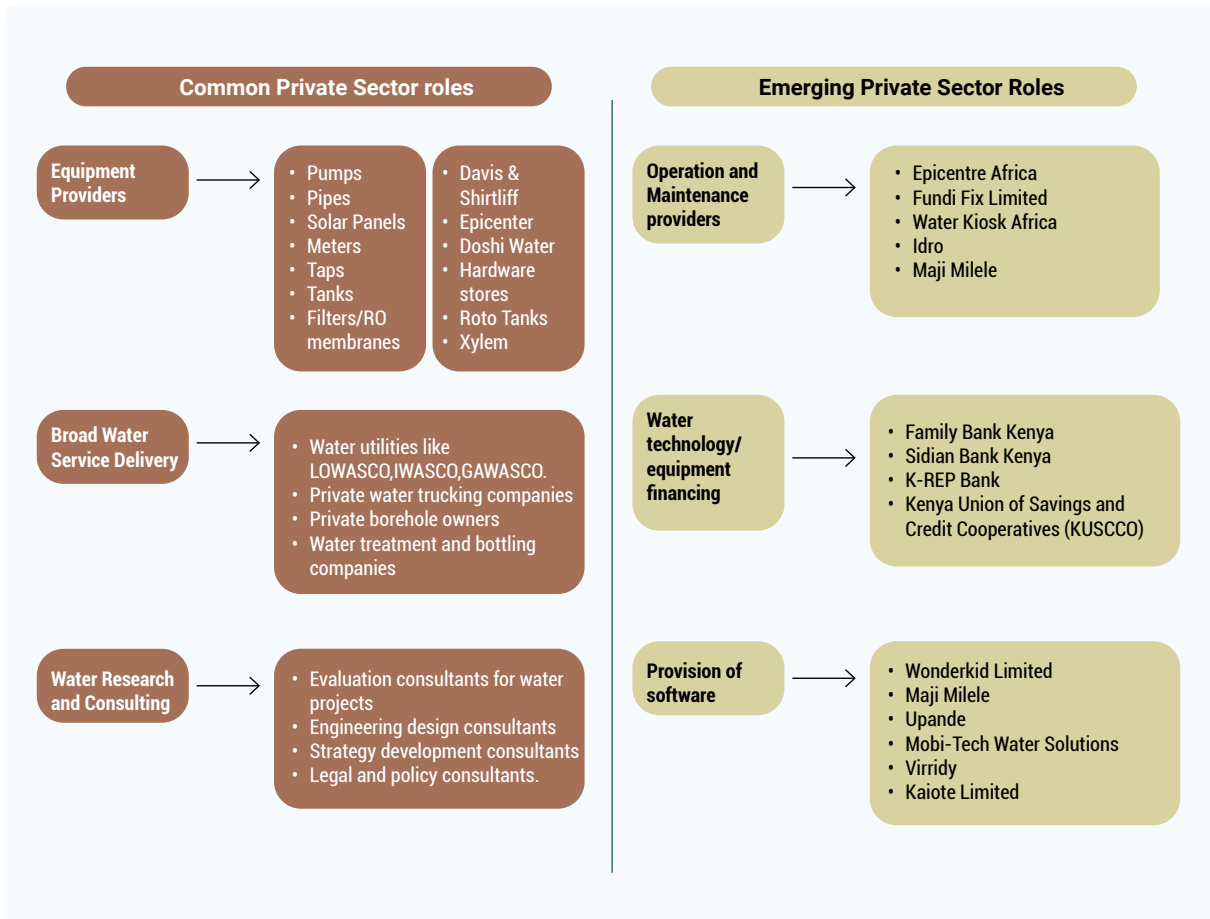
5.3 Barriers to Private Sector Entry in Water Supply

This assessment determined three key obstacles hindering robust private sector participation in the five RAPID+ counties and by extension Northern ASALs. They include;

- the absence of adequate incentives,
- incomplete regulatory frameworks to guide private sector participation, and
- information asymmetry.

Other issues captured during interviews included the vastness of the counties, insecurity, unwillingness of communities to work with the private sector, and county government inefficiencies.

Figure 23: Roles of the private sector in water service delivery



5.3.1 Absence of Private Sector Incentives

- Private sector players receive little to no incentive to participate in the operation and maintenance of water equipment and water points within Northern Kenya. Incentives in this case can be in the form of guarantees for contractual, regulatory, and payment defaulting

risks. Consequently, there are very few private sector entities that are attempting to do this, and the few that do, are focused on the maintenance aspect rather than the operation of water points. This is exemplified in the box below.



Insight Box 2

A private sector approach to borehole maintenance

Epicentre Africa, through the support of Oxfam, is currently overseeing the maintenance of 60 water points in Turkana County. Prior to taking up the maintenance, Epicenter conducted a review of the water points to repair/replace any faulty parts. Thereafter for the duration of one year, the company was required to conduct preventative maintenance on the systems. Oxfam is providing the funding to purchase the spare parts required for maintenance and paying for the labor for repairs. The communities are making little to no contribution to this scheme. It would be difficult for Epicenter to continue this kind of work once support from Oxfam is withdrawn, because some of the communities do not adequately pay for water and may not be able to afford the spare parts. The organisation has begun to emphasize that communities need to pay for the service to make it sustainable. However, donor support is still required and should be withdrawn in a phased-out manner.



➤ More broadly, there are inadequate capacity building initiatives and incubation programs to stimulate the growth of the local private sector offering water services within the five counties. The incubation hubs that exist in the region, including Kakuma Kalobeyei Challenge Fund (KKCF) in Turkana, Northern Incubation and Innovation Hub (NII-Hub) in Wajir, and Northern Innovation and Empowerment Hub (Nie Hub) in Garissa do not offer targeted support to the water sector. Similar incubation hubs focused on the water sector are required to incentivize private sector growth.

➤ Poor access to information is also a challenge. For example, Turkana County has developed an investment portal where water supply is one of the key investment sectors.¹⁰¹ However more information needs to be provided on incentives like tax breaks, access to finance, etc. to guide would be private sector entities. Wajir and Garissa county government websites have special tabs on business where

they provides information to would be private sector entities on investment opportunities¹⁰² but the information is incomplete. All the portals require substantial overhaul to provide concrete and comprehensive information on private sector incentives and opportunities.

➤ The increase of excise tax for bottled water products and water refillers by the Government of Kenya present a barrier to private sector participation in water bottling and refilling countrywide¹⁰³. An interview with Warda Water Company in Garissa County revealed that excise duty cuts into the company's revenues significantly forcing the company to pass on these costs to the consumers. Warda indicated that the excise duty on bottled water is KES 6.03 per/ litre, which is 15% of the selling price of KES 40 / litre. In these counties where the purchasing power of consumers is already low, it makes it quite challenging for these businesses to kick-off with introduction of such prohibitive taxes.



Insight Box 3

The Kakuma Kalobeyei Challenge Fund

The Kakuma Kalobeyei Challenge Fund (KKCF) is a program of the International Finance Corporation (IFC), implemented with Africa Enterprise Challenge Fund, Turkana County Government, and the United Nations High Commission for Refugees (UNHCR). The five-year program is designed to support private sector investment and unlock the economic potential of refugees and their hosts, in Kenya's Turkana County. The fund aims to:

- i) attract new private businesses and social enterprises to the Kakuma-Kalobeyei area,
- ii) provide opportunities to scale up the operations of private sector companies and social enterprises already present in the area,
- iii) develop and grow refugee and host community businesses, and
- iv) minimize the red-tape that slows down entrepreneurs from setting up businesses in Turkana West.

The priority sectors of the KKCF are water, renewable energy, childcare services, financial services, and agribusiness. The KKCF operates through three mechanisms captured in the illustration below. The first is rolling competitive business challenges where local enterprises in the Kakuma-Kalobeyei area receive grant funding and technical assistance from IFC and AECF. More established businesses outside the area compete for performance-based grants which they must co-finance. The second is to improve the investment and business climate in Turkana West through which KKCF is supporting the set-up of a one-stop-shop for entrepreneurs known as a 'Huduma Biashara Centre'. The third is to support large corporates looking to enter the Kakuma market by providing them with customized market research.

Initiatives like KKCF could be expanded to the other RAPID+ counties and Northern ASALS to stimulate participation of the private sector.

Figure 24: Core Components of the KKCF- Source: The KKCF Webpage



5.3.2 Lack of Clear Regulations Guiding Private Sector Participation

An OECD report states that regulatory frameworks guiding private sector participation in water supply largely remain incomplete¹⁰⁴. This is true of the RAPID+ counties where there are no domestic rules and regulations guiding how private sector entities can be engaged in water supply. They currently rely on the National 2021 Public-Private Partnerships Act, specifically part 6 which focuses

on county governments. While the water acts in Isiolo, Marsabit, Garissa and Turkana provide modalities for private sector provision of water and public private partnerships in the water sector, the clauses in these sections are yet to be operationalized through rules and regulations. As it stands, the framework for private sector engagement is sketchy making it risky for any parties interested in working within the counties. Wajir is still in the process of enacting its water act.

5.3.3 Minimal Water Sector Data

As indicated earlier, investment pages on county government websites provide inadequate information for investors looking to set up in the counties. Specifically, information on acquisition of business permits, tax rebates, how to access amenities, and institutions where one can access finance is missing¹⁰⁵. Counties like Marsabit and Isiolo entirely lack this information, and for all five counties, even basic data on the location of water points, let alone their functionality status, is not readily available. While such information has been collected repeatedly by various agencies, it is not harmonized.

More complex information on the management modalities at water points/systems, borehole yields, water quality, number of people served, and revenues generated remains scanty. All the water utilities in the five RAPID+ counties except for Isiolo Water and Sewerage Company (IWASCO) lack websites where interested investors can source for information. This paucity of sector metrics makes it difficult to attract non-traditional investors¹⁰⁶. Further it gives the illusion that the issue with water supply in the five counties is inherently an infrastructure issue rather than a water service delivery issue.

Other areas where information is lacking include databases on local water technicians/plumbers and their contacts, equipment providers, water businesses, government contractors among others. An interview with a financial institution in Isiolo County revealed that while they had financial offerings for businesses in the water supply sector, they were not aware of what entities/businesses they could approach with their packages.

5.3.4 Vastness and Insecurity

Four out of the five counties under the RAPID+ program are the largest counties in Kenya spanning more than 40,000Km² in size¹⁰⁷. The largest of the four, Turkana County, spans about 71,000Km².¹⁰⁸ To put this into context, Belgium can fit into Turkana twice with some additional space left over. The vastness of the counties makes it expensive for any private sector entity looking to work within the water sector due to the logistical expenses that it will incur while moving between water systems or acquiring spare parts. An interview with the Catholic Diocese of Lodwar confirmed that they face challenges in providing timely maintenance services due to the large distances they must cover. The issue is slowly being remedied by the growing network of roads being built across the country.



The largest of the four, Turkana County, spanning about **71,000Km²** makes it expensive for any private sector entity looking to work within the water sector due to the logistical expenses that it will incur while moving between water systems or acquiring spare parts




Closely related is insecurity in certain parts of the counties, specifically in Turkana East and Turkana South Sub-Counties where there is perennial insecurity along the borders with Baringo and West Pokot Counties¹⁰⁹, in the Eastern parts of Wajir and Garissa along the Somalia border, in Kom in Isiolo, and selected pockets of Marsabit.


This may deter private sector participation in these regions of the counties. An interview with a private sector contractor revealed a need to hire extra security when working in these regions which drives up their costs.

5.3.5 Unwillingness by Communities to Cede Water Point Operation

This is a barrier which stems from the current mode of water point management. Communities may be unwilling to cede control of their water points to private entities due to decades where community ownership at the expense of service delivery has been reinforced. Other communities may be reluctant to let go of a lucrative revenue stream, particularly water points that serve livestock.

The growing call to shift from the community management model to one where a private entity/ water utility takes over the management of a cluster of rural water systems has been understandably met with resistance.

 In Garissa County, for example, the rural water corporation, Garissa Rural Water and Sanitation Company (GARUWASCO), was developed under the previous phase of RAPID+. However, GARUWASCO is struggling to kick-off in part due to the reluctance by water point owners to hand over the operation of their water systems to the utility.

 In Wajir, Wajir Water and Sanitation Company (WAJWASCO), formed in 2016, faces a similar challenge. It manages roughly 20 water points which are a fraction of the water systems across the county. This represents a significant barrier to private sector participation in the operation and maintenance of water systems. However, it is important to note that shifting community mindsets will likely take time and initial efforts to kickstart it should not be discouraged by slow traction



A research paper aptly frames the current conundrum¹¹⁰:

“When first conceived, community management was a principled and pragmatic response given few alternatives in rural Africa in the 1980s. Today, with the increasing reach and reducing cost of information transfer, the assumptions of three decades ago no longer hold, making fragmented community management certainly no longer necessary, and arguably no longer desirable.”

5.3.6 Delayed Payment by County Governments

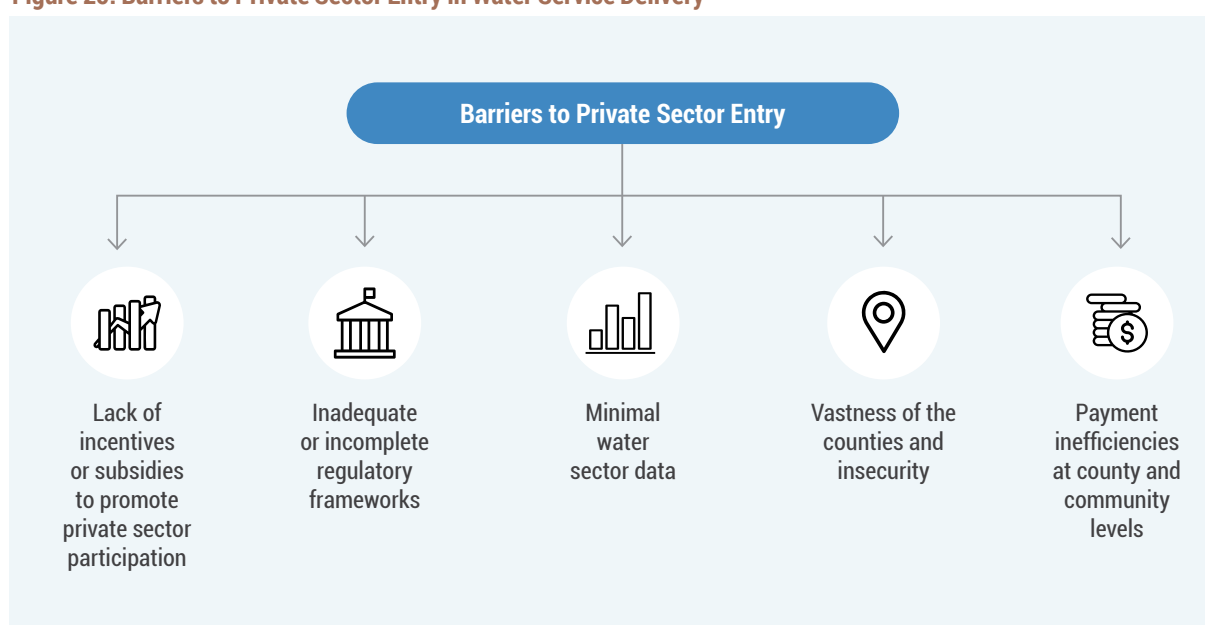
Interviews with various private sector organisations, specifically equipment and spare part providers working in Northern Kenya, underscore their reluctance to work with county governments due to late payments. Private sector entities who work with county governments on a Build Operate and Transfer basis complained that county governments failed to make payments on time affecting their cash flows.

Information from the Controller of Budget detailing the pending bills to suppliers in the 47 counties in Kenya revealed that Wajir county has the second highest amount of pending bills after Nairobi County at KES 5.5 billion. Marsabit county was 10th with a pending bill amount of KES 924 million. These pending bills were inherited from the previous government. Such reports are likely to discourage private sector organisations who may want to venture into and work within some of the RAPID+ counties.



Wajir county has the **2nd highest** amount of pending bills after Nairobi County at KES 5.5 billion. Marsabit county was **10th** with a pending bill amount of **KES 924 million**. Such reports are likely to discourage private sector organisations who may want to venture into and work within some of the RAPID+ counties.

Figure 25: Barriers to Private Sector Entry in Water Service Delivery



5.4 Water Service Delivery Models

The final section in this chapter elaborates on water service delivery models that can be scaled and replicated across the RAPID+ counties and other areas of Northern Kenya. The models have been broadly sub-categorized as commercial financing models, water maintenance models, PayGo models, and others including franchising models. The discussion is based on actual models that are being rolled out in other regions of the country (Kenya) or in Sub-Saharan Africa. The models are aimed at providing a loose template which donor agencies, NGOs, Governments, and private sector entities can build on to improve water service delivery. This list of models is by no means exhaustive.

5.4.1 Commercial Financing Models

These are pathways through which individuals, communities, water utilities, and private water service providers among other can access commercial finance from banks and other lending institutions for the purchase of water and sanitation related technologies.

Water Credit by Water.org

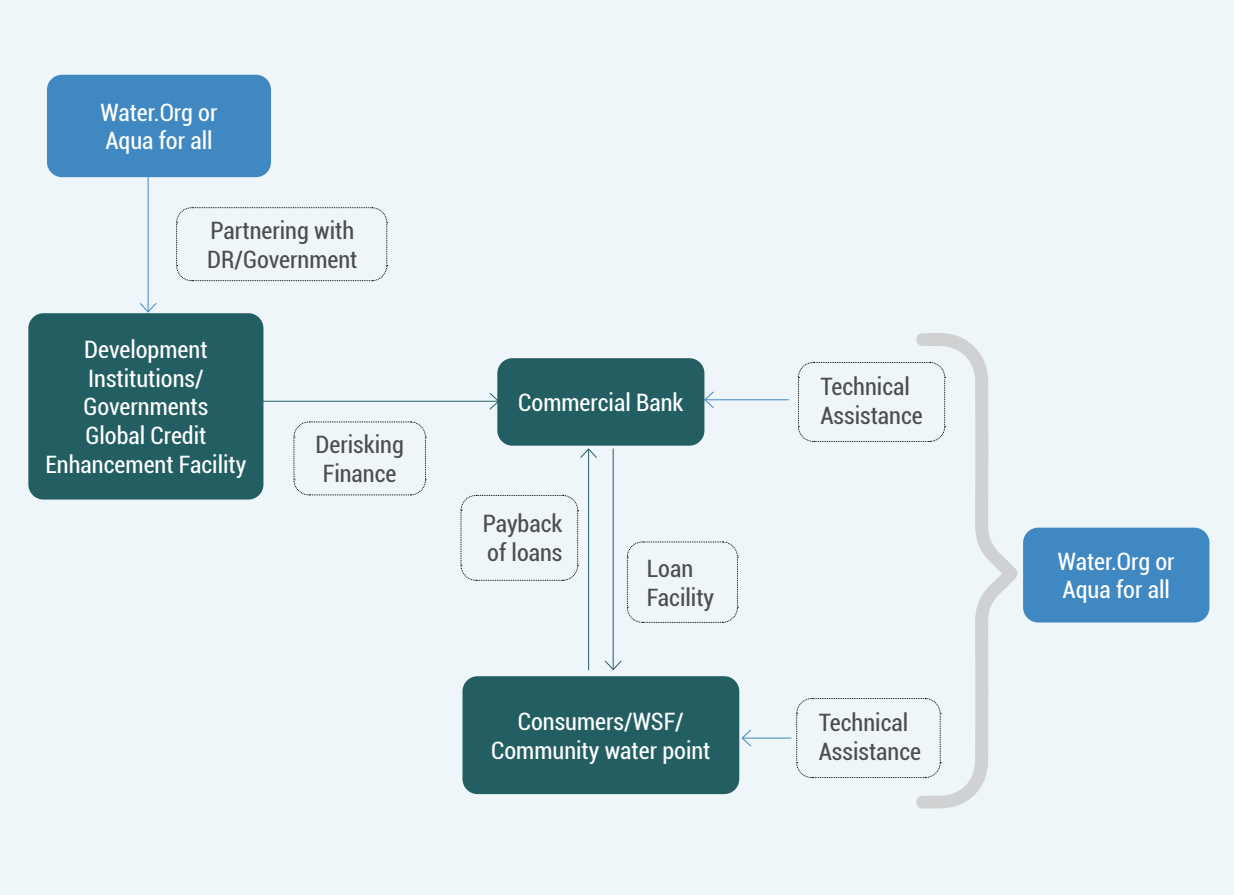
One of the products offered by Water.org, a global non-profit organisation working to improve access to water and sanitation, is called Water Credit. The Water Credit Initiative makes finance accessible for households and communities to improve their access to water and sanitation.

It does this by equipping financial institutions with technical assistance and the financial resourcing to add water and sanitation loans to their product portfolios. In Kenya, Water.org began working with Family bank in 2019 to create the MajiPlus Loan which provides flexible financial solutions to individuals, micro-businesses, SMEs, and Water Service Providers (WSPs). This solution caters for all WASH needs ranging from rainwater harvesting, water storage, water distribution, improvement of sewerage and reticulation systems, borehole construction and equipping, solid waste and sludge management, as well as the construction of domestic and commercial biogas plants. Entities

that borrow the loan have up to 24 months to pay off the loan. Water.org also works with Equity Bank.

Water.org also works with development finance entities to derisk commercial banks which may be reluctant to lend to consumers¹¹¹. The model is illustrated below. Aqua for all, a foundation working towards facilitating access to clean water and good sanitation for all, is using an approach like Water.org. It began working with Family Bank in 2021 and will be derisking the bank to support lending to community-based water service providers (See Insight Box 4). This crowding in of sector players might be an illustration of the model's efficacy.

Figure 26: Model for Commercial Financing of Water Service Delivery





Insight Box 4

Commercial Financing Partnership between Aqua For All and Family Bank Kenya.

Aqua for All and Family Bank Ltd (Kenya) signed a two-year partnership agreement in July 2022 to facilitate lending to community-based water service providers (CWPs). CWPs supply low-income households with safe drinking water through piping systems or water kiosks. This first-of-its-kind partnership will establish an un-secured loan facility targeting CWPs. Community-based water service providers can take different forms, such as cooperatives, societies, trusts, sole proprietors, associations, Self-Help Groups, and NGO social projects. Family Bank Ltd will offer infrastructure loans to CWPs up to €2.9 million (KES 350 million equivalent) as part of the bank's water, sanitation, and hygiene (WASH) loan portfolio. Aqua for All will de-risk Family Bank's loan portfolio and offer technical assistance to build the capacity of the bank to finance CWPs at scale. An estimated number of 140 CWPs will be supported as part of this partnership.

Source: Aqua for All Website: <https://aquaforall.org/news/aqua-for-all-and-family-bank-signed-a-deal-focused-on-community-based-water-service-providers/>

5.4.2 Water Maintenance Models

Operation and maintenance is a challenge facing several rural water systems in the RAPID+ counties and broadly in sub-Saharan Africa. The models below illustrate what other players are doing to address the challenge of maintaining rural water points.

a) The Water Point Insurance Model by the Catholic Diocese of Lodwar

The Catholic Diocese of Lodwar pioneered a Water Point Insurance Scheme for maintaining community owned water points in Turkana which has been in place for the past 39 years. Under the model, communities are encouraged to register their water points with the Diocese. They then pay an annual subscription fee to the Diocese; KES 10,000 for solar powered water points and KES 4,500 for hand-pumps¹¹². The Diocese is then required to fix any breakdowns that occur within the year. As of 2023, over 600 water points are registered under the scheme.

The scheme is supported through generous subsidies (an estimated 70%) from donors and result-based financing initiatives with the money from the communities supporting about 30% of the costs required to maintain the model¹¹³. The Diocese intends to gradually increase the annual fee to the point where the community subscription fees can fully support the repair of water points.

b) Fundi Fix Model

This model builds on what the Catholic Diocese of Lodwar is doing and is being deployed in Kitui and Kwale counties by a private sector organisation called Fundi Fix. It focuses on preventative maintenance and repair of rural water infrastructure to guarantee continuous functionality. The model has 4 key dimensions as illustrated in the diagram below.

Figure 27: Dimensions of the Fundi-Fix Model. Source- The FundiFix Booklet¹¹⁴



→ Under **professional services**, communities or customers register with FundiFix under an annual contract. FundiFix commits to repair breakdowns within 3 days and replace broken parts with new high-quality spares. If they fail to honour their 3-day commitment, the communities are entitled to receive a free month of service. This penalty has been built in to ensure that FundiFix honours their commitments to gain the trust of communities to regularize payments for maintenance of water points. The communities make payments for the services monthly through mobile payment platforms.

→ The **sustainable finance** dimension specifies that FundiFix can receive funding from three sources:

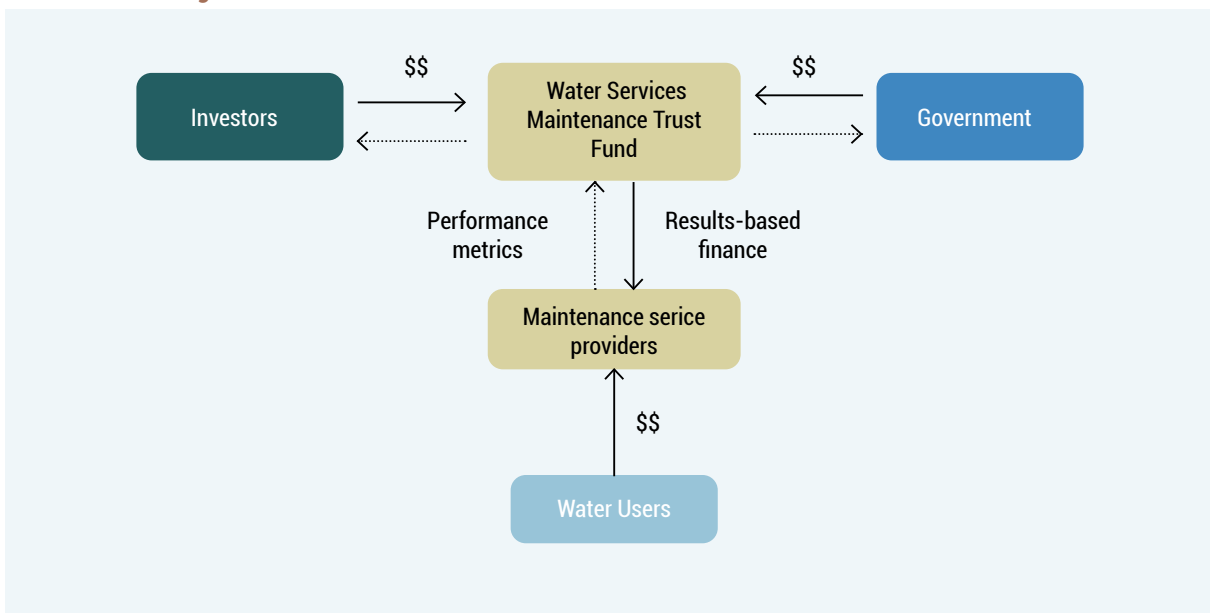
- i) Monthly mobile payments from communities,
- ii) performance-based finance from donors, investors, and governments, and

iii) through the Water Services Maintenance Trust Fund registered in Kenya for the exclusive purpose of supporting maintenance services to rural water infrastructure¹¹⁵.

→ **Smart monitoring** refers to the use of telemetric monitoring technologies to aid the rapid detection and repair of faulty water systems while **coordination** underscores the need for the separation of policy, regulatory, and maintenance delivery functions to ensure the model works.



Figure 28: A Schematic of the Water Service Maintenance Trust Fund: Source-KituiWaterFund.Org



c) The Preventative Maintenance Model by Epicenter Africa

Epicenter Africa in collaboration with Oxfam is deploying a spare parts and maintenance model for 60 water points in Turkana County. Under the model, Oxfam allocated funding to Epicenter Africa to conduct:

- i) a baseline assessment of the water points to detect issues with the systems,
- ii) initial rehabilitation and repair of the systems, and
- iii) regular preventative maintenance and repair of the systems for one year.

The model is funded 100% by Oxfam, but Epicenter is supposed to sensitize the participating communities on the importance of paying for water so that when Oxfam withdraws funding,

communities can take over payment for the preventative maintenance. The duration of implementing the model (one year) may be too short to get communities to regularly pay for water maintenance as this requires some form of behaviour change. A more phased-out and structured approach to supporting regular maintenance of the water points may be required.

d) The Build Operate Transfer (BOT) Model by WaterKiosk Africa

Water Kiosk Kenya is deploying a type of Build Operate Transfer (BOT) model or a Build Operate (BO) model to support the deployment, operation, and maintenance of reverse osmosis water treatment units. Under this model, Water Kiosk Kenya in partnership with a donor entity or County Government, is co-financing the installation of a desalination unit.

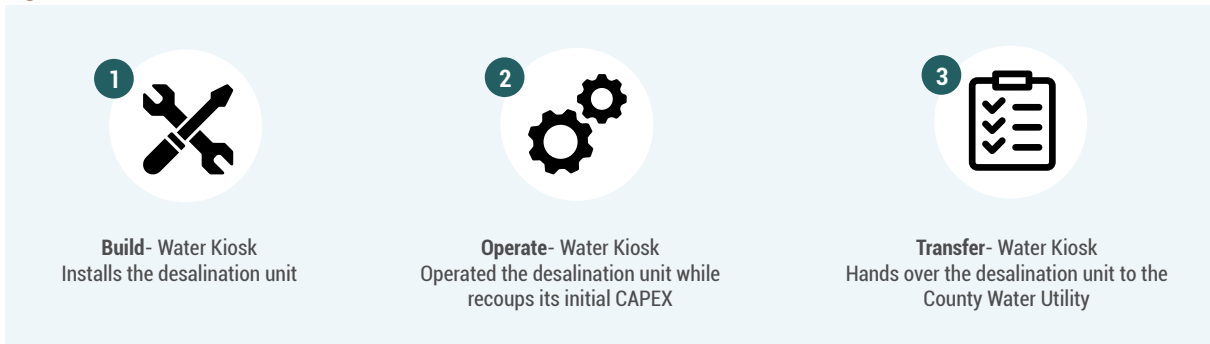


Epicenter Africa in collaboration with Oxfam is deploying a spare parts and maintenance model for **60 water points** in Turkana County.

Once this is done, Water Kiosk hires professional technicians to operate the system for a given number of years to recoup their initial capital expenditure, after which they hand over the systems to the communities or more ideally to the water utility within the county. There are also

instances where Water Kiosk will be permanently in charge of operating the systems. The treatment units are very expensive to set up and complex to operate, hence the need for professional operation and maintenance.

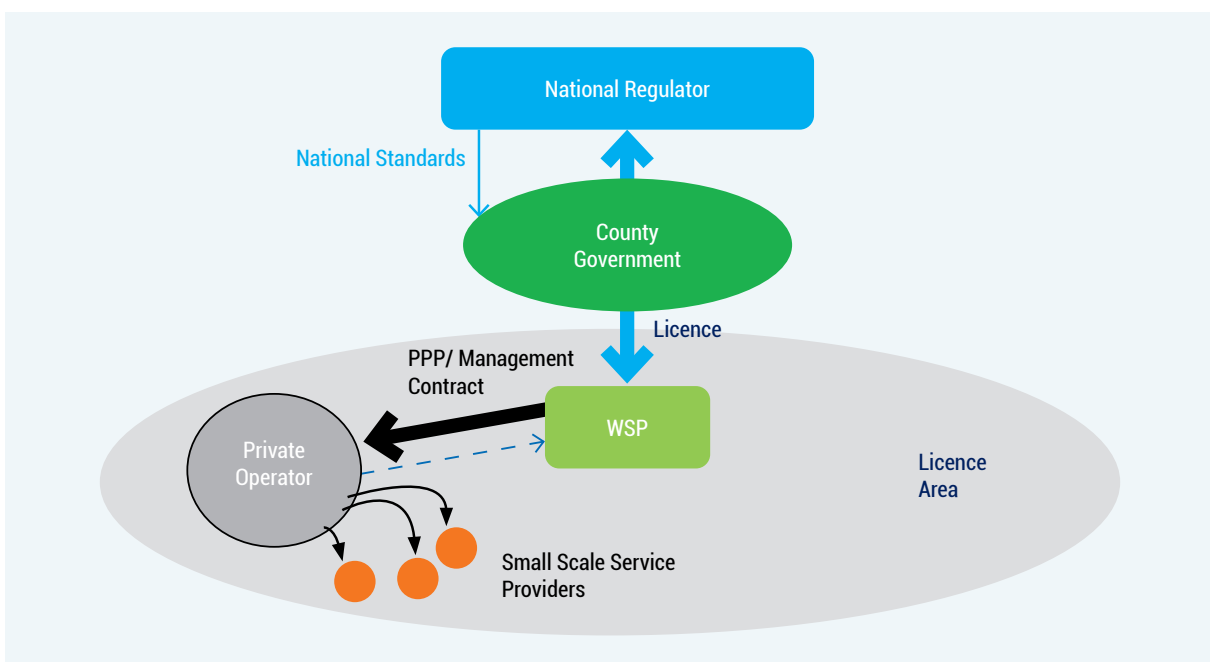
Figure 29: Water Kiosk BOT model



The Water Utility Private Sector Contracting Model

This is a model where rural and urban utilities can lease out water points under their domains/service areas to private groups/individuals. These groups are then tasked with managing water supply and distribution to consumers reliant on that water point. The private groups are required to enter into formal agreements with the utility and community stipulating the nature of revenue sharing and the service delivery standards. Revenue collected by the water utility is to be ringfenced for major rehabilitation work at the leased systems while the

private groups/individuals are required to handle minor repairs to the systems. This is already being done in Marsabit town by the water utility Marsabit Water and Sanitation Company (MARWASCO). The company has leased out several Water Kiosks within the town to private groups which provide vital management and revenue collection services at these water points. The private groups share some of the revenues that they receive with the water utility. The model represents one of the proposed approaches contained in the WASREB guidelines for the provision of water and sanitation services in rural and underserved areas in Kenya. The model is depicted below.



5.4.3 Other Models

a) PayGo Model

PayGo is a type of financing model that allows end-users of a product to pay for products in small instalments (either daily or weekly), instead of having to purchase the product upfront. It enables users to begin using the equipment even as they slowly pay for it. The companies offering the product can disconnect the product remotely in the event of non-payment. It is very common in the off-grid solar products sector where companies sell solar lighting and solar powered equipment like televisions and radios to households.

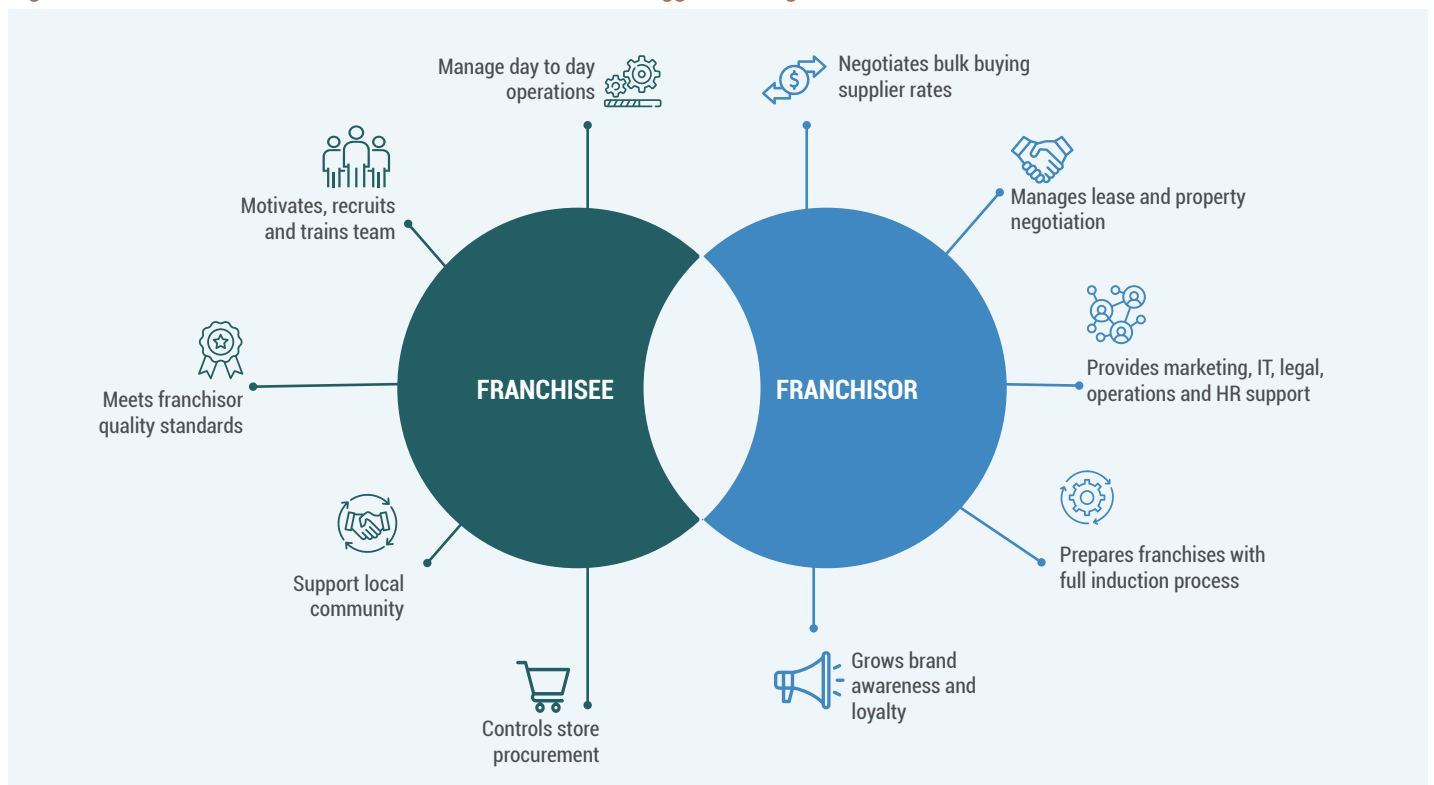
In the water sector, the use of PayGo has yet to gain traction. However, companies offering solar-powered irrigation systems offer some of their products on a PayGo basis. Users are expected to pay a small deposit for the solar-powered pumping system and thereafter pay for the rest of the system on a PayGo basis. Failure to pay for the unit results in disconnection of the system. Companies like Davis & Shirliff (DayLipa PayGo¹¹⁶), SunCulture (Lipa Pole Pole¹¹⁷), Angaza/Lorentz¹¹⁸, and Sunny Irrigation¹¹⁹ all have PayGo offerings. Davis & Shirliff also has a DayLipa Haba application which

android users can download and use to pay for water supply equipment in small instalments. The beauty of Daylipa Haba is that it cushions consumers against future price increases and promotes financial discipline.

b) Franchising Models

Franchising models work well for water purification companies or water refilling companies. Under this model, the franchisor allows a third party to conduct business using its business model, brand, technologies, and trademarks in exchange for a start-up fee and percentage of the sales made. A major benefit of this model particularly for water treatment is that it ensures water quality standards are maintained because the franchisor must check that each of the franchisees are meeting the required standards when producing water. The most prominent franchises are in the fast-food sector with entities like McDonalds or KFC. In the water sector, Jibu, a for-profit social enterprise specializing in the purification of water, works through the franchise model. Jibu franchisees purify existing water sources in high-density urban and peri-urban communities and distribute the water to the neighbouring households.



Figure 30: Roles of a Franchisor and Franchisee: Source- SlideEgg PPT Design





5.5 Businesses and Potential Business Opportunities in Water Supply


The section below provides details on potential business opportunities that exist within each of the RAPID+ counties. It elaborates on potential areas of partnership with existing private sector entities within the county while providing broad descriptions on how businesses, donors, NGOs, and county governments can enhance the water service delivery business environment.




5.5.1 Businesses and Potential Business Opportunities In Water Supply In Turkana

Company or Organisation	Description	Potential Business Support
Davis & Shirtliff ¹²⁰ 	This is a Water and energy solutions provider that offers water pumping solutions, borehole drilling & installation, water treatment, irrigation, swimming and general pumps, generators, and solar solutions. It works on a direct sale business model. D & S has branches in all five RAPID+ counties.	<ul style="list-style-type: none"> • Offering/supplying equipment on a PayGo basis- Davis & Shirtliff is trialing this with some of their irrigation equipment. The company could work with donors to expand this business model whereby donors could provide risk guarantees for some of the equipment or linkages to potential customers. • Utilization of iDayliff Remote Monitoring Systems to operate and maintain solar water pumps. These monitoring systems could be used by private water sector providers and even water utilities. • Brokering spare-part provision arrangements with county governments that have a good track record of payments. I.e., the organisation can provide county governments with spare parts for water point maintenance with county government paying for the parts after an agreed upon duration of time.
Lodwar Water and Sanitation Company (LOWASCO) ¹²¹ 	LOWASCO is a county owned water service provision company mandated to supply water to people living within Lodwar town and its environs	<ul style="list-style-type: none"> • Strengthening LOWASCO by supporting them to finalize payments on their new billing system. • The new billing system at LOWASCO would work more efficiently if coupled with functional water meters. LOWASCO could be looking for provision of water meters following the installation of their water meters. • LOWASCO could provide spare part repair services for remote water points for a small fee thereby reducing water point downtime


Company or Organisation	Description	Potential Business Support
<p>Epicenter Africa</p> 	<p>Epicenter Africa was established in 2009 and seeks to provide sustainable water and power solutions for communities in Africa. The company provides water pumping equipment, water treatment technologies, solar power equipment and engine power. The organisation also provides operation and maintenance services in both the energy and water sectors.</p>	<ul style="list-style-type: none"> Supporting Epicenter to expand its branch presence in the North. It currently has branches in two out of the five RAPID+ counties (Turkana and Garissa County). Epicenter could open workshops within the counties in addition to opening branches to provide repair services for spare-parts. Epicenter could broker supply-part provision arrangements with county governments that have a good track record for payment. Epicenter could support the County Borehole Response and Repair Teams (BRRTs) to maintain boreholes across the county. Epicenter could develop PayGo arrangements for the purchase of their equipment.
<p>Aqua Clara Kenya</p> 	<p>Aqua Clara Kenya is a B-Corp Certified Social Enterprise that designs and distributes Water, Sanitation and Hygiene (WASH) solutions across Africa. Their high-quality training and effective products have enabled more than 300,000 people to have access to safe drinking water, improved sanitation, and proper hygiene.</p>	<p>Aqua Clara Kenya can consult with local hardware stores and community health volunteers to stock its sanitation and hygiene products.</p>




5.5.2 Businesses and potential business opportunities in water supply in Marsabit

Company or Organisation	Description	Potential Business Support
<p>Kosi Dida Borehole¹²²</p> 	<p>This is a privately owned borehole in Marsabit that was constructed in 2019 using financing from a commercial bank. The owner uses the direct sales method by selling water to vendors, trucks, and neighboring consumers. It has employed two personnel, a water seller, and a guard. The borehole relies on both solar and electricity power. However due to inadequate sunlight, the owner tends to rely more on electricity. The owner can cover all his costs from his revenues. The only challenge for this borehole is inefficient cash collection.</p>	<ul style="list-style-type: none"> Installation of a pre-paid water ATM to improve revenue collection at the borehole. This can allow the borehole owner to collect enough revenue to install boreholes in other areas. Repair or re-installation of the solar panels to ensure that they capture the maximum amount of sunlight and minimize usage of electricity.






Company or Organisation	Description	Potential Business Support
 <p>Guyo Halakhe Borehole¹²³</p>	<p>This is a privately owned borehole that was drilled in 2017 but began operation in 2021. The borehole makes adequate revenue to meet all its costs but would need some support for additional infrastructure. The borehole relies only on solar power which is unreliable particularly on cloudy days. The owner has been facing challenges in securing an electricity connection due to the prohibitive costs and bureaucratic processes.</p>	<ul style="list-style-type: none"> • Installation of a pre-paid water ATM to improve revenue collection at the borehole. This can allow the borehole owner to collect enough revenue to install boreholes in other areas. • Repair or re-installation of the solar panels to ensure that they capture the maximum amount of sunlight. • Supporting the borehole owner to secure an electrical connection to facilitate additional pumping of water.
 <p>Maji Milele Limited</p>	<p>Maji Milele, a subsidiary company of the Dutch based company, Water Forever, is a for-profit social enterprise based in Nairobi, Kenya. It offers various water technologies that improve the distribution of water and revenue collection at water points including pre-paid water ATMs, pre-paid water meters and smart water meters.</p>	<ul style="list-style-type: none"> • Installation of pre-paid water ATMs at various water points across Marsabit for the community, which have gained traction and can work without significant NGO involvement. • Installation of pre-paid water ATMs at livestock water points can increase the revenues of communities and allow Maji Milele to expand its business.
 <p>Marsabit Water and Sanitation Company (MARWASCO)</p>	<p>This is a water service utility that was established in 2017 to provide water supply and sanitation services in Marsabit town. The utility has never really picked up traction and requires substantive strengthening in order to deliver on its mandate.</p>	<ul style="list-style-type: none"> • MARWASCO could expand its delegated management services where it sells bulk water to Kiosks around Marsabit town. • Additionally, because Bakuli dam is almost complete, the utility will need to be strengthened to deliver water services around the town. Private sector entities can provide the utility with billing systems and metering equipment, among other technologies.

5.5.3 Businesses and potential business opportunities in water supply in Isiolo.



Company or Organisation	Description	Potential Business Support
 <p>Jatim Engineering and Hardware¹²⁴</p>	<p>This is an MSME located in Isiolo town that provides engineering services to the county government and NGOs, and sells hardware. It was founded in 2007 and currently has 5 permanent staff and 3 casual workers. Jatim sells items like pumps, motors, spare parts among things. The company also drills boreholes and repairs water systems.</p>	<ul style="list-style-type: none"> • Jatim Engineering and Hardware could open a workshop to provide repair services for borehole spare parts. • Jatim can be supported and expanded to provide maintenance services for the boreholes around the county at a fee. • It could secure a PPP contract to manage production and transmission of water in a given service zone (e.g., a sub-county within Isiolo).

		<ul style="list-style-type: none"> • The company could also engage in the hire and lease of construction and engineering equipment to communities and the county government. • Jatim Engineering is also one of the few companies in Northern ASALs registered as a merchant of the Equity Bank Maji Loan program. They should advertise this fact so that consumers can purchase water equipment through commercial financing
<p>Isiolo Water and Sewerage Company</p> 	<p>Isiolo Water and Sewerage Company (IWASCO) has a mandate to provide high quality water and sewerage services to the people of Isiolo town. The company is one of the top performing water companies in Kenya and the best in Northern Kenya. It was ranked 6th countrywide in a recent report by the Kenya Water Services Regulatory Board (WASREB).</p>	<ul style="list-style-type: none"> • Automation of water kiosks owned by the company around the town to improve collection efficiency. This can be done through installing Water ATMs. • Private sector entities could supply the company with spare parts, water equipment and technologies. • Donor entities could strengthen the water utility by supporting it to extend its reticulation networks or reduce its Non-Revenue Water (NRW). NRW is water that is produced by a water utility then lost or unaccounted for due to leakages or water theft.
<p>Family Bank</p> 	<p>Family Bank became a fully fledged commercial bank in 2007. It started off with one branch in 1985 and as of 2023 has 92 branches country wide. One of its newer branches is in Isiolo town. The bank, in partnership with Water.org, has developed 'MajiPlus', a loan facility that will provide flexible financial solutions to individuals, micro-businesses, SMEs, and Water Service Providers (WSPs) such as county water companies and Water, Sanitation and Hygiene (WASH) service providers.¹²⁵</p>	<ul style="list-style-type: none"> • The bank can finance promising private sector business within the county. • NGOs can support Family bank, by linking the bank up with prospective applicants for the MajiPlus loan facility. • Donors can augment the loan facility and develop a specialized facility for Northern Kenya counties like Isiolo. • Family bank could offer trainings on financial management to water point owners. This will also allow them to advertise the MajiPlus Loan Product.
<p>Idro</p> 	<p>Idro Group is an Italian based company that provides a variety of design, consulting, and maintenance services in the water sector. It has developed the Ac-Qua project to provide local communities and vendors with access to information and suitable technologies for water treatment and improvement of water quality. The project is now in Isiolo and Kilifi Counties and so far, vendors/communities have been selected and trained and water treatment plants set-up. Idro is now offering Technical Assistance (TA) on the management of the plants.</p>	<ul style="list-style-type: none"> • Idro could pioneer maintenance service provision for water treatment plants at water points. i.e., they can provide professionalized maintenance for desalination systems, fluoridation units etc. • They could be supported to expand the number of vendors or communities they are working with under the Ac-Qua project.

5.5.4 Businesses and potential business opportunities in water supply in Garissa.

Company or Organisation	Description	Potential Business Support
<p>Glacier Water Company</p> 	<p>Hydrolab Ltd. was incorporated in 2003 to provide services in high-quality bottled water, water purification equipment and water engineering consultancies. The company produces and distributes Glacier purified bottled water. It began operations in Limuru and later opened the Garissa Glacier Water Plant in 2015. The water is distributed widely in Northern Kenya and even in Somalia.</p>	<ul style="list-style-type: none"> • Support Glacier Water Company to solarize some of their boreholes to reduce the costs the company incurs on energy. • Advocate for reduction of excise duty charged on bottled water. • Support the company to conduct market research for bottled water across Somalia and southern Ethiopia.
<p>Warda Water Company¹²⁶</p> 	<p>Warda Water company also commenced operations in a different county, Mombasa, but later opened a branch in Garissa County. It also abstracts, purifies, bottles, and distributes water. During the Key Informant Interview the water company underscored how it was significantly affected by the increased excise duty on bottled water.</p>	<ul style="list-style-type: none"> • Warda water company needs to be supported in advocating for reduction of excise duty charged on bottled water. • They could expand the number of water bottling plants they have in Northern Kenya, depending on demand.
<p>Sumaya Purified Water¹²⁷</p> 	<p>Sumaya is a borehole drilling and water purification company located in Garissa.</p>	<p>Sumaya needs to market their borehole drilling services across Garissa County.</p>
<p>Garissa Water and Sewerage Company (GAWASCO)</p> 	<p>Garissa Water and Sewerage Company (GAWASCO) has a mandate to provide high quality water and sewerage services to the people of Garissa Municipality. However, the company can only supply 30,000 cubic meters of water daily against a demand of 80,000 cubic meters.¹²⁸</p>	<ul style="list-style-type: none"> • Support in increasing intakes for GAWASCO along the River Tana. • Solarization or hybridization of current intakes (if there are any still entirely reliant on electricity) to minimize energy costs incurred by the county. • Support in reducing costs on chlorination and disinfection by organisations like Aqua Research that produce affordable chlorinators
<p>Garissa Rural Water and Sanitation Company (GARUWASCO)¹²⁹</p> 	<p>Formed under the first phase of RAPID+, GARUWASCO was established to provide water services to rural and peri-urban water schemes/points around Garissa County.</p>	<ul style="list-style-type: none"> • Conducting a robust commercial viability assessment to determine rural schemes that the company can take over. • Private sector entities can provide the utility with billing systems and metering equipment among other technologies to strengthening it to deliver services. • Conducting intensive sensitization and customer engagement to increase acceptance of the company by communities.

5.5.5 Businesses and potential business opportunities in water supply in Wajir

Company or Organisation	Description	Potential Business Support
<p>Solargen Limited</p> 	<p>Solargen Limited, headquartered in Nairobi Kenya and founded in 2010, is a leading Energy, Water, and Irrigation solution and service provider. The organisation provides solar water heaters, solar pumps, solar home systems, solar irrigation systems, solar storage solutions and water treatment solutions. Solargen has a branch in Wajir Town and is interested in venturing into Operation & Maintenance services for water points.</p>	<ul style="list-style-type: none"> • Solargen should be supported to expand its delegated management model. Under this model it supports individuals who want to venture into the sale of water by helping them construct water points/water towers, it then purifies and sells water to these individuals who then resell the water. Solargen slowly recoups its initial construction investment overtime from the kiosk owners. • Supporting Solargen to expand its branch presence in the North. It currently has one branch in Wajir County. • Provision of some of their technologies and spare parts on a lease to own basis or a PayGo basis.
<p>Wajir Water and Sanitation Company (WAJWASCO)</p> 	<p>WAJWASCO is the county government owned water service provision company in Wajir County mandated to provide water across the entire county. It was established in 2016.</p>	<ul style="list-style-type: none"> • The water utility is undergoing an overhaul with the establishment of a new administration and is viable for strengthening. It needs to bolster its revenue collection platforms, customer management systems, metering etc. • It has a mandate to oversee water supply in the entire county so a variety of remote monitoring techniques that can be provided by private sector entities would be important.

The Rangelands and Fodder Sector

6.1 State of Rangelands in the ASALS

Rangelands represent the most extensive land cover on earth and can be defined as "drylands that are not used for growing crops, having at least ten percent vegetative cover at least two months of the year and less than ten percent tree cover."¹³⁰ The definition above is just one of the many definitions of rangelands that exist. However, most definitions address both a land cover type associated with vegetation or biome and land use that primarily emphasizes grazing or pastoralism.¹³¹ Kenya has a total land area of 582,650Km². The savannah and grassland ecosystems that make up Arid and Semi-Arid Lands (pastoral rangelands) account for approximately 84% of this land mass.

Kenya has a total land area of **582,650Km²**. The savannah and grassland ecosystems that make up Arid and Semi-Arid Lands (pastoral rangelands) account for approximately **84%** of this land mass.

Kenyan rangelands are distinguished by their aridity.

1.

They are ecosystems with **low and erratic rainfall** that is highly variable both temporally and spatially and whose climate changes significantly year by year.

2.

Temperatures in these areas **are high** all year, resulting in **high evapotranspiration rates**.

3.

Furthermore, the soils are **shallow, light to medium in texture, low in fertility, and prone to erosion, compaction, and rapid drying out**.

4.

Grasslands, shrublands, and scattered woody vegetation are the dominant vegetation types

¹³²



Animal husbandry and agro pastoralism are the most common forms of production in the Rangeland Ecosystem.

Most rangeland communities rely solely on natural resources including animal-based products (skins, wool, and milk, among others), plant-based products (arabica, dyes, and medicinal herbs such as aloe vera, frankincense, myrrh, gum, honey), manmade handicrafts, and naturally occurring minerals for their income. This heavy reliance on natural resources may

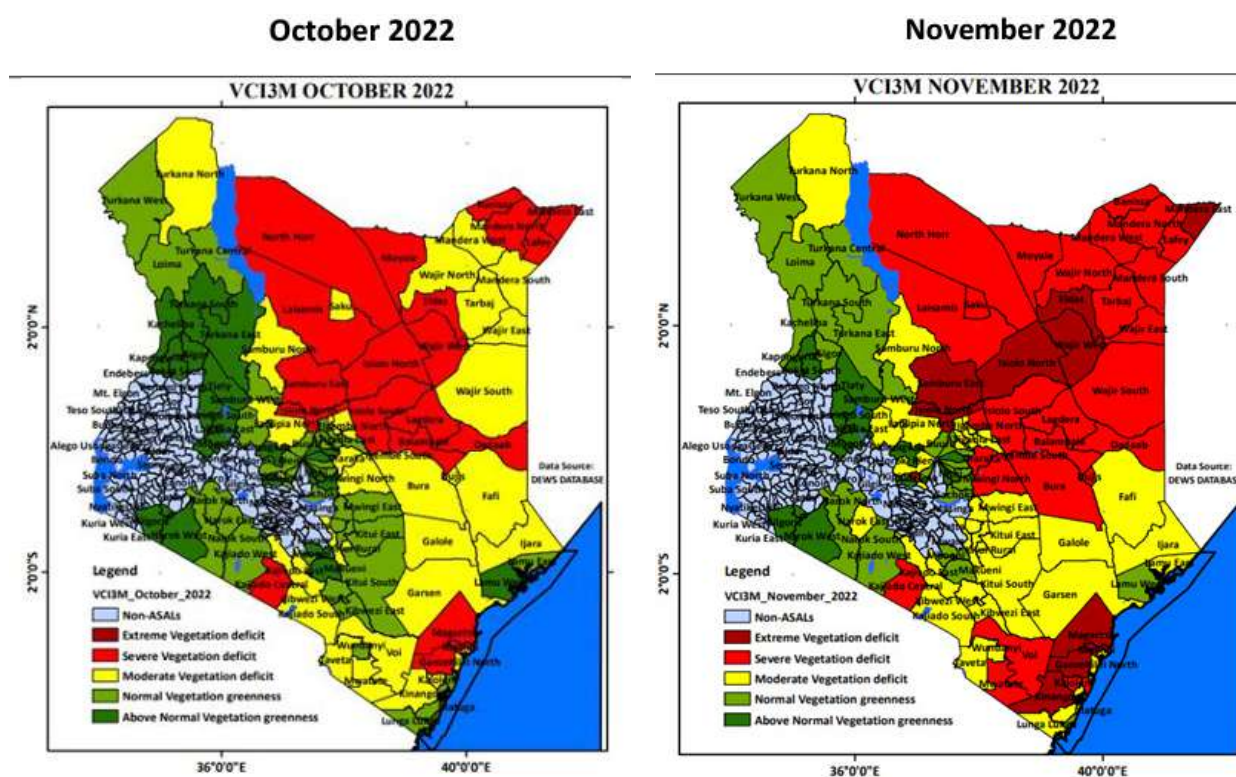
make their livelihoods unsustainable and presents opportunities for diversification. Although dryland production has great potential, it often lacks institutional and technical capacity. "The political and legal frameworks are also unfavorable to the production and marketing process."¹³³ Improving the production of rangeland goods combined with sustainable natural resource management will significantly contribute to alternative livelihoods of communities living in these regions.

The 5 counties assessed under the study are occupied by communities that earn a living through both pastoralism and agropastoralism.

However, the communities face challenges including unclear land tenure systems; growing populations; overgrazing; continuous conflict; and insufficient water resources due to frequent

droughts. To exemplify the effects of erratic rainfall on rangelands, Figure 31 shows an alarming deterioration in vegetation conditions across ASAL counties in November 2022 when compared to the previous month of October 2022 due to the poor performance of October-November-December (OND) short rains.

Figure 31: Map of Kenya showing the Vegetation Condition Index (VCI) for October and November 2022: Source NDMA October 2022 and November 2022 drought bulletin.



The challenges described above have in turn led to pasture scarcity, land degradation, and socioeconomic disintegration and are forcing pastoralists to diversify their sources of income, though many remain committed to traditional livestock management practices.¹³⁴ These issues, coupled with other factors like poor transport networks and low access to credit and technology

have also historically limited private sector participation in rangeland production. However, this assessment determined that there are several value chain opportunities for private sector actors involved in livestock production, fodder production, honey production, gums and resins, mining, among others.

6.2 Rangelands Legislation and Regulations



At the national level, there are several legislations that guide rangelands resources management including:

- The Constitution of Kenya 2010
- The Environmental Management and Coordination Act (No 8 of 1999)
- Sessional Paper No 9 of 1999 on Environment and Development
- The County Government Act (No 17 of 2012)
- The Community Land Act (No 27 of 2016)

At the county level, the following are the existing laws related to rangelands, fodder, and livestock:

Table 5: Existing Rangeland Policy Instruments in some of the ASAL counties

County	Bill, Policy, Act, Rules, and Regulations	Status
Wajir	Livestock Sales Yard Bill	Draft
Isiolo	Rangelands Management Bill 2022	Draft
	Rangeland Resources Management Policy	Draft
	Isiolo Livestock Sales Yard Act 2016	Enacted
	Isiolo County Trade and Markets Bill 2022	Draft
Garissa	Rangelands Resources Management Policy	Draft
Turkana	Livestock Sale Yard Bill	Draft
	Turkana Livestock Policy 2017	Draft
Marsabit	Rangelands Resources Management Policy	Draft
	Rangelands Resources Management Bill	Draft
	Livestock Bill	Draft

6.3 Rangelands Institutions

- These institutions include those at the national, county, and community levels that contribute to the development of relevant policies, frameworks, and strategies aimed at promoting participatory rangeland management practices and activities. They are **the ministries of Environment and Forestry, Agriculture, Livestock, Fisheries, and Cooperatives, Water and Irrigation, and Lands and Physical Planning. The National Treasury, the Ministry of Devolution and Planning, the Ministry of Energy and Petroleum, and the Council of Governors** may also be involved.

- A different category of institutions are those involved in rangeland regulatory activities. They include **the National Environment Management Authority (NEMA), the Water Resources Authority (WRA), the National Land Commission (NLC), the Agriculture and Food Authority, the Kenya Plant Health Inspectorate Service (KEPHIS), the Kenya Forest Services (KFS), and the Kenya Water Towers Agency (KWTA).**

- Furthermore, there are institutions, organizations, and establishments engaged in range management and pastoralism research. They include **the Kenya Agriculture and Livestock Research Organization (KALRO), the Kenya Forestry Research Institute (KEFRI), International Livestock Research Institute (ILRI), International Council for Research in Agroforestry (ICRAF), the National Council for Science and Technology, and the Centre for Training and Integrated Research in ASAL Development.**

6.4 Rangeland businesses

6.4.1 Gums and Resins

Gum arabic, myrrh, hagar, and frankincense are all commercially valuable gums and resins in Kenya. They are currently manufactured in several ASAL counties in Kenya, primarily in Marsabit, Wajir, Garissa, Mandera, Turkana, Samburu, and Isiolo. Gum and resins naturally occur in trees and are harvested through tapping or through natural exudation- where trees release their sap after interactions with insect, animals, or nature.¹³⁵

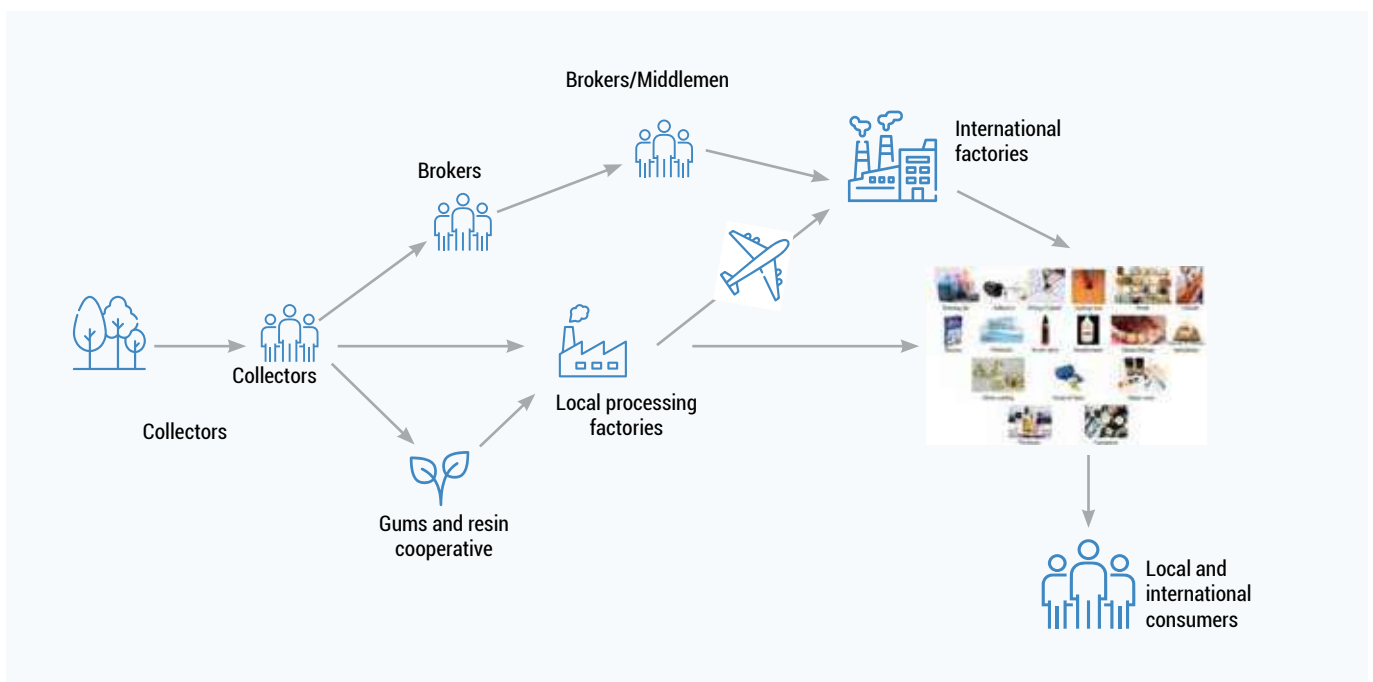
Since 2005, KEFRI through the framework of the Network for Natural Gums and Resins in Africa (NGARA) and in collaboration with the Gums and Resins Association (GARA) has spearheaded the formation of over 80 gum producer associations. In collaboration with Ewaso Ngiro North Development Authority (ENNDA), Acts-*Changia Rasili Mali* (CRM) Facility and the National Agriculture and Livestock Extension Programme (NALEP), KEFFRI has trained 387 people on the production, harvesting, post-harvest handling and marketing of gum Arabic with the ultimate objective of providing an alternative livelihood source for the local community.¹³⁶

Gums and resins produced in Kenya are exported in raw form except for a small quantity that is processed for essential oils. There are three major processors of gum resins in Kenya namely: Lubanchem Limited, Northern Gums Limited, and Arbor Oils of Africa Ltd. However other smaller processors are also entering the market. Figure 33 demonstrates the business pathways towards the final product of gums and resins.

Figure 32: Pictures of gum and resins. Source. Muga M, KEFRI



Figure 33: A depiction of the market flows for Gums and Resins



The presence of the Network for Natural Gums and Resins in Africa (NGARA) secretariat in Kenya can help in providing useful linkages and market access. Strengthening NGARA by supporting the implementation of the network’s strategic plan would be a starting point in reforming the sub-sector. A strong NGARA would lobby the government for enabling policies and assist them in the establishment and strengthening of the producer associations. ¹³⁷



PRODUCTION OF GUMS AND RESINS IN MARSABIT COUNTY

In Marsabit, the production of gums and resins is mainly carried out in the southern parts of the county. The most common products are Ndikir and Lagarama gums which are used to manufacture food products, and Luibathin and Hurrs resins which are used for manufacturing sprays and pesticides. Brokers buy gums and resins from producers and sell to manufacturers who include Laisamis Gums and Resins Cooperative and Acacia EPZ. Some gums and resins are also sold to external markets in Isiolo and other counties.

Figure 34: Ongoing harvesting of gum from a tree using the tapping method



Figure 35: Harvested gum arabic ready for collection



The gums and resin business is a nascent industry with good returns, and is therefore ripe for more players. The current market prices in Marsabit County established during the assessment are as follows:

Table 6: Price range of raw gums and resins in Marsabit County¹³⁸

Product	Buying price in KES per kg	Selling price to processors in KES. per kg	Selling price of processed gums and resins in KES. Per Kg
Hurr	500	800-1000	8000-9000
Lubathin	150-180	200-250	6000
Gum Arabic	150-170	200-400	8000
Gum Nyeupe	200	300	n/a

Market prices go up once products have been processed. Despite the good profit margins, individuals and groups in the business do not have the technical capacity to process the products to maximize the market potential of gums and resins.



PRODUCTION OF GUMS AND RESINS IN WAJIR COUNTY

In Wajir county, the gums and resins market is lean, with only a few people involved. Myrrh is the most popular product, and it is used for treating indigestion, tick-borne disease, soreness and swelling, inflamed gums and bad breath. It is also used as a fragrance. Because there were no formal businesses dealing in the product, individuals have established informal self-funded businesses. One of the successful informal gums and resins businesses interviewed during the assessment was Ali Enterprise. The business makes up to KES 50,000 profit every three months and sources raw gums and resins from Mansa and Tarbaj areas of Wajir County.



Insight Box 5

The Case of Ewaso Afri Limited

Ewaso Afri Limited is a gums and resins company with operations and stores in Wajir, Isiolo, and Turkana counties. Its main collection point is in Isiolo. The company sources its raw material from local communities or established entities like the Laisamis Gum Service Cooperative. Since its business model is B2B, Ewaso processes the raw gums and resins into Essential Oils then sells the end product to manufacturers in Nairobi like Elys Chemicals, with occasional exports to the United Kingdom (B2B). To collect the raw materials, the company employs between 50 and 100 women. The women are paid KES. 8 per kilogram, with the highest supplying an average of 80 kilograms per day. This has provided women with the opportunity to earn money while also enjoying benefits such as training in tapping gums and resins and business development.

The company proposed that one way to increase production would be to plant more trees and train communities on how to harvest and transport gums and resins. Officials at the company opine that the current available gums and resins are sufficient to serve the market but are not harvested optimally. Current supply cannot meet demand, creating opportunities for others to venture into the business.

A big challenge experienced by Ewaso Afri Limited is that its suppliers do not deliver the expected quantities of raw materials as they have challenges with efficient harvesting. According to the company CEO, new investors would want to focus on the supply side, making it more organized through cooperatives, mapping locations that are highly productive and focusing on good quality as demanded by the international market. The company plans to expand its stores and get involved in more products such as frankincense, myrrh, and coconut oils. This will require big investments in equipment, machines, and a solid business strategy.

6.4.2 Barriers to Private Sector Participation in Gums and Resins business



Lack of knowledge

Farmers lack knowledge about post-harvest product handling and have poor hygiene practices. This leads to poor raw product quality, which reduces prices and causes losses when buyers reject the products.



Market inaccessibility

Hurr requires a quick market, so if it is stored for more than a day, its weight decreases, lowering the selling price. Hurr collecting thus necessitates proper handling and storage for transportation to clients. In addition, buyers of the product are not well known to producers. There is need for a market platform connecting buyers and suppliers.



Insecurity

Harvesting slows during insecurity due to fear of attacks, particularly in the southern parts of Marsabit bordering Samburu and along the Marsabit-Isiolo border. As a result, insecurity disrupts the consistent supply of products, necessitating the private sector to diversify or explore untapped locations across the country to maintain a constant supply.



Lack of legislation

There is no clear legislative framework that guides the production of gums and resins in many of the ASAL counties. For example in Marsabit County, there is no policy for gum services, so law enforcement has no idea what the products are

or what legal requirements are needed for that particular business. Obtaining a forest permit to transport gums and resins within Marsabit County was also reported to be difficult due to the gaps in legislation.



Deforestation

Another challenge is deforestation and tabbing -tabbing is the removal of the top covers of the trees resulting in poor quality of gums and resins. Key informants suggested the problems could be solved by improved forest protection by the Kenya Forest Service and encouraging afforestation. The informants also voiced the need for a policy framework that would safeguard and regulate gums and resins production.

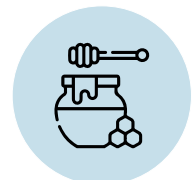
6.4.3 Honey production

ASALs provide a great environment for beekeeping due to their diverse flora. They account for 80% of honey production in Kenya and have potential to produce even more.¹³⁹ There are numerous advantages to beekeeping. It generates revenue from a variety of products (beeswax, propolis, pollen, bee colonies, royal jelly, pollen, bee venom, bee brood and package bees, etc.) and contributes significantly to biodiversity and crop yield improvement through the pollination of plants, trees, fruits, and crops, without competing for land or other resources such as labour. It encourages environmental conservation thus mitigating climate change and requires a relatively low capital investment.

ASALs provide a great environment for beekeeping due to their diverse flora. They account for

80%

of honey production in Kenya





BEEKEEPING IN TURKANA COUNTY

In Turkana County, beekeeping is primarily done on small scale for subsistence and as an alternative source of income for communities. There are few private sector actors in the business. One major private sector entity in beekeeping in Turkana County is The Hive Limited, a multinational company. The Hive is among the companies that received funding from Kakuma Kalobeyei Challenge Fund (KKCF) in 2021.

The Hive Limited is a leading provider of modern beekeeping equipment and beekeeping services. The company collaborates with the communities involved in beekeeping to enhance the production and quality of bee products such as honey and beeswax. Through KKCF funding, the company has tapped into the enormous beekeeping potential in Kakuma and Kalobeyei by establishing a commercial beekeeping hub that provides economic and nutritional benefits to refugees and host communities. Although The Hive had previously conducted beekeeping interventions in Turkana, KKCF provided



an opportunity to establish a more comprehensive investment on a larger scale.

The company has trained 100 Trainer of Trainees, reached over 1600 farmers, and created jobs across Kenya including in Turkana, Kitui, Kiambu, and Kisumu counties among others by establishing stores and shops. It has also established commercial hubs and centres of excellence for beekeeping in Kalobeyei and Oropoi in Turkana among other areas. Its business model is to assist beekeepers to increase their honey production while also providing a ready market as it is a primary buyer. The Hive processes and packs the honey ensuring high quality. It also trains farmers on the best practices in beekeeping, equipment, harvesting and post-harvesting handling.



BEEKEEPING IN WAJIR COUNTY

Wajir County is conducive for beekeeping due to the presence of natural wild landscapes. Most communities within the county practice traditional beekeeping, but some individual farmers have adopted modern beekeeping practices such as the use of apiaries and harvesting equipment. According to the Wajir County CIDP 2018-2022, beekeeping has a lot of potential in the county, especially in Tarbaj, Wajir North, and along the Ewaso Ng'iro belt. With proper investment and management, it can become an important alternative source of income for youth and women. Despite the latent potential for beekeeping in the county, individual farmers in the county face numerous challenges because they do not meet market standards. As a result, they must begin properly processing, labelling, and packaging honey and other bee products to attract customers.



Insight Box 6

Beekeeping case of Wajir County

Ahmed Hussein was a crop farmer and livestock producer living in Bute town making \$330 per month which was not enough for the basic needs of a family of 7 adults and 14 children. Even with 97 acres of land, his large number of livestock overgrazed the land reducing their it's productivity. The solution for him was to pivot to another industry beekeeping.

In 2016, he kicked off his business with 16 beehives even though many people saw beekeeping as a business opportunity for the destitute in the community. In 2020, the Feed the Future Kenya Livestock Market Systems Activity (LMS) circulated an advertisement in Bute town offering to support businesses through grants. Ahmed applied for a grant and after a feasibility assessment, LMS granted him \$68,000 to modernize his apiary and build a larger storage facility. The rest of the money helped him acquire 118 beehives, a honey extractor, and a honey presser. He also bought two honey sieving tanks, five pairs of bee suits, five pairs of gumboots, a bee brush, a hive tool, and a smoker.

With expanded production capacity, Ahmed now makes an average profit of \$780 each harvesting season. He uses his income to feed and educate his family. Ahmed has also created jobs for three youth members from his community and started training other honey producers in Wajir North on beekeeping, apiary setting, colony division, and harvesting. To date, he has trained 134 people in beekeeping who have gone on to improve their businesses. He now plans to build a modern training centre for beekeepers.

"Beekeeping has given me financial freedom and enabled me to be productive in my retirement years. I can now provide for my family's needs comfortably. This would not have been possible were it not for the bees," Ahmed said.

Source: <https://www.acdivoca.org/2021/06/a-beekeeping-venture-brings-hope-to-pastoralist-families-in-northeastern-kenya/>

Figure 36: Ahmed Hussein pictured next to his beehives: Source ACDI/VOCA



6.4.4 Barriers to Private Sector Participation in Honey Production



i. Noncommercial approach to beekeeping

The main challenge for investors such as The Hive Ltd. is the native community's dependency on aid which has been fostered by the non-commercial approach that development partners have taken to beekeeping in the region. The expectation of handouts persists, undermining the ability of the company to sell its beekeeping equipment to the community.



ii Deforestation

Most communities rely on charcoal burning as an alternative source of income, resulting in the felling of trees needed for beekeeping.



iii. Poor road networks

There are logistical challenges because of poor road networks connecting remote rural areas to the main collection points for honey. For example, in Isiolo, the road networks in Oldonyiro, Merti, and Garbatulla areas require extensive maintenance due to wear and tear, and only motorcycles can navigate them. Slow transportation also affects the turnaround time for orders.

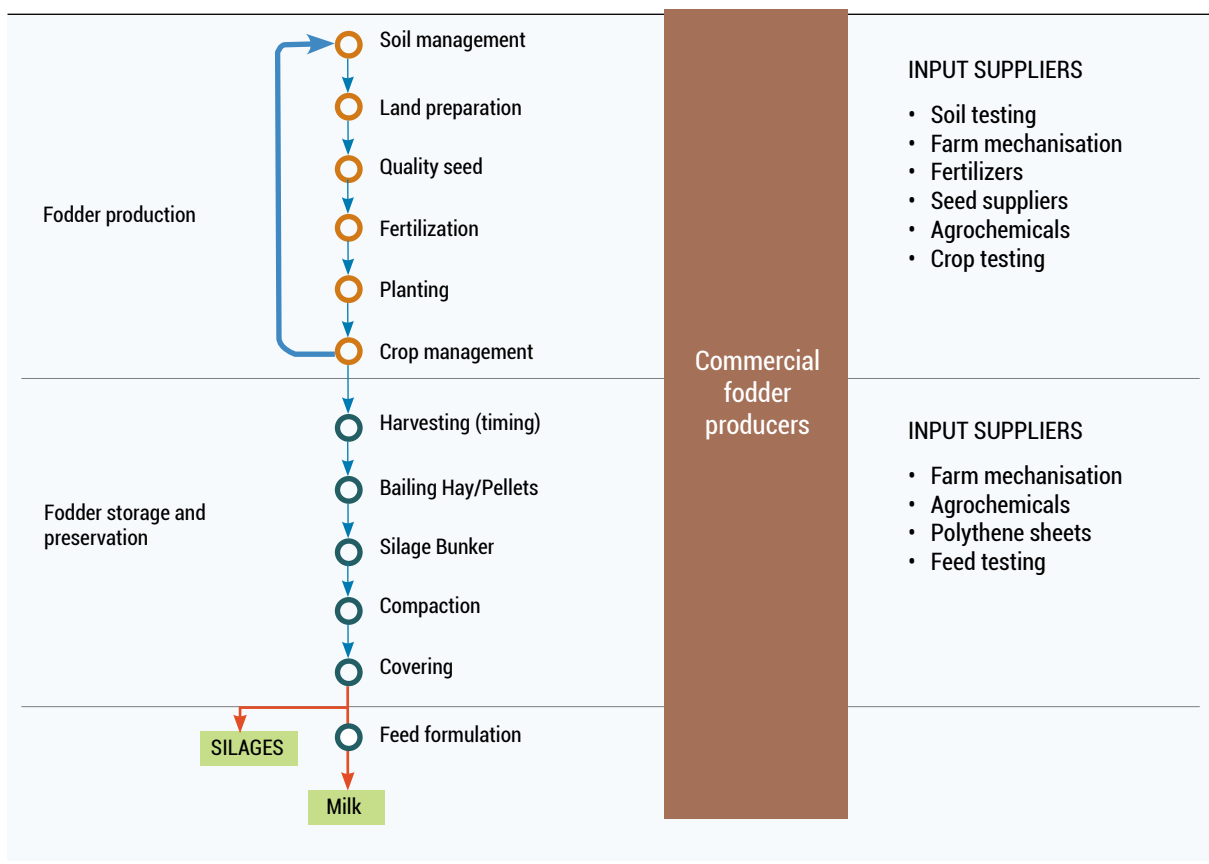
6.4.5 Fodder Production

Forage production has been widely promoted in Kenya's arid regions as a livelihood diversification strategy to address the problem of pasture shortages and to supplement the livestock income of agro-pastoral households. However, there is limited information to guide the targeting and

prioritization of options for expanding forage production to improve pastoral and agro-pastoral livelihoods. Analysis of the feeds value chain shows that at production level, the main actors are individual farmers and social groups, who provide their own labour for cultivation and source their own forage seeds. The diagram below depicts various activities around fodder production.



Figure 37: Fodder production activities



FODDER PRODUCTION IN TURKANA COUNTY

This assessment found that fodder production is primarily for subsistence and is only commercialised to a limited extent. Most fodder farms are established along rivers such as River Turkwel and River Kerio by individuals and groups supported by NGOs and the national government. Some farmers have joined associations such as the Kachume Pastoral Field and Nariemeto Fodder Group which offer them additional support including building hay stores, providing fodder seeds, and capacity building. Others are still operating as individuals. While many farmers sell fodder and seeds as a source of alternative income, some fodder producers are involved in barter trade i.e., exchange fodder with goats when the medium of exchange (money) is not available. This was reported in parts of the Turkana West sub-county where some communities come from remote areas with no or minimal access to money. Other

buyers of fodder include Livestock Marketing Associations (LMAs) and brokers.

One of the key challenges affecting fodder production in Turkana County is the distribution of free seeds and fodder by the county government and NGOs which has distorted the fodder market. Additionally, the costs of fodder production are prohibitive for farmers cultivating the crop along rivers and using fuel-powered pumps to extract water from the rivers for irrigation. Despite these challenges there is room for private sector intervention with the introduction of energy-friendly irrigation alternatives like solar-powered pumps. County representatives in Turkana also recommended the setup of large-scale irrigated fodder farms by the private sector for wider markets beyond the county as the land is considered fertile and there is availability of water from River Turkwel.

Figure 38: A farmer showing an enumerator the harvest from the farm, Turkana County



FODDER PRODUCTION IN GARISSA COUNTY

Fodder production in Garissa County has great potential despite perennial droughts. The fodder business has a ready market, especially in individuals involved in feedlots systems and organizations working in drought response. Feedlot systems *'represent an intensive production system with the goal of growing and or fattening cattle until they reach slaughter weight. The feedlot sector can be further divided into growing (backgrounding) and finishing (fattening) phases'*¹⁴⁰. The current identified market for fattened livestock is Nairobi with other counties occasionally consuming livestock from Garissa.

Talle Farm is one example of a successful fodder production farm in Garissa. The farm operates a lister diesel generator purchased through funding from a USAID grant. It focuses on fodder production, baling, and selling hay. The farm produces different

types of fodder including panicum, super napier, *calliandra*, *brachiaria* with its various intra-species, Nandi grass, Sugar graze, and *Guatamala*. It sells most of its product to farmers in Garissa town or to brokers who cater for transportation to their clients.

The excerpt in the box below focuses on a farmer growing fodder along the banks of the Tana in Garissa County. Some of the key challenges highlighted in the story including the inadequate local supply of fodder in Garissa County and the failure of agro-vets to stock fodder seeds all present avenues for private sector participation in the fodder market. Much like in Turkana County, the exemplified fodder farmer below also incurs prohibitive costs from using diesel-powered irrigation equipment. This is indicative of the need for private sector provision of irrigation equipment powered through renewable energy.

Figure 39: Napier grass at Talle Farm, Garissa



Insight Box 7

Fodder Farming by Pastoralists in Garissa: An Adaptive Measure to Cyclic Drought.

Hassan Yussuf is an agro pastoralist who is passionate about fodder production. He has been conducting irrigated farming near the Tana River for almost 20 years. He is a member of the Jamhuri Irrigation Scheme, where the bulk of the farmers grow horticultural crops, primarily mangoes, limes, oranges, paw paw, and bananas.

Hassan began fodder planting in early 2021 due to the strong demand for fodder in Garissa County and a lack of local suppliers. He credits his father, who taught him farming practices, for his success and devotion. He has also learned a lot from other farmers both within and outside of Garissa County, which has increased his knowledge and pushed him to pursue a career in fodder farming. He has experimented with over ten different fodder kinds, including panicum, super napier, calliandra, brachiaria with its various intra-species, Nandi grass, Sugar graze, and Guatamala.

He has used social media to connect with farmers from various parts of Kenya, who have also supplied him with seeds. He observes that one disadvantage of obtaining fodder seeds online is that delivery is not guaranteed, and he wishes that local agrovets will invest in storing various sorts of fodder seeds.

As a lead farmer, he aims to influence adjacent farmers to engage in fodder production and ensure a readily available supply of fodder seeds and cuttings. "Currently I am using a shallow well and a gasoline-powered pump at my own cost which is a bit expensive. With green energy, I would be able to utilize my entire 2.5 acres of land. I also need support to start silage making to prevent fodder loss," recounted Hassan during an interview with the RAPID+ Garissa team. The farmer spends an average of Kes 18,000 on fuel per month which is likely to increase further following a move by the Kenyan government to remove subsidies on petroleum fuels.

Figure 40: Haso Innovation Farm in Galbet Garissa: Courtesy of RAPID+ Garissa



FODDER PRODUCTION IN ISIOLO COUNTY

In Isiolo County, a few entrepreneurs have made significant gains in the fodder and feedlot business. One of these entities is Aminaj Company Limited, which started in 2015. The company established a feedlot for fattening livestock and is also engaging in fodder production. The company has a large tract of land, 10 acres of which is under drip irrigation for fodder production. Water for irrigation is harnessed from a solar-powered borehole. The company also built storage for around 5000 bales of fodder. To carry out these activities, the company co-invested with USAID to set up the feedlot and modern hay store while it fully financed the drilling and equipping of the solarized borehole. The company has been able to build capacities of 100 neighbouring farmers to stimulate fodder production to meet the market demand.

In Kinna, Isiolo County, there are several fodder producers who have excelled in production of fodder through the support of local and international NGOs. One example is the Kinna fodder producers who have established a fodder production farm that supplies Kinna, Garbatulla, Sericho and other wards in Isiolo as well as several wards in Meru County. Their clients include individuals and organizations. The county government also buys fodder from the group in bulk to supply to other parts of the county affected by drought. The group makes more money during the drought season due to these purchases by the government. The main challenge the group is currently facing is the lack of reliable water for irrigation and erratic rainfall.

Despite fodder production being lucrative for individual producers in Isiolo, the lack of formal business systems hinders growth in the business as many entrepreneurs do not keep books of accounts. Irrigation using Ewaso Ng'iro River has also been explored by a few fodder farmers but they have shied away due to flooding. For private sector entry and opportunities, there are factors to consider including the farming model to ensure continued supply of fodder, the source of water for irrigation, distance to the market and a combination with livestock value chains for sustainability.

6.4.6 Barriers to private sector entry in Fodder production



i) Lack of water for fodder farming

With most small-scale producers relying on rain-fed fodder production, there has been a lull in production due to the prolonged drought in Northern Kenya.



ii) Fluctuating markets

Fodder production faces the challenges of seasonality. This means that there is limited market for fodder during the rainy season when there is greater availability of natural range. Additionally in the dry season most of the livestock in the region migrates in search of pasture leaving the fodder producers with no market to sell their produce. Conversely there is the problem where farmers in the ASALs overprice their fodder which necessitates communities and individuals to source for fodder from other regions at a more affordable price.



iii) Provision of free fodder and fodder seeds

During the assessment, it was established that some non-profit organizations provide free seeds and hay bales, causing market distortion.

Consequently, small-scale seed and hay producers are unable to sell their products.



iv) Invasion by Wildlife and Livestock

Most fodder farms in the ASALs, particularly those owned by small-scale individuals and community groups are unfenced and vulnerable to invasion by both wildlife and livestock grazing in the area. This was identified as a significant challenge because cattle and wildlife destroy the young grass and impede its growth particularly during the drought season. Farmers who are engaged in fodder product need to invest in fencing.



v) The cost of farm inputs and the quality of fodder seeds.

One of the main barriers to fodder production is the cost of farm inputs (fodder seeds and fertilizers) particularly for those farmers living in remote towns or centres. The agrovets do not stock pasture seeds and therefore even individuals interested in venturing into the business do not have a sustainable or reliable source of farm inputs (see Box 7 above). The quality of fodder seeds remains a challenge. Fodder seeds are not readily available in the ASAL counties, and seeds from local farmers are not certified by KEBS or KEPHIS, making them unsuitable for most INGOs and NGOs interested in purchasing seeds from farmers.



vi) Prohibitive Cultural Practices and Beliefs

The community's cultural practices and beliefs hold that pasture and fodder should be freely available. This is the same reason why communities do not practice reseeding because they believe that pasture regenerates automatically whenever rain falls. Resultingly the perceived beliefs impede the growth and sale of fodder.



vii) Inadequate Credit and Financing

There is inadequate credit within the counties for individuals and business entities interested in venturing into the fodder production business. A lack of Shariah-compliant financial and credit services has slowed investment, particularly among smaller cash-strapped entrepreneurs and fodder growers.

6.5 Rangelands and Fodder Production Models

6.5.1 The Northern Kenya Carbon Project

For the past 13 years, The Northern Rangelands Trust (NRT) has been implementing a project to address land degradation in collaboration with pastoral and agropastoral communities living within 14 conservancies in the Northern ASALs.¹⁴¹ Some of the activities being conducted under the project include grazing planning, grassland rejuvenation through clearing of *Prosopis Juliflora* and rotational grazing. The practices help in the increase of pasture and other plants which helps in adding more carbon to the soil. Carbon-rich soils store more water and produce more forage during dry periods.¹⁴² The positive carbon sequestration benefits of the project are being used to generate carbon credits which are then sold on international carbon markets to benefit the communities, county governments and the NRT.

By obtaining consistent carbon funding, pastoralists can now plan where their livestock graze, leading to the restoration of more than two million hectares of savannah grasslands in an increasingly arid area.¹⁴³ The Northern Kenya Carbon Project represents the world's first large-scale grasslands soil carbon project and is one of the few large, landscape-level carbon removal ventures currently on the market. It is anticipated to remove and store 50 million tons of CO₂ over 30 years – the equivalent of the annual emissions from over 10,000,000 cars¹⁴⁴.

The NRT Carbon credits project is certified by Verra as meeting the Verified Carbon Standards

(VCS). It is also Triple Gold certified by the Climate, Community, and Biodiversity Alliance (CCBA) due to the additional benefits it provides to wildlife and communities.¹⁴⁵ Only seven projects in the world have received this Triple Gold distinction¹⁴⁶.

The project generated USD 14.6 million in carbon credits from the sale of carbon on the international market in 2022. A 5% levy on sales was paid to the respective county governments. The money went to 14 NRT member community conservancies that took part in the project's activities, with each receiving USD 324,000. The amount is split between the conservancies' operational costs and community-identified social development projects such as education sponsorship, livestock market development, and grants to businesses among activities.¹⁴⁷ The diagram below illustrates the broad process of generating and monetizing carbon credits.

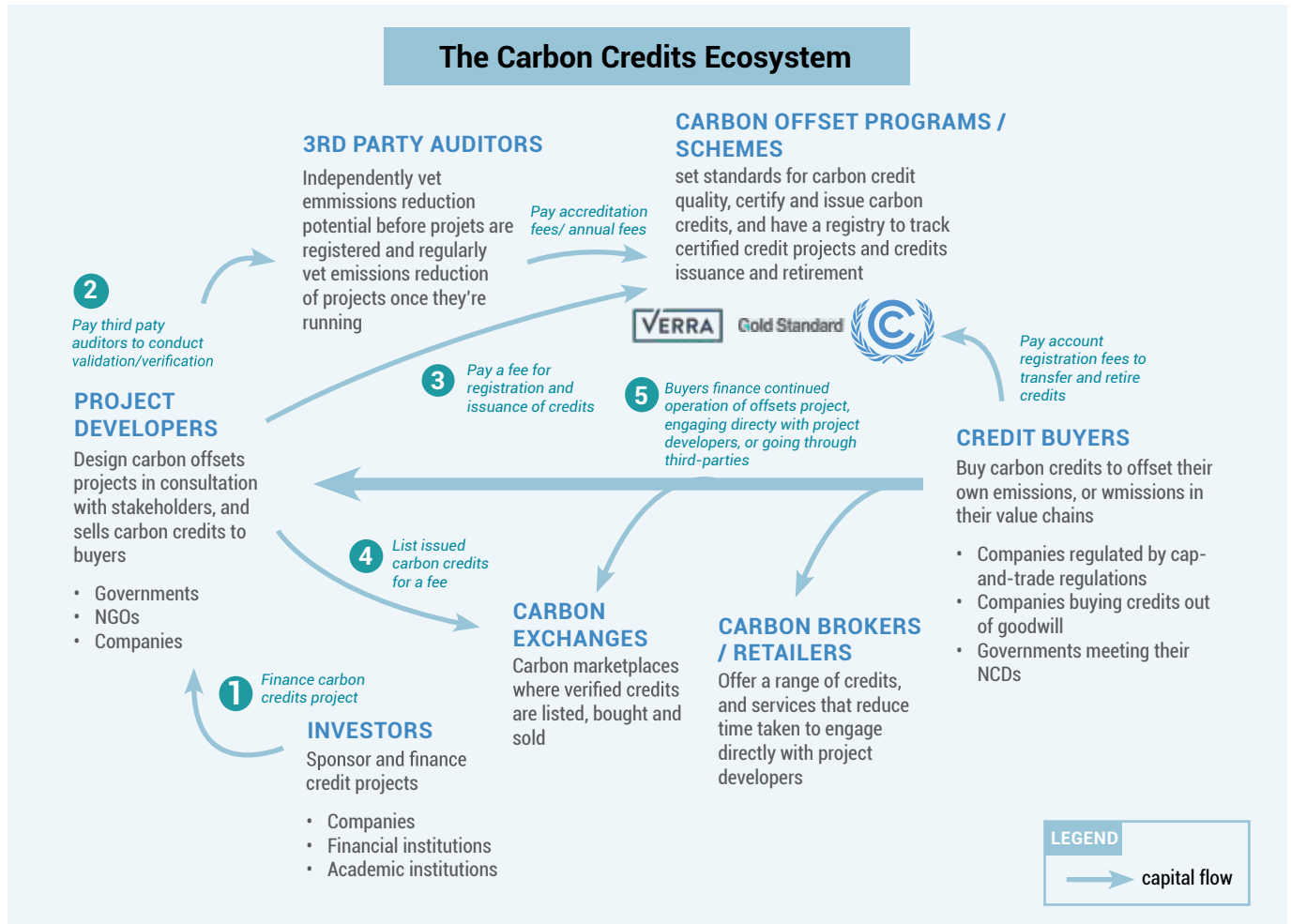


The Northern Kenya Carbon Project is anticipated to remove and store

50 million

tons of CO₂ over 30 years – the equivalent of the annual emissions from over 10,000,000 cars

Figure 41: The Carbon Credit Ecosystem, by the Paia Team, 2021



Some of the challenges that arise while implementing rangeland carbon projects like the NRT one includes

- a lack of data in many rangeland areas, particularly in developing countries;
- a lack of information on the social, institutional, and legal contexts of rangeland management; and
- the challenges of multistakeholder collaboration within rangeland management.¹⁴⁸

Additionally, majority of carbon credit projects are long-term and require significant finance before results can be realised. Design of the NRT project for example commenced in 2009 and credits were

only sold in 2022. Project designers therefore need to conduct thorough research before embarking on carbon credits projects.

6.5.2 Impact Investment for gums and resins

Over the last two decades, impact investment has remained a top priority for investors seeking to profit financially while also making a positive social and environmental impact.¹⁴⁹

Impact financiers include NGOs, foundations, individuals, pension funds, development finance institutions, and banks. The finances are managed through private market funds, public market funds, debt lenders, funds of funds, and banks.

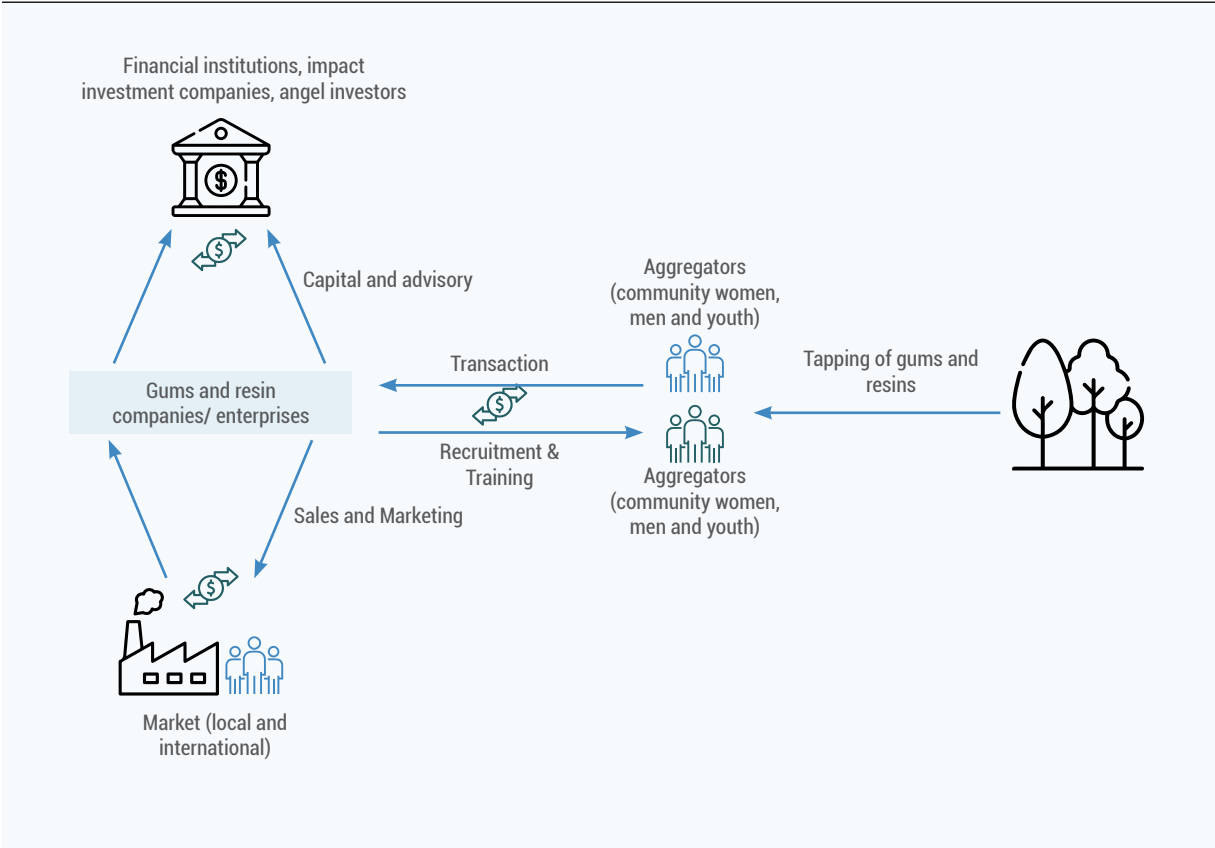
Kenya Climate Ventures (KCV) is an impact investment management firm dedicated to accelerating access to climate-smart solutions through tailored and targeted financial, technical, and business development assistance. In 2021, the venture invested in Hornafrik Gums Ltd, a gums and resins aggregation enterprise through a debt facility. Hornafrik Gums Ltd works with designated aggregators from pastoral communities in Wajir, Isiolo, Samburu, and Marsabit, among others. The company offers aggregators capacity building on gums and resins production so they can sell quality products to the company under agreements.

The company operates collection points where products are weighed, and aggregators are paid. The company processes the products and sells them to various local and international market actors. Hornafrik has used the money provided by KCV to purchase a vehicle to improve its

collection of gums and resins from different parts of Wajir and Marsabit counties. Through improved aggregation and transportation of the products, the company is projected to grow sufficiently to service its debt.¹⁵⁰

While there is an increase in impact investments, access to capital remains a challenge in the rangelands due to volatile markets and climate risks. In the Kenyan market, there has been an increasing need to develop blended finance funding structures that combine various forms of capital, providers, and instruments. Another suggestion is for grant providers/philanthropists to include mechanisms such as milestone-based grant funding, the issuance of repayable grants, or matching grants, in which enterprises are expected to match grants with capital investments. The Kenyan government can improve the regulatory environment through attractive policies and regulatory frameworks to entice these fund managers to register their funds in Kenya.¹⁵¹

Figure 42: Impact investment model, case of gums and resins business for Hornafrik Gums Ltd



6.5.3 The Hive Group Ltd Beekeeping




The Hive Group sells modern beekeeping equipment and honey in several countries, including Kenya, Uganda, and Rwanda. It has established business outlets and information centres for learning and training around beekeeping. The business focuses on research, innovation, and training to ensure continuous improvement of their products while also building the capacities of the community members with whom they work in the bee products value chain. The bee products the business deals with include comb honey, propolis, royal jelly, wax, sting venom, and pollen bought from farmers.




Once beekeepers have been identified in a certain location by the Hive group, the organisation provides starter kits that include 10 CAB Hives (A type of beehive designed for the African Bee) that produce at least 10-12 kgs of honey at least 6 times per year. They also provide one uncapping fork, one bee brush, one honey extractor, two sets of beekeepers' protective suits, one double strainer/sieve, one hive tool, and one hive brand smoker. The Hive Group also offers beekeeping management services, regular apiary inspection, and continuous training to the beekeepers on

modern ways of beekeeping in Africa. After the farmers harvest the bee products, the Hive group purchases these products from the farmers and processes and packages them for sale in their outlets.


The business was among the winners of the Kakuma Kalobeyi Challenge Fund (KKCF) in Turkana County. They used these funds to expand and grow their business. The main challenge the Hive Group faces in Turkana is the local community's dependency mindset because of high poverty levels, as well as the non-commercial approaches to beekeeping previously undertaken by other development partners in the county. The expectation of handouts persists, undermining the commercial approach that the company plans to take for the project. However, other businesses, groups or individuals engaged in honey production from other counties in ASALs can be linked with the Hive Group for capacity building and ready market opportunities created by the company within the value chain.




6.6 Businesses and potential business opportunities in rangelands

Business	Description	Potential Business Support
Gums and Resins		
Ewaso Afri Limited 	Ewaso Afri Limited, which has stores in Wajir, Isiolo, and Turkana, is the core business player in Isiolo.	<ul style="list-style-type: none"> Linkage with community groups including those in Burat Ward in Isiolo County, Laisamis Cooperative in Marsabit County, Bute in Wajir and other individual suppliers.
African Agency for Arid Resources Limited (Agar Ltd) 	African Agency for Arid Resources Limited (Agar Ltd) is a Kenyan company dealing in natural resources such as gum arabic and resins such as frankincense and myrrh, through the creation of value addition and distilling the resins into essential oils.	<ul style="list-style-type: none"> Capacity strengthening of cooperatives to improve on coordination and supply of quality raw products to Agar Ltd.
Laisamis Gums and Resins Cooperative 	The Cooperative was formed through the help of the Swedish International Development Agency (SIDA) to facilitate the purchase and sale of gum and resin products at higher prices. The cooperative commenced with a membership of 50 people in 2012 and increased to 350.	<ul style="list-style-type: none"> Capacity strengthening of the cooperative to improve on coordination and supply of quality raw products to gums and resins companies. The Cooperative can also be strengthened to demand for better rates for the collectors.

<p>Acacia EPZ</p> 	<p>Acacia EPZ is a limited company, committed to creating enduring value for its shareholders and the communities around which it operates. Since 2015, the company has employed more than 4,000 gum arabic collectors in Kenya's Arid and Semi-Arid Lands and exported more than 300 metric tonnes of food grade gum arabic to the Eurozone. The company's main business is founded on a robust business relationship with the European Union, this is the primary market for the company's exports. The company is in Athi River in Machakos County.</p>	<ul style="list-style-type: none"> • Improve the logistics for collectors to allow more robust and timely transportation to collection points and to the company headquarters. • Training of women and men involved in the collection to improve the raw product quality during collection, storage, and transportation
<p>Afri Gums Limited</p> 	<p>Afri Gums Limited is a Kenya-based, private company established in 1985 dealing with natural gums in Northern Kenya, specialising in the collection, grading and sale of gum arabic, myrrh and frankincense</p>	<ul style="list-style-type: none"> • Linkage with community groups including those in Burat Ward in Isiolo, Laisamis Cooperative in Marsabit, and other individual suppliers.
<p>Arbor Oils of Africa</p>	<p>Arbor Oils of Africa produces steam-distilled, certified organic frankincense and myrrh essential oils from wild-harvested gums. These are collected by pastoralist women in the semi-deserts of Northern Kenya. The company is based in Naro Moru, Nyeri County.</p>	<ul style="list-style-type: none"> • The company can explore Samburu, and Laisamis collectors and strengthen the business relationship with the collectors for a constant supply.
<p>Bee keeping and honey production</p>		
<p>The Hive Limited</p> 	<p>The Hive Group is the leading supplier of modern cutting-edge beekeeping equipment in Africa. The group also completes the value chain by purchasing, collecting, and processing all the bee products such as comb honey, propolis, royal Jelly, wax, sting venom and pollen from all the farmers to whom it supplies equipment and services.</p>	<ul style="list-style-type: none"> • Organized community groups and beekeepers can be linked to the company through supply contracting for sustainability and professionalization of beekeeping. • Organizations and government projects could contract the company to provide technical backstopping to groups and entrepreneurs in the honey production business

6.7 Business and potential business opportunities in fodder production

Business	Description	Potential Business Support
<p>Dokono Ventures, Wajir¹⁵²</p> 	<p>Dokono Ventures is an individually owned business of a farmer engaged in fodder and fruit production in Wajir North. The farmer has over 32 acres of land for fodder farming, hay storage and livestock. The farmer worked with small-scale fodder farmers within Bute through the provision of storage facilities for the farmers.</p>	<ul style="list-style-type: none"> • Linkage to external markets outside the county. Linkage to buyers including Government, NGOs, and Individual bulk buyers, feedlot owners in other counties. • Marketing beyond the local market.

<p>Kamuthe Young farmers, Garissa</p> 	<p>Dahir Haret and his family established Kamuthe Young Famers, a self-help group and family farm, utilizing a portion of their 120-acre family land in Garissa County. They received a grant from Feed the Future Kenya Livestock Market Systems Activity which they used to construct a modern hay barn, installed a solar-powered water pump for irrigation, and procured a tractor with a trailer, hay baler, plough rake, and mower. The group cultivates over 10 acres of fruit trees and 40 acres of <i>Boma rods</i>, <i>Cenchrus Ciliaris</i>, and <i>Brachiaria</i> grass.</p> <p>The SME employs five full-time staff and contracts two laborers, depending on the workload. It makes hay every two to three months and sells each bale of hay for between US\$3 and US\$4 at the market. During this dry spate, 500 households have depended on fodder from Kamuthe to keep their livestock alive.</p> <p>Because of the farm's affordable and sustainable production, the county government and the Kenya Agricultural Livestock and Research Organization use the farm as a model and demonstration site. It is also a fodder seed multiplication center supporting farmers interested in venturing into commercial fodder production</p>	<ul style="list-style-type: none"> • Linkage to buyers including Government, NGOs, and Individual bulk buyers, feedlot owners within Garissa County and other counties. • Supporting the group to expand its activities since there are still severe fodder shortages in Garissa County
<p>Haso Fodder Farm, Garissa</p> 	<p>Haso Fodder farm is owned by an agro pastoralist engaged in fodder production and the growth of other crops for commercial purposes. He irrigates his farm using water from River Tana. He is a member of the Jamhuri Irrigation Scheme, where the bulk of the farmers grow horticultural crops, primarily mangoes, limes, oranges, paw paw, and bananas. He has a 2.5-acre farm which is constantly under production to meet the market demand</p>	<ul style="list-style-type: none"> • The farmer needs to be supported to expand the land under irrigation to maximize profits. He also needs to be supported to fence the farm. • The farmer needs to be linked to buyers including Government, NGOs, and individual bulk buyers, feedlot owners in other counties.
<p>Rift Valley Hay Growers SHG, Narok.</p> 	<p>The Rift Valley Hay Growers are the producers and marketers of Boma Rhodes grass hay and seeds and are in Narok County. The group supplies Narok and receives orders as far as Moyale in Marsabit. A bale of hay is sold for Ksh. 320. Each bale weighs between 12-15kg. Their main buyers include locals, secondary vendors, organizations, and the government.</p>	<ul style="list-style-type: none"> • The organisation should be linked to various buyers from Northern Kenya who require substantial quantities of bales of hay.

Conclusions and Recommendations

7.1 Conclusions

Private Sector participation in the water and rangelands sectors in ASALs is necessary for their development. However, information on the role of the private sector actors in the Kenyan ASALs, their current activities, emerging opportunities and business models in the region is quite scarce. This private sector assessment worked to remedy this by collecting qualitative information from local private sector entities in the region, national-level private organisations, county government officials, relevant government organisations and parastatals, and communities. The following discussion summarizes the key findings of the assessment.

7.1.1 Private Sector Participation is not Novel in the ASALs

This assessment determined that there are various local, national, and international players already operating in the water and rangelands sectors in ASALs. Large businesses like Davis & Shirtliff, Epicenter Africa, The Hive, Water Kiosk Africa, Glacier Water Company, Agar Limited, Arbor Oils of Africa, Afrigums Limited and Solargen Limited have a strong presence in the region. Smaller, local businesses were more difficult to find due to minimal, non-existent, or hard to access documentation. However, through interviews and on-the-ground assessments we established the presence of several local businesses including Guyo Halakhe Borehole and Kosi Dida Borehole in Marsabit, Jatim Engineering and Hardware in Isiolo, Warda Water Company in Garissa, Laisamis Gums and Resins Cooperative in Marsabit County and various private fodder farmers. The assessment clearly shows that various private sector entities have already established themselves in the ASALs and that local businesses are providing services in the region.

7.1.2 Data Gaps Around Private Sector Participation Remain Significant

While collecting data, the consulting team experienced challenges in determining the businesses operating in Northern Kenya.



→ The first issue was the **lack of digitalization** of the data on the businesses within the counties. Some of the records are maintained by the ministries of trade in the various counties but these are hard copy records or information contained in one individual's computer system. This makes it difficult to access and update this type of information.



→ The **information provided by the county governments to attract private investors and businesses to the counties is also limited**. The Turkana County investment portal for instance fails to elaborate on issues like tax incentives and access to finance. Wajir and Garissa counties have attempted to provide information on the main county pages, but the sites still require updating to provide concrete information on private sector incentives and opportunities.



→ In the gums and resins sector **there is information asymmetry** where the collectors/suppliers of the gums and resins are unaware of prevailing market prices. Consequently, brokers and middlemen tend to take advantage of them. Information on the exact players in the sector was hard to find, in part because of monopolization which allows a few players to maximize profit.

7.1.3 There is Need to Set Up an Enabling Framework for Private Sector Participation

To facilitate private sector participation in the rangelands and water sectors, substantial work remains in setting up an adequate enabling environment. As revealed during the assessment, none of the counties have regulations stipulating how the private sector can participate in the water and rangelands sectors. They currently still rely on the national regulations which need to be domesticated to address the realities in Northern Kenya. Further to this, institutions which can safeguard the interests of the private sector like rural water utilities are either non-existent in the ASALs or still weak. Given that water and rangeland resources are the economic backbone of the ASAL economies, it becomes important to provide a framework on how both local and private sector organisations can operate in these two sectors.

7.1.4 Financing and Derisking is required

We determined rural areas within the ASALs of Kenya can be defined as non-commercial markets. This means that consumers in the area may not be able to afford the products offered by the private sector and at the same time they are not served by any supply chain actors. In such markets some form of de-risking is required to kick-start private sector participation.

A good example is the entry of Epicenter Africa in the operation and maintenance of boreholes in Turkana County. Oxfam supported Epicenter to provide preventative maintenance of up to 60 boreholes in Turkana. Through this initial support Epicenter was able to set-up a shop in Turkana County and offer services within that county.

While the model could still do with some improvement to make it more sustainable, it has allowed for the entry of a private sector organisation into an ASAL county.

Most businesses in the ASALs are small-ticket projects unlikely to attract private sector investment, underscoring the need for innovative forms of financing. While some form of commercial financing is available from banks offering various loan products, what this assessment deemed to be missing is linking the banks with the local private sector entities in need of finance and sensitizing local private sector business on the various products in the market.

7.1.5 Community Perceptions and Culture Must be Addressed



Gums and resin collection and harvesting, for instance, is not considered a major source of livelihood, even though the sale of these products generates very high revenues. The assessment found that communities and households attempting to escape poverty cut down the trees that produce gums and resins to produce charcoal which fetches lower market prices. Such actions underscore the need for community sensitization on the viability of gums and resins as a source of income.

Oxfam supported Epicenter to provide preventative maintenance of up to

60

boreholes in Turkana.





The **fodder sector** is also limited by similar beliefs. Communities typically find it difficult to view fodder as an income earner due to their perceptions that natural range should not be charged and that natural pasture far supersedes grown/farmed fodder. This impedes or curtails commercial fodder production at a large scale.

7.1.6 The Private Sector is Not a Panacea for Development

The private sector is not a silver bullet to address the socio-economic challenges in ASALs in general and propel the water and rangeland sectors in particular. County governments, the national government and development partners still have a significant role to play in water supply and rangeland management.

- 1 First, this is because rangelands and water are common pool resources and government regulation is necessary to prevent overuse of the resources and exploitation of local communities.
- 2 **Second**, the full costs for delivering water are often prohibitive, consequently in urban areas and even in the developed world water supply companies still receive significant subsidies to ensure that everyone has access. This means that even as the private sector is engaged in water provision in ASALs all entities must remain cognizant of the fact that scholars in the sector state: *“investment case of water relies more on the moral imperative rather than economic logic”*¹⁵³.
- 3 **Third**, donor and development funding are required to support county governments develop the rules, regulations and institutions that can support private sector participation. Further to this the donors and county governments need to de-risk the private sector to venture into the ASAL markets and provide vital incubation and training for local private sector entities. A collaborative approach between all stakeholders interested in promoting private sector participation

in the ASALs needs to be taken with the duties of the government, private sector and development partners clearly delineated.

7.2 Recommendations

Recommendations from this private sector assessment are targeted at national and sub-national governments, development partners and private sector business owners. They have been disaggregated into water sector specific recommendations, rangeland recommendations and cross-cutting recommendations.

7.2.1 Cross cutting Recommendations

1. Replicate the Kakuma Kalobeyei Challenge Fund (KKCF) in selected ASAL counties in Kenya

The Kakuma Kalobeyei Challenge Fund (KKCF), designed to support private sector investment and unlock the economic potential of refugees and their hosts in Kenya’s Turkana County, should be replicated in other contexts in the ASALs of Kenya. The fund is attracting new, large scale private businesses and social enterprises to Turkana West such as The Hive Group, a leading supplier of modern cutting edge beekeeping equipment in Africa, Renewvia Energy Kenya, a global solar developer headquartered in Atlanta, Georgia in the US, and Sanivation Limited, a waste treatment company, among others. The fund is also incubating and scaling up the operations of private sector companies already present in the area.

Additionally, through the setup of a Huduma Biashara Centre where entrepreneurs can get information on how to set up and operate a business, the KKCF is minimizing red tape which hampers organisations from working in Turkana West. One of the implementing organisations of the KKCF, the African Enterprise Challenge Fund (AECF), is deploying a similar model in Somalia, a pre-dominantly ASAL country. The Somalia model is focused on de-risking business models in the energy sector to stimulate private sector innovation and growth and to provide low-income households with access to off-grid energy. Consequently, AECF is well versed in rolling-out such funding programs in the ASALs.

2. Establish rules and regulations to guide private sector participation

The absence of an enabling environment makes it difficult for the private sector to operate within the ASALs. As seen from this assessment, there are scanty guidelines governing the entry and operation of private sector actors operating in water and rangelands in the five RAPID+ counties. While this is not a pre-requisite as the assessment has found that private sector entities in water and rangelands are already active in the region, robust regulations will augment their participation for the overall betterment of communities in the ASALs.

Further, these rules and regulations will be crucial in limiting the overexploitation of rangeland and water resources by private sector entities and ensuring that communities can access services at an affordable price.

Creation of a suitable regulatory environment could mean domesticating the national PPP regulations or developing rules and regulations that expand on the current clauses in the County Water and Rangelands Acts. Development partners should consider redirecting some of their resources to supporting county governments to develop and implement these regulations.

3. Improve Information Flows Around the Private Sector

A running theme of this assessment was the difficulty in acquiring information about the private sector. This included contact details of private sector entities operating in the ASALs, reports on private sector investment in the ASALs and information on how private organisations can establish themselves within a particular ASAL county. In addition to developing physical Huduma Biashara centers that will serve as a one-stop shop for entrepreneurs in a county, ASAL counties should invest in developing active online investment platforms and webpages. These platforms can:

- i) provide details on how to set up a business in the county,
- ii) list businesses already operating in the county, and

- iii) elaborate on the investment opportunities in the county.

Counties that already have such platforms like Wajir and Turkana should revamp and update their platforms to enrich them with more granular information, while other counties that may entirely be lacking such platforms should develop them. Further to this all the hard copy records of private sector organisations working in the county should be digitized for easier storage and access.

7.2.2 Water Sector Recommendations

1. Deploy the Water Fund Model for the ASAL towns

The Water Fund Model being implemented by The Nature Conservancy (TNC), could be trialed in the ASALs of Kenya. The model is based on the premise of Paying for Ecosystem Services where downstream catchment users in major cities pay upstream users to preserve water resources. Given that perhaps towns in the ASALs of Kenya are not as densely populated as the major cities of Nairobi and Mombasa where Water Funds have already been established, the model in Northern Kenya could involve clustering towns served under one catchment. For example, The Ewaso Ngiro North catchment area covers several ASAL counties including Wajir, Isiolo, Marsabit, a part of Garissa, Samburu, Laikipia and Mandera. Major towns within this basin including Isiolo, Nanyuki, and Marsabit towns could be clustered and the key stakeholders within these towns incentivized to preserve the sources of water upstream or at strategic points in the catchment. Upstream users of these towns will thus receive payments, the necessary training and technical assistance required to preserve the water resources.

2. Improve Water Resource User Associations (WRUAs)

WRUAs should be supported to be financially independent and sustainable to enable them to carry out their water resource management functions. Selected ASAL WRUAs need to visit better performing WRUAs in other parts of Kenya like the Ngusishi WRUA in Laikipia County to understand their revenue model.

Isiolo WRUA, for example, already collects an annual subscription fee from water users within the sub-catchment. However, the WRUA committee could learn how to augment their revenue collection through improved automated monitoring of water abstraction which is practiced by Ngusishi WRUA. ASAL WRUAs could also promote catchment protection by encouraging members to join SACCOs like the Ewaso Maji Water User Savings and Credit Cooperative where they can secure financing to develop catchment protection structures

3. Finance Water Service Provision

Well-structured and commercially viable private water suppliers and small-to-medium water service providers (WSPs) in some of the ASAL counties

should apply for commercial financing from banks like Family Bank and Equity Bank.

These banks offer products and services for water supply. Family bank for instance has the Maji Plus Loan while Equity bank has the Maji Loan (see Box 8 below). These two banks and particularly Equity have branches in all the ASAL counties. Other banks that have financial products targeted at water supply include Sidian bank which has a branch in Isiolo and National Bank with its MajiKconnect Program that offers large-sized infrastructure loans and longer repayment periods. Entities like Guyo Halakhe and Kosi Dida boreholes captured under this assessment, borehole drilling companies, and water equipment providers can benefit from these financial products.



Insight Box 8

Commercial Financing for Water Supply



Maji Loan is a short-term loan (repayable in 12 months) that enables customers to access water and sanitation related equipment without the need for guarantors or filled out forms. Customers can secure Maji Loan instantly through their phones where they can also monitor their loan balance and make repayments. Maji Loan is restricted for pre-approved products and vendors. One of the businesses evaluated under the assessment – Jatim Hardware- is a Maji Loan vendor.



MajiPlus is a flexible solution suited for individuals, micro-businesses, SMEs, and county water companies. Consumers can borrow for various WASH needs ranging from rainwater harvesting, water storage, water distribution, borehole construction and dressing, construction of domestic and commercial biogas plants, improvement of sewerage and reticulation systems, among others. Repayment period is up to a maximum of 60 Months, with a moratorium of 6 -12 months.



MajiKconnect is a financing program for the WASH sector for MSMEs, Corporates and Water Service Providers (WSPs). The MSMEs could include water works contractors, water vendors and refillers e.g., Water Kiosks. WSPs include both private and public water service providers, community/group water projects, energy for water etc. There is the MajiKconnect Loan for SME with a tenure of up to 48 months and the MajiKconnect Term Loan with a tenure of up to 10 years for larger WSPs.

The box above uses these references^{154,155,156}.

4. Scale unique private sector led O & M models for water service provision

Operation and maintenance of water systems in the ASALs remains challenging just like in much of rural sub-Saharan Africa. However, some initiatives being tried out by the private sector need to be scaled or tested for a slightly longer period. One example is the maintenance model being deployed by Epicenter Africa in Turkana County where the organisation is providing preventative maintenance for 60 borehole water points in the county that has an estimated 1,800 boreholes.

The payment for repairs, including purchase of spare parts and labour, is done by Oxfam. The project was set to run for one year, but this is not feasible as the community will not immediately transition into paying for the water point repairs. The model could be tweaked to include some sort of community co-financing right from the beginning for newer boreholes that could be incorporated into the program, or extend the support being offered to Epicenter until such a time as the community can make sustainable payment for repairs. This will mean implementing the project over a longer timeline to ensure communities change their behaviour regarding payment for water. A third way would be to feature county government co-financing to subsidize the repairs of the community systems. Subsidies for water supply are still widely used globally as the full cost of water may prohibit low-income households from accessing the good.

Another under-utilized and simple model for operations and maintenance is the development of repair workshops in the ASAL regions. In addition to opening sales branches throughout the ASALs, equipment supply companies should consider opening workshops within the counties to hasten repair of complex broken-down parts. This will eliminate the need for parts to be ferried to workshops in Nairobi, reducing the downtime at water points.

7.2.3 Rangeland Sector Recommendations

1. Strengthen the Gums and Resins Sub-Sector

Established gums and resins farms are facing the problem of dwindling raw material.

To address this, private sector organisations could **develop tree farms to increase the production of gums and resins in the ASALs**. This will have the added benefit of creating jobs for additional individuals to grow and maintain gum and resin trees, and address the prevailing challenge of deforestation. Extensive sensitization of communities on the ability of gums and resins to be a viable source of livelihood is also required. This is because communities are more likely to cut down these important trees for charcoal harvesting than engage in the more lucrative gums and resins business.

The sector also suffers from adverse information asymmetry and exploitation of small-scale gums and resins collectors.

Consequently, there is a **need to strengthen gums and resins cooperatives to minimize exploitation of individuals and community groups that harvest the product.**

The cooperative leaders need to have a proper grasp of commercialization and be empowered with information on the actual market prices of raw and processed gums and resins so that their members can fetch reasonable prices for their products. Similarly, the ministries of trade and cooperatives at the county need to be sensitized on the dynamics of the sector to provide vital oversight.

2. Scale the Beekeeping Model by the Hive Group

The Hive Group business model involves supporting local beekeepers to increase their honey production through providing training on beekeeping best-practices and supporting farmers to purchase beekeeping equipment. Through this support, the Hive Group in their capacity as the primary buyers of the honey ensure they have a steady source of raw materials and secure high-quality honey. The local beekeepers in the ASALs benefit from this arrangement because they get to expand their beekeeping ventures. The Hive Group currently works in only one Northern ASAL county,

Turkana but is present in other counties in Kenya including Kitui, Kiambu and Kisumu. The business model could be replicated in other suitable areas within the Northern ASALs counties.

3. Curb seasonality in fodder production

Fodder cultivation is growing in Northern ASALs due to recurring droughts. However, demand for fodder falls in the wet season due to the availability of natural pasture. This could affect the sustainability of fodder producers, fodder aggregators, and fodder seed bulkers.

- To cater for reduced demand in the wet season, producers in the fodder value chain need to be linked with feedlot owners who can provide a year-round market. A 2020 study by Gatsby Africa underscores the fact that feed scarcity is the greatest challenge hindering the performance of feedlot owners¹⁵⁷.
- Development partners and county governments can support the creation of linkages between fodder producers (farmers and aggregators) with feedlot owners.
- An additional recommendation on this is that all types and sizes of feedlots should be considered when linking fodder producers with feedlot owners. There is an inclination to only consider large-scale feedlots when there are small scale farmers who keep few livestock under the feedlot system and require access to affordable fodder.

Annexes

Annex 1: Key Informant Interviews

To be accessed using this [link](#)

Annex 2: Data Collection Tools

To be accessed using this [link](#)

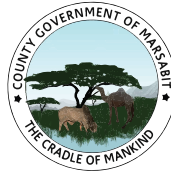
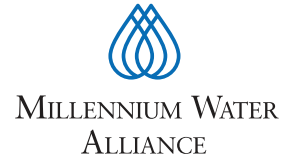
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