



Kingdom of the Netherlands

Investing in food systems fit for purpose in Kenya's Arid and Semi-Arid Land (ASAL) regions.

Findings and recommendations from the new EKN-NAI ASALs study.

Achiba Gargule
Ben Haagsma

With Mwende Ngie

March 2023

Disclaimer

This study was conducted in two phases between November 2022 – March 2023. Mwendu Ngie carried out the initial phase, which included extensive fieldwork in Kenya's Northern Arid and Semi Arid Land (ASAL) Counties. Achiba Gargule and Ben Haagsma conducted the second phase. The Team was supported by Wageningen Centre for Development Innovation (WCDI) in the Netherlands. Views and opinions expressed in the report do not reflect the views, opinions, or stated policy of the Embassy of the Kingdom of the Netherlands or the WCDI. The final responsibility for the report remains with the individual consultants. For specific enquiries about the report, contact:

Achiba A. Gargule – Consultant (agargule@gmail.com).

Ben Haagsma – Consultant (ben.haagsma@fairandsustainable.org).

Mwendu Ngie – Consultant (mwendengie@gmail.com).

This study was conducted with the support of the Food & Nutrition Security (FNS) Support Facility. The FNS Support Facility is financed through the Ministry of Foreign Affairs of the Netherlands and supports the Netherlands Embassies and Ministry in innovation and learning trajectories that contribute to the achievement of their policy ambitions in the context of FNS and food systems. The Facility is coordinated jointly by the Netherlands Food Partnership (NFP) and Wageningen Centre for Development Innovation (WCDI), part of Wageningen University & Research.



Ministry of Foreign Affairs of the
Netherlands



WAGENINGEN
UNIVERSITY & RESEARCH

Acronyms

ADP	Annual Development Plan
AH	Animal Health
APR	Annual Progress Report
ASALs	Arid and Semi-Arid Lands
CA	County Assembly
CCCCF	County Climate Change Fund
CDR	Community Disease Reporters
CIDP	County Integrated Development Plan
DLCI	Drylands Learning and Capacity Initiative
EDE	Ending Drought Emergencies
EKN-NAI	Embassy of the Kingdom of Netherlands in Nairobi
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCDC	Frontier Counties Development Council
FCDO	United Kingdom Foreign Commonwealth and Development Office
FLLoCCA	Financing Locally Led Climate Action Programme
FNS	Food & Nutrition Security
FSA	Food Systems Approach
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
GoK	Government of Kenya
HDDS	Household Dietary Diversity Score
HSNP	Hunger Safety Net Programme
IDS	Institute of Development Studies (UK)
IIED	International Institute on Environment and Development
IPC	Integrated Phase Classification
KADP	Kenya Accountable Devolution Programme
KNBS	Kenya National Bureau of Statistics
KPHC	Kenya Population and Housing Census
MACS	Multi-Annual Country Strategy
MDTF	Multi-Donor Trust Fund
NDMA	National Drought Management Authority
NEDI	North and north East Development Initiative
NFC	Northern Frontier Counties
NLP	National Land Policy
PPG	Pastoral Parliamentary Group
QPR	Quarterly Progress Reports
SDC	Swiss Development Cooperation
SLM	Sustainable Land Management
ToC	Theories of Change
USAID	United States Agency for International Development

Executive Summary

This report presents lessons from other donor Food & Nutrition Security (FNS) interventions in the Kenyan ASALs and informs the formulation of EKN-NAI FNS investment priorities in the FCDC region. It serves as a building block for operationalising the section of the EKN-NAI MACS 2023-2026 that focuses on stability and is fully inclusive with particular attention on ASALs. The report provides an overview of the ASALs food systems, the lessons learned and offers recommendations for an integrated FNS programme in the Northern ASALs.

Main findings and conclusions

The ASAL areas in Kenya are very complex for two reasons. Firstly, the primary production system, pastoral livestock economy, is a very rational resource use system developed and practiced by pastoralists. It is adapted to the specific ecological dryland context of ASAL, which is characterized by variability, uncertainty, and unpredictability of rainfall and pastures. Droughts are managed by pastoralists through mobility, herd size and composition, by making optimal use of highly variable pastures and water availability throughout their rangelands, to contribute to national livestock production. The impacts of global climate change manifested in the ASALs through increased frequency and intensity of droughts have impacted pastoralists but have not challenged these main coping strategies. Though pastoralists have become more vulnerable, their (nomadic) livestock-keeping system is still widely recognized as the most resilient resource use system in times of climate change in these ASAL areas. However, the strengths of pastoralism, including its institutions, are challenging for 'outsiders' to grasp, because they do not fit into mainstream livestock husbandry and development concepts. Hence, the central term 'misconception' is frequently used throughout this study.

Secondly, poor understanding and misconceptions of pastoral production systems have been incorporated in development policies and other engagement in pastoral development in the ASALs, leading to a problematic legacy that is characterized by several marginalisation processes which have undermined pastoralists' rationale and coping strategies. The best examples are government policies that are focused on land fragmentation and titling, land encroachment by farmers from the highlands, and ill-designed humanitarian and development programmes. Alongside these, marginalisation processes and internal dynamics, such as urbanization and demographic growth, have also caused significant socio-economic differentiation among the pastoralist population, leading to differentiated participation in the pastoral system. This means that the proportion of households or groups of households pursuing pastoral-livestock economic activities is decreasing. In contrast, others have dropped out (marginal groups) and engage in other means of income generation, such as charcoal and firewood collection, petty trade, and other informal activities. Diversification of livelihood strategies has become the norm.

A specific dimension of a recurring misconception, as mentioned earlier, is the productivity and the potential of the ASALs to support dependent populations sufficiently. Due to its extensive and sparsely populated nature, the ASALs rangeland resources – e.g. land and water – are often cited as immense and underutilized. Though this may apply to energy (from sources such as wind and solar), this does not apply to land and water. Access to these scarce resources has always been strictly regulated. However, the combined effects of climate change impacts (hindered by protracted droughts, flash floods, and desert locust invasions) and these marginalisation processes have led to more significant

resource-based conflicts and tension between different resource user groups. Notably, between different pastoralists groups and farmers. As a result, the food security of many pastoralist populations – especially in the Northern ASALs of Kenya – is increasingly under threat. A notable trend has been the increasing frequency and intensity of humanitarian emergencies and the food crises pastoralists have faced in recent decades.

With humanitarian emergencies spiralling across the ASALs, there have been increasing calls and concerted efforts from governments and development agencies for increased political will and investments to address the underlying drivers of humanitarian emergencies in the region. As a result, the ASAL region has seen a huge influx of multi- and bilateral development agencies over the last decades, each with different development programmes. The majority of these interventions have focused on livestock marketing, animal health, and water provision; dryland farming with attention to Climate Smart Agriculture, fertility management, agroforestry, and water harvesting; small-scale irrigation; rangeland rehabilitation and management; support for alternative livelihood activities, such as poultry keeping, kitchen gardens and small trade. Other components have included private sector development and capacity building of pastoral institutions.

Another significant development concerning the region is the recognition by governments and donor agencies that the complex circumstances in the ASALs require moving away from single-sector interventions to embrace integrated landscape management which considers the health of the ecosystems that support human livelihoods and contribute to the resilience of the productive sectors of the region. Various donor initiatives, such as Ending Drought Emergencies (EDE) and the Hunger Safety Net Programme (HSNP) were also launched to create integrated portfolios of interventions, rather than seek improvements in isolation from one another.

While these integrated approaches were considered a key factor for success in ASALs development interventions, their actual implementation varied widely. Often just referring to collaboration with different (government) actor levels. Donor interventions in the ASALs continued to be characterized by fragmented, single-objective, and sectoral development approaches.

Key challenges noted were the following. Firstly, the lack of sound problem analysis in programme design often led to a simplified Theory of Change and low quality of internal M&E systems. Secondly, the lack of conflict sensitivity of ASAL programmes and the consequent lack of consideration for local competition for scarce resources often led to ineffective interventions. Thirdly, many donor interventions were characterized by an overall lack of reported results (outcomes and impact, intentional and unintentional) in the project documentation. The lack of result information makes it difficult to assess the quality of specific approaches used. Finally, the voice of pastoralists and their local institutions - particularly marginalised groups, such as women, minorities, and people with disabilities - was not given much attention in project formulation and implementation.

Another area in which progress has been lacking is donor efforts that support an enabling environment in the ASALs towards improving service provision and adaptation to the impacts of climate change. On one hand, donor intervention policies have paid increased attention to the value and nature of the pastoral production system, best suited to ASAL conditions, through support for enabling policies and resources, and implementation modalities. On the other hand, donor interventions continued to promote alternative livelihood and production systems in the region by supporting large-scale crop irrigation, agriculture, and other emerging economic opportunities. Thereby, perpetuating the legacy

of misconception about ASALs. The emerging conflict due to resource competition in such arrangements remained invisible.

Recommendations

From the review of lessons from other donor FNS interventions in the ASALs, several recommendations have been formulated that apply specifically to Kenya's Northern ASALs and can help develop future, Dutch-supported, integrated FNS interventions in the region. The recommendations have been split into two categories: 1) those that are considered critical conditions for an effective and successful ASAL programme and which are divided into two sub-categories; 2) ongoing interventions by other donor agencies with innovative features that provide relevant opportunities for scale-up in the ASALs region through additional investments by the Netherlands.

For a more effective programme design

- *Development of a framework* for more systematic engagement with ASAL development, formulating its commitment in terms of the longer time frame of engagement. Designing a development framework for the EKN-NAI's engagement with the ASALs is essential to avoid multiple misconceptions of the ASALs, for effective programme design, results management, and implementation. EKN-NAI should develop an ASALs-specific ToC, set realistic goals and time frames for its FNS programme, and specify its role as a new implementor in the ASAL landscape. This can be achieved by developing the EKN-NAI's internal expertise on the ASALs, building up an ASAL knowledge base through collaboration with knowledge institutes, and working with national research and local pastoral institutions.
- *Building a knowledge base* on ASALs is necessary for identifying and formulating an integrated FNS programme. This entails developing a dynamic problem and context analysis at the start of each programme or project and a flexible learning approach with sufficient attention for M&E and resources for programme adaptations to appropriately respond to highly variable ASAL conditions. It is also essential to; focus on strengthening pastoralists' voices, acknowledge local conflict dynamics, include strategies to address programme conflict sensitivity and prioritize the provision of support to the private sector in service delivery.

For more effective programme implementation and management of ASALs food systems

To make a more significant contribution to providing the best opportunities to improve resilience and food security in the Northern ASALs, based on lessons from this study, it is recommended to develop a more holistic approach that considers the ASALs food system as a whole. Such an approach would include a focus on the non-linear processes in the ASAL food system, various vulnerabilities of the food system (including the most limiting factors for achieving food security), and the socio-economic and environmental outcomes of food production and consumption. This entails developing an integrated FNS programme aimed at sustainable solutions for the sufficient supply of healthy food, while at the same time, addressing the root causes of problems, such as poverty, malnutrition, and climate change in the ASALs.

The main focus areas are:

- livestock production and market system.

- integrated natural resources and water management.
- support for the development of enabling environments and better governance frameworks for livestock cooperatives.
- a combination of the most efficient methods and improved land and crop management using small-scale irrigation.
- support for the proper intensification of dryland farming with climate-smart agriculture.
- support in capacity building of critical ASAL institutions (FCDC, PPG) in coordinating and policy advocacy locally and nationally.

This can only be achieved by providing focused ASALs-specific ToC informed by better context analysis (including stakeholder analysis), setting realistic goals and time frames for its FNS programme, and better coordination and collaboration with county governments, ASALs advocacy institutions, and other donors.

For more synergy, strategic partnerships, and sustainability

Other donors and development NGOs have carried out significant work in most sectors of ASAL-development resulting in important achievements, good practices, and many discoveries on controversial investments that have presented obstacles and constraints to ASALs development. To ensure good practices and achievements inform future EKN-NAI's investments in the ASALs and are cautious about documented 'bad practices' that can produce uncertainties and local community resistance, this report recommends the following:

- *Scale-up innovative programmes and promising pilots.* Where Dutch policy aligns with other donor countries that have already developed innovative integrated programmes in the ASALs region or similar contexts, EKN-NAI should prioritize supporting the scale-up of these innovative solutions in the ASALs region for leverage and impact. This is only appropriate for groups of interventions that have documented good practices and impact in the ASALs, generated by in-depth research and rigorous analysis of results beyond the pilot innovation phase. The EKN-NAI should also use the opportunities offered by ongoing research carried out by local- and international knowledge institutions and ASAL advocacy groups to leverage improvements in innovations identified for scale-up.
- *Invest in due diligence and social- and environmental safeguards.* There is currently a growing local- and international concern that some investment strategies in ASALs are causing or exacerbating concerns related to the imposition of ASAL-inappropriate development models, land grabbing, human rights abuse, and displacement of indigenous communities. For all EKN-NAI investments in the ASALs, it is vital to integrate more robust due diligence of implementing agencies that recognise ASALs as an arena characterized by disadvantage and marginalisation. As a general principle, EKN-NAI programme managers should ensure that implementing partners evaluate any investment's potential social- and environmental impacts and actively involve all stakeholders when planning, implementing, monitoring, and evaluating aid programmes that will impact local communities, or groups within communities.

Table of Contents

Executive Summary	4
1. Introduction	9
1.1 Background	9
1.2 Methodology.....	9
1.3 Limitations and Delineations	10
1.4 Food systems conceptual framework.....	10
1.5 Integrated approaches to FNS	12
2. The Arid and Semi-Arid Lands of Kenya: A political economy perspective	13
2.1 General context.....	13
2.2 The ASALs and their food production potential	13
2.3 Climate variability and risk in the ASALs	14
2.4 Legacy of marginalisation, poverty, and exclusion	15
2.5 Gender and social change in ASAL production systems	16
2.6 Pastoral production system and rangeland ecology in ASAL in a nutshell	17
3. Mapping Kenya’s Northern ASALs Food System.....	19
3.1 The socio-economic landscape	19
3.2 Main economic trends and significant value chains	20
3.3 Environmental conditions: effects of droughts on ASALs production system	21
3.4 Water availability and access.....	22
3.5 Land use	23
3.6 Broader development trends affecting ASALs food systems.....	23
3.7 Key governance dimensions of the ASALs food system.....	24
3.4.1 Policy and institutional environment in Kenya's ASALs	24
3.4.2 Institutions and actors affecting ASALs food systems.	25
3.5 Summary of ASAL Food Systems outcomes.....	26
4. Findings and lessons from ASALs FNS interventions on the ground.....	28
4.1 Past trends and performance of ASALs FNS programmes.....	28
4.2 New directions in ASALs development: resilience policies.....	28
4.3 Lessons, insights & innovations for development impact	29
4.4 Integrated FNS interventions in context: realities and challenges	32
5. Conclusion, recommendations, and recommended interventions	34
5.1 Conclusions	34
5.2 Recommendations	37
5.3 Recommended FNS interventions in Kenya’s ASALs	39
6. References	44
7. Annexes.....	49

1. Introduction

1.1 Background

This report presents the findings, lessons learned, and good practices from donor and other development agencies' Food and Nutrition Security (FNS) programming for pastoral and agro-pastoral communities in Kenya's Arid and Semi-Arid Lands (ASALs). It synthesizes the main findings from the review of current and past FNS interventions in the ASALs, including lessons learned, success factors, and realized results, compared to the programme objectives. The report serves as a building block for operationalizing the section of the EKN-NAI MACS 2023-2026 that focuses on stability and full inclusivity, with particular attention to ASALs.

The report is organized as follows. The rest of this section outlines the methodological and conceptual approach taken to the study. Section 2 discusses the political economy profile of Northern Kenya's ASALs, focusing on pastoral food systems. Section 3 presents an overview of existing donor FNS interventions and programming experiences and discusses the key issues that have emerged from analysis of these interventions. Sections 4 and 5 analyse the main conclusions generated from the study regarding the integrated FNS interventions in Kenya's Northern ASALs and concludes with a set of key policy recommendations.

1.2 Methodology

This report draws primarily from secondary research carried out between February and April 2023. A comprehensive review of the literature on integrated FNS interventions in Kenya's Northern ASALs was conducted, including an analysis of policy and strategy documents, FNS programme documents, impact evaluations, and other 'grey' literature about past- and ongoing interventions. Programme/project documentation included two categories: programme- and project proposal documents, including log frames and completion reports. In a few cases, interim project reports were also consulted. External documentation came from various sources and included relevant official, publicly available data (such as sector strategies, etc.), media reports, reports by 'think-tanks', multilateral organisations, and donors (such as the European Commission, the World Bank Groups, etc.). In some cases, the programmes were informed by commissioned analysis and research, and these documents were then reviewed as part of the country study. The Team looked at any available documentation relating to internal learning events on FNS programming, particularly the integrated approach of water, food security, and energy for climate resilience. External evaluations conducted on previous interventions or on the overall programme of which interventions had been part were also scrutinized. The team also researched national cooperation strategies for Kenya, along with their sources on donor websites. All the documents reviewed were analysed, with particular attention paid to the passages relevant to the study's focus on FNS programming and the integrated approach of water, food security, and energy for climate resilience, as well as the research questions contained in the ToR. In addition, computer-search functions were used to navigate the documents and track relevant passages (e.g., FNS, integrated approach, resilience, etc.).

The background study of the literature review was complemented with semi-structured Key Informant Interviews (KIIs) undertaken with stakeholders at national- and county levels, including relevant

government-, donor-, international- and national non-governmental organisations (NGO), civil society, and academic actors (see Annex 1). KIIs involved direct or remote stakeholder and non-stakeholder interviews conducted by the national consultant in the case study counties. The interviews were undertaken anonymously (i.e., no names or identities of the interviewees were recorded on file), and were also based on the principle of non-attribution of statements. Stakeholders were selected through a combination of suggestions by the EKN-NAI themselves and relevant professional contacts that the authors could draw on. At the level of the EKN-NAI, the team conducted interviews with EKN-NAI programme officers and, to a limited extent, with officers overseeing sector programmes at the Dutch Ministry of Foreign Affairs. At the level of other bilateral- and multilateral donors, key officials managing other donor programmes in Kenya's ASALs were identified and interviewed. At the government level, key institutions and personnel were identified through the Frontier Counties Development Council (FCDC) and contracted for interviews for the study. The KII interviews were complemented with non-stakeholder discussions, i.e., meetings with individuals who were not directly involved in any of the EKN-NAI or other donor interventions, but who are experts in relevant fields, or who were able to provide critical insight and context to the analysis. The case studies and draft synthesis report also benefited from discussions with the FCDC staff.

1.3 Limitations and delineations

Despite attempts to provide a comprehensive mapping of integrated FNS programmes and their impacts, several limitations were encountered regarding the availability of secondary data and impact evaluations and time constraints, given the hard deadline for preparing and completing the report. The main limitation during the data collection was availability, completeness, and robustness, especially concerning interventions focused on energy. We sought to overcome this by following up with individual meetings and donor agencies, but overall, we recognise that gaps remain in this mapping. Notwithstanding the limitations, adequate data were collected, as described in detail in Annex I.

1.4 Food systems conceptual framework

To structure our analysis of providing a better understanding of how the ASALs food systems operate and adapt to the relationships between the different parts of the food system and the outcomes of activities within the system in socio-economic and environmental/climate terms, we employed the analytical framework of a food systems approach (FSA) (Van Berkum et al., 2018). While many have applied the FSA differently to capture the complex interactions and feedback between socio-economic and biophysical drivers, as well as a better understanding of policy focused on the potential trade-offs and synergies between nutritional-, environmental- (sustainability and resilience), and distributional/equity outcomes, and for introducing public health and the ecological sustainability and robustness of food production and consumption (Ericksen, 2008; Global Panel on Agriculture and Food Systems for Nutrition, 2016; High Level Panel of Experts on Food Security and Nutrition, 2017), Berkum et al. broaden the perspective of the food systems analysis that highlights relationships between the different parts of the food system and the outcomes of activities within the system in socio-economic and environmental/climate terms, the loops that occur between parts of the food chain and from the socio-economic and environmental outcomes of food production and consumption, and sheds light on non-linear processes in the food system, and possible trade-offs between policy objectives. Berkum

et al. suggest that such an analysis offers at least three benefits: (1) it provides a checklist of topics that should, at the very least, be addressed when it comes to improving food security policy objectives; (2) it helps in mapping the impact of environmental and climate changes on food security by pointing to the various vulnerabilities of the food system; and (3) it helps identify effective interventions aimed at improving food security by determining the most limiting factors for achieving food security.

Another recurring theme in the food systems approaches literature relates to the political economy and power relationships that contribute to power struggles between organised and non-organised stakeholders, including gender differences (e.g. access to production assets, labour distribution, distribution of income, etc.) (Brouwer et al., 2020). The number of rural food production systems that exist today has been shaped by current- and past constraints, which have left these systems vulnerable to regional- and global changes (Krätli et al., 2013). According to Woodhill (2019), food systems analysis must pay explicit attention to understanding how institutions shape the way that the food system behaves and delivers more or fewer benefits to different actors in the system and the environment. Hence, adopting a food systems perspective requires an understanding of the role of small-scale agriculture needs against a broader context, the significant structural changes occurring in food markets and rural economies, and focusing more attention on solutions beyond agriculture for small-scale farmers who cannot make a living income from farming (Woodhill et al., 2022).

While these FSA analyses help analyse the basis for understanding and exploration of the critical relations, trends, and trade-offs that underpin any desired transformation of how the system works, they omit critical aspects of political economy that determine priorities in resilience. Without explicit consideration of the power relationships that relate to how institutions shape how the food system behaves and deliver benefits for the poorest or most marginalised groups, the food system's economic opportunities risk being captured by a minority. The ASALs food production operates within a broader context of coupled human-natural systems, which are characterized by variability and risk and negligent policies that lead to the privatization of resources and limited pastoral mobility by the many governmental and societal institutions (Davies, 2008). This contributes to significant pressure on the natural resources base and the productivity of ASALs' livelihoods, upon which the ASALs' food security depends, while also contributing to climate change and pressure on local natural resources. To address this, we draw on the work of Berkum et al. (2018) and Woodhill (2019) as the basis for understanding and exploring the social-ecological linkages between the pastoral and agro-pastoral producers, trends and trade-offs that the ASALs food system works, and to highlight the implications of socio-economic and environmental stressors to the resilience of ASALs food systems. Taken together and considered within (i) the broader context of human systems and natural systems in the Northern Kenya ASALs with multiple interactions and feedback loops between these systems, (ii) the relationships between the different parts of the ASALs food system and the outcomes of activities within the system in socio-economic and environmental/climate terms, and (iii) non-linear processes in the ASAL food system, and on possible trade-offs between policy objectives. This combined FSA approach offers some benefits to help structure the analysis for this study. Firstly, it provides a checklist to help ensure the necessary issues are included in the ASALs food systems analysis and identifies the range of actors and other interested parties who should be involved. Secondly, it helps assess the impacts of socio-economic- and environmental shocks on the ASALs' food systems by focusing on multiple vulnerabilities in the context of socio-economic stresses. And finally, it helps determine the most limiting factors that lead to food insecurity. Thereby, identifying recommendations for the most effective FNS intervention points for enhancing food security in the ASALs.

1.5 Integrated approaches to FNS

Most agencies and donors acknowledge the importance of integrated programming for the relevance and sustainability of development cooperation activities. The donor documents reviewed for this study reference fostering integrated programmes that directly support agricultural livelihoods and productivity for the poor, (particularly smallholder farmers and small-scale food producers) including through production input support, weather, crop- and livestock insurance, farmer organisations, and co-operatives for market access. While donors and other development agencies defined integrated their approaches to FNS programming in different ways that are specific to each agency and are characterized by significant variation. There are some commonalities, but many donors have trouble tailoring the use of these concepts for field operations, and very few have worked on preparing guidelines and policy papers to present their position on integrated programming.

Firstly, integrated programming focuses on multiple sectors and livelihood components aimed at improving whole farm productivity, with explicit consideration of trade-offs and social, economic, and environmental sustainability. Programmes are developed through vertically integrating activities and areas of work between different levels, at which organisations and actors collaborate to varying degrees around a set of sectoral objectives and food system activities deemed to *build* or *increase* the resilience of the targeted system (Kolavalli et al., 2015). Programmes are developed around identifying a set of sectoral objectives and food system activities deemed to *build* or *increase* the resilience of the targeted system. Secondly, integrated programming reflects a shift from focusing on discrete value chains and investments responding to specific drivers of change within sectors at discrete scales to interactions between value chains, explicitly considering the externalities and interactions between multiple drivers of change and innovation and investment within options across sectors and scales (Öborn et al., 2017). In this way, programmes are said to be more focused on the management and improvement of the system, based on the holistic analysis of its components within a defined agro-ecological space, their interactions, trade-offs, and the synergies aimed at livelihoods enhancement for farmers and communities, and agro-ecological sustainability. Finally, integrated approaches are about the interests and participation of diverse stakeholders through dynamic, iterative approaches in which local- and scientific knowledge are combined, co-generated, and embedded in the broader programme planning and implementation (Chen et al., 2016). Programmatically, this requires a shift of focus from considering disadvantaged groups (e.g., in terms of gender equality or social justice) as isolated outcomes of programme implementation, to involving and empowering them through systematically analysing and including risk throughout programming.

For this study, we define an integrated approach as an intervention or a combination of interventions that have been based on a complete context and problem analysis in close consultation with all stakeholders, leading to a specific and detailed ToC, implemented with a learning and adaptive approach, and fully monitored and evaluated as to intentional- and unintentional results. Such interventions are then best integrated into the food systems of the target group, their current livelihood situation, and the dynamics of other programmes. The rationale for integrating these efforts is that their combination will increase the effectiveness and the sustainability of the projects that aim to achieve food and nutrition security.

2. The Arid and Semi-Arid Lands of Kenya: A political economy perspective

2.1 General context

Kenya's ASALs represent approximately 88% of the country's landmass. They are home to an estimated 12 million pastoralists, who rear 100% of the camel, 91% of the goats, 87% of the sheep, and 70% of the cattle in the country (R. H. Behnke & Muthami, 2011). The ASALs economy is primarily agricultural. The ASALs population shares the same pattern of livelihood that is broadly the same production system – dryland agriculture or pastoralism, as well as the same patterns of trade and exchange (Otoló & Wakhungu, 2013). However, around 75% of the country's land area is arid, with very low moisture availability and high mean annual temperatures – making pastoralism and agro-pastoralism a rational adaptation to environments dominated by variability, and as a production and livelihood system that is both ecologically sustainable and economically efficient. Thus, the ASALs in Northern-, North-Eastern-, Eastern-, and parts of Southern Kenya are classified as suitable only for nomadic pastoralism or agro-pastoralism and small-scale irrigation (Mortimore, 2013).

2.2 The ASALs and their food production potential

Classification of agricultural production systems or livelihood strategies in the ASALs varies widely. The two basic types of production systems are roughly differentiated as pastoralism and agro-pastoralism. The dual classification of pastoral and agro-pastoral is frequently used within livestock research and development in African systems. It links the livestock production system to agriculture and overall household livelihood strategies and groups households into functionally similar units (Hunt et al., 2019). However, the critical feature of food production in the ASALs is that their survival depends on natural resources. The Government of Kenya (GoK) defines pastoralism as an economic activity and a cultural identity in ASALs. As an economic activity, pastoralism is an elaborate system of livestock management that carefully balances the needs of people, livestock, and natural resources, in the drylands by leveraging the characteristic variability of rangeland environments. Different types of pastoralists engage in agriculture, fishing, and trade, while moving with their herds to protect natural resources, avoid insecurity, and access water and vegetation. On the other hand, pastoralism is critical in socio-cultural functions, including a source of prestige, wealth, dowry, and settlement of family disputes.

Nomadic pastoralism is practiced in the low rainfall zone of the ASALs that receives 200 - 350mm of rainfall annually (GoK, 2021). The ASALs are generally characterized by variability in the spatial and temporal distribution of rains, which can result in drought conditions and green areas existing alongside each other. This variability is reflected in the patterns in which nutrients accumulate and peak in the vegetation before being used to complete a reproductive cycle. Nomadic pastoralists interface this variability in the environment with variability in the production system by moving from one area to another, while grazing their livestock on sparse vegetation and watering their herds at intervals of two to five days. In some ASALs, where rangelands receive reliable rainfall patterns that can support crop production, pastoral households have responded by introducing commercial crop production. Agro-pastoralism is practiced in semi-arid counties that receive rainfall of between 500 – 750mm (GoK, 2021). The agro pastoralists keep both livestock and practice crop farming on privately

owned land. Cattle and small stock are kept through free, natural grazing in open pastures. Drought-tolerant crops are grown, and irrigation agriculture is practiced in areas within which perennial rivers exist. The available data on the magnitude of the central production systems in ASALs is scanty, following the legacy of unsystematic attention to pastoral systems. A recent report on the magnitude of pastoralism in Kenya's ASALs finds that: *"Although networks of pastoral herding households remain the backbone of pastoral systems, the magnitude of pastoral systems today is not a linear function of the number of people in these households, or of their livestock holdings."* (Krätli & Swift, 2014). The reality is, as a recent joint evaluation of IFAD and FAO investments in pastoral development shows: *"The number of pastoralists is unknown with any precision and would depend on the definition used."* (Krätli & Swift, 2013).

2.3 Climate variability and risk in the ASALs

ASALs are characterized by low levels of human development and high levels of poverty, which increase vulnerability to droughts and rainfall variability, generally with more significant consequences, such as acute food shortages, changing demographic patterns in ASALs, insecurity, and conflicts arising from competition for scarce resources (Njoka, 2016). The ability of the ASALs production systems to support local populations is subject to constant threat from natural and man-made disasters, and principal food sources become increasingly vulnerable to external shocks. According to the latest Integrated Phase Classification (IPC) report, Kenya has experienced three severe droughts in the last decade (2010-2011, 2016-2017, and 2020-2022), with more than 4.2 million people (representing 24% of the ASAL population) facing high levels of acute food insecurity (IPC, 2022). The high levels of food insecurity in the ASALs are primarily driven by a combination of shocks, including droughts hampered by successive below-average rainy seasons, declining average per capita livestock holdings and overall production, and changes in land use, localised resource-based conflict and governance, resulting in reduced mobility and less efficient grazing of rangelands (IPC, 2022).

Food production prospects within the ASALs depend mainly on water availability – meaning that the food security of pastoral and agro-pastoral households improves considerably during wet years. However, within the ASALs, physical water scarcity is a significant challenge, mainly because no- or very little surface water is available. Hence, groundwater is almost the only resource available for household and livestock consumption during extended dry periods. It makes this valuable resource the cornerstone for socio-economic development (Mogaka et al., 2006). Water scarcity in the ASALs has, thus, *temporal* and *cyclical* dimensions, within which periods of dearth are interspersed by periods of abundance (Mehta, 2003). Limited access to water resources in the ASALs increases pressure on production and food systems hampered by changing weather patterns, including reduced, less predictable and less evenly distributed rainfall, more frequent extreme weather events, such as droughts, floods, and storms, and rising temperatures (Ketiem et al., 2015).

Pastoralist and agro-pastoralist producers employ a wide range of risk minimization strategies, such as mobility and development of water governance institutions which are capable of making and enforcing access rules for scarce water resources. In the ASALs, the physical water scarcity may be heightened by policies that induce higher water use and the overdevelopment of hydraulic infrastructure, particularly the expansion of irrigated agriculture at the expense of other water users. This leads to conflicts emanating from competition over scarce water resources (Mogaka et al., 2006).

On the other hand, processes that result in eliminating mobility and resource governance institutions in the ASALs can be expected to trigger serious resource conflicts and lead to tremendous inequality in access to and control over water resources (Agade et al., 2022). Furthermore, the water shortage has been associated with increased vulnerability to morbidity and mortality of children in the ASALs, due to their susceptibility to diarrheal diseases and consumption of unsafe water.

Some dimensions of water scarcity risk in the ASALs are now beyond the reach of traditional risk management strategies, brought about by new dynamic correlations with governance, development, or market forces. These include interventions that replace ASALs-tested risk-management technology with risk-prone technology, shrinking of rangelands and closure of migratory routes due to new regional land uses and the potential for conflict and new technologies to extract minerals and water leading to many pastoral groups losing access to land and water resources they had been using for generations (M'Mbogori et al., 2022; Waters-Bayer & Bayer, 2016).

2.4 Legacy of marginalisation, poverty, and exclusion

In addition to cyclical drought and its effects on the productivity of ASALs food systems, poverty is escalated by low development indicators and the highest incidence of poverty prevalent in the ASALs, such as high illiteracy, unemployment, disease, inefficient marketing systems for livestock, and insecurity. According to the 2020 Kenya Economic Report, current Government strategies yielded some positive results in 2020, and the absolute poor were reduced to 36.1% of the population. However, in ASALs, the incidence and depth of poverty rose, with the counties of Turkana, Mandera, and Samburu registering the highest poverty rates at 79.4%, 77.6%, and 75.8%, respectively, in the same period (KIPPRA, 2020). Contrary to prevailing narratives that poverty in the ASALs is widespread and systemic, based on the application of such orthodox proxies as incomes/expenditures, geographic remoteness, and market integration, the reality is that these debates fail to acknowledge the diverse livelihoods and wealth differentiation that fall under the term (Little et al., 2008). The primary implication of these polarised narratives about poverty in the ASALs is that development interventions are designed around incorrect assumptions, empowering outside interests to transform rather than strengthen ASAL livelihoods. The long-persisting and erroneous misconception of the ASALs is essentially around pastoralism, cast as '*drought-driven*,' and "*environmentally destructive agents of desertification and uneducated, warring peoples largely uninterested in development.*" (Little et al., 2008). Even though these misconceptions have given way to growing recognition today of livestock's pivotal role in the economy and livelihoods of many people in the ASALs, they are partly to blame for the persistence of inappropriate policy approaches to developing pastoral areas in the region (Odhiambo, 2014). For instance, as the national development policy blueprint, "*African socialism and its application to planning in Kenya*", popularly known as the *Sessional Paper No. 10 of 1965*, designated the ASALs as low-potential areas and set priority for the development money to be invested in: "*areas having abundant natural resources, good land and rainfall, transport and power facilities and, people receptive to and active in the development,*" where it would yield the most significant returns (GoK, 1965).

The prevailing misconceptions about the ASALs in general and pastoral production systems led to the belief that pastoralism is inefficient and, consequently, the introduction of western ranching technology characterized by fencing, water development, exotic breeds, and range improvement (AU, 2010). Combined with resource scarcity and climate-change arguments, development interventions

based on these misconceptions often led to the same policy orientation: providing "*alternatives*" and opening up spaces for the state and other actors – private investors, local elites, conservation organisations – to extend their control over natural resources in the ASALs. Recent research indicates that narratives of '*green growth*,' '*food security*,' and '*climate resilience*' are being evoked by the state and its development partners to legitimize new infrastructure projects and private investments in irrigated cropping and wildlife conservancies in the ASALs. These shifts towards planning alternative interventions that flow from dominant narratives surrounding climate change, the '*green economy*,' and the development of ASALs more generally have proved mainly an expensive failure, generating unsustainably low incomes and/or presenting a high risk of dispossession of local agro-pastoralists from lands they had used (Campbell, 2022).

2.5 Gender and social change in ASAL production systems

The role of women in food production in the ASALs is crucial, ensuring the basic survival of the household – with a critical role in livestock management, processing, and marketing, acting as care providers, feed gatherers, and birth attendants (Flintan, 2013). In Kenya's ASALs, women's typical role within a livestock production system differs from region-to-region, and the distribution of ownership of assets between men and women is strongly related to social-, cultural-, and economic factors. Although recent research has shown that gender roles are becoming more flexible, rangeland fragmentation leading to privatisation and formalisation of land tenure in the ASALs tends to marginalise women, and that the burden of environmental degradation leads to differential changes in gender workload and responsibilities (Karmebäck et al., 2015). What matters is not so much the path of environmental degradation, but the social constraints that inhibit women's participation. As Getachew puts it: "*unless gender issues are taken into account, transferring power to the local level could potentially exclude women from their rights to control natural resources.*" (Mamo, 2007).

These changing gender roles are not generally captured in mainstream development planning in policy documents and statements from various agencies, regional organisations, and national governments. Instead, gender-blind policy narratives provide both a diagnosis and a set of measures and interventions in the ASALs. The first narrative that guides many development interventions in the ASALs argues that men are the sole livestock managers and often lead development programmes to tailor interventions to men, compounding challenges for women. The exclusion of women based on technical grounds embedded in inadequate classification and understanding of the livestock production system, not only aggravates gender relations but can also have negative impacts on the local coping mechanism hence a negative impact on the sustainability of the interventions on gender relations in communities (Flintan, 2013).

Secondly, in many development interventions, the issues affecting pastoralist women are either not being addressed at all, while elsewhere, interventions are not accorded the importance they deserve, thus, they suffer from chronic underfunding and a lack of sustainability (Kipuri & Ridgewell, 2008). In general policy, narratives portray women from pastoralist societies as silent and subordinate individuals, existing on the margins of an already marginal system. Although pastoralist women are often marginalised from state decision-making processes, and do not usually hold formal property titles, there are no restrictions on women's ownership of livestock in many pastoral societies. In some pastoral communities, mothers assert authority over their households, controlling access to livestock, wives, and children of their sons, and often resort to ritual coercion if necessary (Lydall, 2004). Today,

women are increasingly involved in addressing societal injustices; in most places, their work is linked to support, and education received from pastoralist NGOs (Goldman et al., 2016).

Despite shifting gender roles, pastoralist women remain disadvantaged in terms of opportunities. An assessment of 500 microenterprises in five regions of neighbouring, pastoral Ethiopia estimated that women-owned businesses were 2.5 times more likely to fail than those operated by men. These failures are primarily attributed to an inability to obtain loans, poor management, technical training, and low levels of education (Bekele & Worku, 2008). These factors collectively undermine pastoralist women's access to resources and food production and, by extension, reduce the region's community and household resilience and economic growth. A deeper analysis of gender issues within pastoralism is needed to circumvent many notions and stereotypes about women's typical role within a livestock production system. Doing so will provide a significant understanding of women's social status as pastoralists and their decision-making and economic power within the household and the community. Socio-cultural and technical exclusion (based on the development industry that perpetuates many notions and stereotypes about women) can reinforce each other. However, even when the former is eliminated, the latter unless addressed directly, lingers on, resulting in the continuing invisibility of pastoralist women.

2.6 Pastoral production system and rangeland ecology in ASAL in a nutshell

The pastoral rangelands that characterise most of the ASALs context, whether arid or humid/semi-arid, share basic features: They have variable and often harsh climates, are sparsely populated and remote from markets, produce significant livestock, and are primarily used and managed in common (Reid et al., 2014). These rangelands face high variability, uncertainty, and unpredictability. Whereas equilibrium environments characterise the latter zones, the former are characterized by non-equilibrium environments. Droughts are unpredictable, but periodic and expected, so they are considered the norm. The dryland ecosystem is unstable but resilient; bare areas are not degraded, and pastures regenerate again under better rainfall conditions. Rainfall is the determining factor for pasture production. There is no correlation between aridity and degradation. Concepts such as overgrazing and land-carrying capacity do not apply to drylands. Many recognise the pastoral production system as the best-adapted system to this uncertain environment. Due to further climate change with increased variability and uncertainty, this statement gains even more weight. Within this dominant livestock production system, farming only occupies a secondary position. If the years are wet, farming happens, but in an extensive way. Mobility is the pastoralists' primary resilience strategy to harness pastures' variability (abundance *versus* scarcity) or the instability of the environment. This mobility looks at the full geographical scale of rangelands, exploiting dry- and wet season grazing areas. Dry season areas are critical for the survival of herds as fallback mechanisms.

Most importantly, pastoralists must keep a core stock of breeding animals during droughts, enabling them to build up their herds when the rains return. Herd composition reflects the availability and distribution of pastures and water. Animal breeds balance production qualities, capacity for dealing with variable pastures and water, and restocking capacity. In that sense, pastoralists have maximized or optimised rangeland potential.

- a) **Livestock marketing.** Droughts offer challenges for livestock marketing because pastoralists hesitate to sell animals quickly, fearing that this will undermine their core stock needed for fast recovery. Pastoralists are market-oriented and sell their animals at different markets,

looking for good terms of trade to buy other foodstuffs and cereals and achieve food security at the household level. Market availability, infrastructure, safe tracking routes, and trading services are critical to successful marketing.

- b) **Animal Health (AH)** is essential for the economic base and survival of the household. Access to quality AH services is critical for pastoralists and constantly required, as diseases happen frequently and unexpectedly: droughts and floods can cause sudden outbreaks of diseases.
- c) **Water** for livestock: sufficient and well-spaced water points are essential to access and graze all available pastures in their rangelands, combining dry- and wet season grazing areas.
- d) **Pastoral institutions** ensure and manage proper livestock production and mobility, set pasture and water access rules between neighbouring groups (also cross-border), and settle conflicts, especially during droughts. Crucial aspects of pastoralist institutions include developing flexible resource management systems, particularly communal land management institutions. Non-exclusive entitlements to water resources often depend on dispersed and overlapping social networks over large landscapes rather than closely knit communities associated with small and clearly bounded territories (Turner, 2011). In such systems, the interlinked governance institutions at different levels of social organisation (local community, multiple adjacent communities, regional, and national) and corresponding geographic scales (e.g., valley, watershed, basin, ecoregion) reinforce pastoralist coping strategies, solving conflicts and improve tenure systems. At the same time, the interlinked institutions help strengthen indigenous social security institutions to adapt and tackle future droughts (Oba, 2001).

Some dimensions of risk in pastoral systems are now beyond the reach of traditional pastoralists' risk management strategies, brought about by new dynamic correlations with governance, development, or market forces. These include government land ownership policies, land encroachment by farmers (especially in the critical grazing areas), irrigation projects, ill-designed development projects, and increasingly violent conflicts between pastoral groups due to small arms proliferation and cross-border instability. Combined with pastoral society's demographic growth, this has led to socio-economic differentiation.

3. Mapping Kenya’s Northern ASALs Food System

3.1 The socio-economic landscape

The Frontier Counties Development Council (FCDC) is a regional grouping of the counties of Garissa, Isiolo, Lamu, Mandera, Marsabit, Tana River, Samburu, Turkana, Wajir, and West Pokot, which was established to accelerate the socio-economic transformation of its members. These counties occupy 375,900.80km², equivalent to 65% of Kenya's land area and 12% of the population. They are part of Kenya's ASALs, which comprise 23 of the 47 counties. Due to the region's historical-, political-, and economic marginalisation, the socio-economic development outcomes lag behind the rest of the country. In 2016, about 20.5% of Kenya's poor in the FCDC region. On average, about 64.2% of the population lives below the poverty line compared to a national average of 36.1% (Figure 2). Over the last decade, however, more significant effort has been directed toward economic development and the region's transformation.

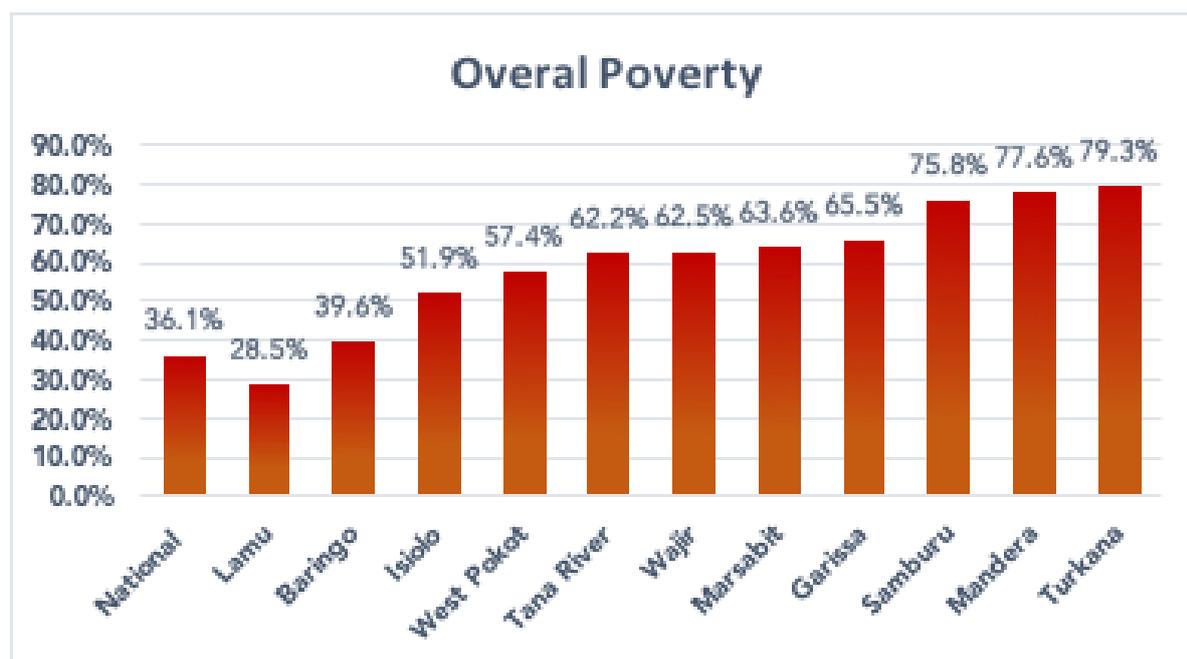
Table 1. The FCDC by area, population, and population density (Source: KHPC 2019).

County	Population	Land Area (km ²)	Population Density (No. per km ²)
Garissa	841,353	44,736.0	19
Isiolo	268,002	25,350.6	11
Laikipia*	518,560	9,532.2	54
Lamu	143,920	6,253.3	23
Mandera	867,457	25,939.8	33
Marsabit	459,785	70,944.1	6
Samburu	310,327	21,065.1	15
Tana River	315,943	37,950.5	8
Turkana	926,976	68,232.9	14
Wajir	781,263	56,773.1	14
West Pokot	621,241	9,123.2	68
Total	6,054,827	375,900.80	

*Laikipia is currently not a member of the FCDC

Over half of the population in Mandera, West Pokot, Wajir, Tana River, and Samburu Counties are below 14 years of age. These counties also have the highest total dependency ratios and are among the poorest in Kenya. In Turkana County, for example, the poverty head-count amounts to almost 80%, and the county are the poorest in Kenya. The other defining features of the FCDC region are persistent drought and violent conflict, and related humanitarian crises, which combine in a deadly mix to drive the vulnerability of production systems and food insecurity (Catley et al., 2012).

Figure 2. Overall poverty in the FCDC region 2015-16 (Source: the FCDC Socioeconomic blueprint)



Over the years, the population of the FCDC region has also grown rapidly, both in numbers and in the diversity of the rural-urban population. Major towns such as Isiolo, Moyale, Lodwar, Mandera, and Wajir have established themselves as frontier trading centres linking Kenya to neighbouring countries of Ethiopia, Somalia, and South Sudan and consequently linking the region to emerging regional livestock markets. As a result of this expanding regional market network, pastoral livestock trading has grown tremendously to accommodate the rising sale volumes of key pastoral livestock species (Mahmoud, 2013). The growth of significant services and markets in major town centres has also triggered increasing camel and cattle milk trading creating new income opportunities for women and youth (Abdullahi et al., 2013).

3.2 Main economic trends and significant value chains

The economy of the ASALs is anchored in livestock production. The ASALs, in general, and the FCDC region holds 60-70% of the livestock in the country under pastoralism. The pivotal role of livestock and livestock trade in the region cannot be overestimated. Livestock production contributes almost 90% of households' livelihood and accounts for nearly 95% of family income in the NFC region (GoK, 2008). Conservative estimates indicate that the livestock sector contributes 12% to Kenya's national GDP and 42% to the agricultural GDP. In addition, 11.4% of the national household consumption expenditure is spent on livestock-derived food items and manufacturing based on three animal product inputs– meat, milk, and hides/skins – constituting about 12% of Kenya's total official manufacturing output (Engida, 2015). Recent studies have indicated that many young people aspire to engage in livestock production and marketing despite immense regional barriers and inequalities (Mutua et al., 2017).

For this reason, governments and development agencies are encouraged to consider young people's participation in agriculture as an 'investment opportunity' and invest in youth, because their situation

presents an: *"unprecedented opportunity to accelerate growth and reduce poverty."* (Ayele et al., 2017). There is also a wide and growing range of economically valuable livestock products produced within the ASALS of Kenya that do not yet have developed markets or competitive systems of production, with an estimated value of Ksh—1,891 billion in 2016 (GoK, 2016). Livestock keeping is often considered a mechanism for the acquisition and accumulation of wealth, indicating that both social- and economic significance for risk absorption during crop failure in areas that are particularly prone to droughts and famines (Institute of Economic Affairs, 2001), which cost the Kenyan livestock sector US\$3.3 billion between the 2008-2011 period alone (ILRI, 2015). Although reliable and systematic quantitative data on livestock production is lacking, by October 2022, more than 2.4 million livestock, which pastoralist families rely upon for nourishment and livelihood, died in Kenya.

A good example was the loss of livestock in Marsabit County, where the communities lost more than 121,000 sheep and goats, 35,000 camels, and 38,000 cattle in the last few months. As in most ASALS, the livestock loss in Marsabit County was primarily caused by starvation occasioned by the diminished quantity and quality of pasture in the rangelands which forced pastoralists to migrate. In addition, frequent and extremely severe droughts in the ASALS had led to the replacement of perennial grasses and the encroachment of non-palatable alien plant species, such as *Prosopis* tree species, which has had a dramatic impact on the environment and livelihoods of pastoral communities, and borders on being considered a national disaster (Choge, 2005).

The situation of food security in the ASALS has not improved during the last five decades, and the productivity of central food systems has been on a declining trend. Most pastoralists in the ASALS did not benefit from the positive economic dynamics and necessary policy and institutional changes in post-independence Kenya. The livestock sector's political system still suffers from the marginalisation and neglect initiated by British colonial administration, characterized by heightened inequality due to accelerating social differentiation, the commodification of production, and the emergence of elite projects and selective alliances that alienate and marginalize the majority (Scoones, 2021). The situation was exacerbated by successive Kenyan Government administrations that resulted in cross-border insecurity and violence from livestock raiding and tension over pasture and water resources, setting the stage for difficulties for pastoralists in the post-independence era (Shanguhya, 2021). At the same time, essential services are not adequately provided or adapted to the population's needs, which means that the inhabitants have poorer health and lower levels of education than people in the rest of the country (Oxfam International, 2006). Despite the commitment of the Government of Kenya to developing a more resilience-building policy focus in the ASALS to promote food security and reform livestock management systems, these tend to be implemented without sensitivity to the local context, are subject to significant externally driven policy shocks, and can potentially reinforce inequalities and undermine opportunities for economic growth (Carabine et al., 2015).

3.3 Environmental conditions: effects of droughts on ASALS production system

As the consequences of climate change unfold, the link between drought risk, vulnerability, and poverty becomes significantly more potent. In Kenya's ASALS, drought is the most pervasive hazard, natural or otherwise, encountered by households on a general level. The region has endured three severe droughts in the last decade (2010-2011, 2016-2017, and 2020-2022), with the current drought (2020 - 2022) being the most severe and most protracted, with widespread livelihood losses and

massive displacement of populations (IPC, 2022). This is especially true for Northern Kenya, where increasingly severe droughts regularly hit more than three million pastoralist households. For livelihoods that rely solely or partly on livestock, the resulting high livestock mortality rate has devastating effects, rendering these pastoralists amongst the most vulnerable populations in Kenya.

Livestock production in the ASALs faces bi-modal rainfall distributions, forcing transhumant movement activity during the bi-annual dry seasons. Under normal dry-seasons conditions, pastoralists take most of their herds to access remote water and vegetation resources, though they still face challenges due to land pressures and inter-tribal conflicts. Furthermore, the impacts of frequent environmental shocks can be severe. During such extreme events, pastoralists regularly experience massive herd losses, their main asset base and food source, increasing the demand for food aid. Climate change threatens pastoralists' livelihoods by inducing livestock mortality and herd losses, reducing rangeland productivity, and reducing livestock production and health performance (Hidosa & Guyo, 2017). These shocks have been shown to reduce rangeland productivity and even push pastoralists out of participating in migrant pastoralism, which is related to significantly higher poverty rates.

3.4 Water availability and access

The ASALs and the FCDC region, mainly, are areas of severe water scarcity. The problem of water scarcity is exacerbated by the increase in population and poverty, as three-quarters of the region's population lives below the poverty line. As a result of severe water shortage and a meagre natural resource base, and suffering from a lack of assets and income, inhabitants of the region are highly vulnerable to shocks, especially those resulting from droughts and other extreme weather events. Water scarcity in the region has devastated local people's livelihoods and income, directly impacting livestock and rain-fed and drylands irrigated agriculture. In the ASALs, water equity issues are related to climate, because water use imparts relief from droughts and vulnerability of livestock livelihoods to drought risks (Barrow & Mogoka, 2007). Based on limited data, the effect of food shortages and related rising commodity prices costs Kenya at least Ksh 3.3 billion (0.5 % GDP) annually (Mogoka et al., 2006).

Despite numerous efforts to improve the circumstances of drylands inhabitants and lift them out of poverty, there have been few, if any, sustained large-scale successes. Efforts to address water scarcity in the region have been characterized by divergent views characterized by two contrasting views. On the one hand, debates in development circles driven by donor agencies and Government Ministries have focused on cost recovery arguments (i.e., water abstraction charges) as the necessary strategy to ensure efficient and sustainable water use and that water service privatization enables investments to be raised for water supply and increased efficiency of service provision by introducing or raising water charges and by privatizing water supply (Witsenburg & Roba, 2007). On the other hand, civil society organisations have argued that water cannot be considered based on economic efficiency alone because of its vital function for human life, especially in contexts like the ASALs within which structural inequalities in access to natural resources undermine equity (Barrow et al., 2007). Consequently, governments must ensure equitable access to water for all social groups, including the poorest and most vulnerable. Moreover, despite reforms in the water sector, increasing opportunities

for local participation in water management, the exclusion of traditional institutions which are so critical to sound natural resource management in the ASALs has contributed to the failure of privatised models of water service delivery in remote areas where the profit opportunities are much lower than in densely populated areas (GoK, 2011).

3.5 Land use

Around 60% of land in the ASALs is considered community land, of which 40-50% is in the FCDC region. Land use planning in these areas can be complex as land tends to be used communally and seasonally by multiple actors for multiple uses. This ASALs contains natural pasture giving the region a comparative advantage in livestock and game production. Before the land area of the present-day ASALs was penetrated by European colonialization, land use was characterized by mobile pastoralism to cope with forage availability as determined by spatially and temporally variable and unpredictable rainfall patterns and grazing pressure (Oba et al., 2000). Another essential aspect of land use is how different ethnic groups adapted to seasonal changes through inclusive customary land use systems, which regulated access to pasture and water and determined movements between the grazing areas in a year (Tari et al., 2015). These customary systems of land governance ensure that mobility is unrestricted, flexibility is high, and that access to and control over these resources is differentiated by gender and age (GoK, 2011). Women and youth play critical roles in natural resource management, but the control over most land resources is primarily in the hands of older men.

Changing social-economic circumstances have increased pressure on the ASALs and hardship for the pastoralists. According to a 2011 report by Oxfam, development schemes introduced in the ASALs encouraged the gradual privatization of resources, sedentarisation, and a breakdown of pastoral systems, resulting in a loss of the natural resource base and reduced mobility of livestock (Flintan, 2011). Such transformation in the way pastoralists access and use natural resources disadvantage the productivity of livestock production and negatively affects the food security of the dependent population. Worse still, studies have shown that such processes affect the ability of pastoralists to cope with drought, which appears to have increased in intensity and length, and be happening more regularly (Flintan, 2011).

3.6 Broader development trends affecting ASALs food systems.

Recent research found that these concerns intersect with four crisis scenarios that have come to dominate global agricultural policies: the ecological crisis around the degradation of agricultural land, the fuel crisis which transformed allegedly '*empty*' and '*resource-poor*' drylands into a sought-after asset for producing biofuel and green energy; and, the global financial crisis (Krätli et al., 2013). These crises are compounded by recent evidence that indicates that while drylands pastoralism provides more food security than growing crops in many ASALs (Tran, 2011), there is a deeply rooted apprehensiveness in the history of pastoral development that investments in securing pastoralism holds back development rather than promoting it (GoK, 2012). Replacing pastoral systems with non-livestock alternatives has not led to a concomitant improvement in the food security of the ASAL populations (Buchanan-Smith et al., 2020).

Pastoralist and agro-pastoralist production systems are not static, however. The dynamic aspirations of many pastoral and agro-pastoral peoples are changing, including capitalizing on often growing

international markets and 'stepping up' towards commercial pastoral production systems, while others are simply 'hanging in', combining limited pastoral production with other activities (Aklilu & Catley, 2010; Dorward et al., 2009). Although massively transformed, with evidence of diminishing traditional transhumant pastoral systems (Turner & Schlecht, 2019). and more extreme forms of social and economic differentiation – pastoral and agro-pastoral systems are also positively adapting to multiple crises (Scoones et al., 2020). For this reason, arguments for a grounded food systems analysis of the ASALs linked to local-level responses become especially pertinent. Even more importantly, in a context of growing ASALs population densities, a breakdown of traditional natural resource governance systems, and the emergence of new, commercially driven governance systems that drive fragmentation of the rangelands, the ASALs food systems are changing rapidly and posing severe problems for many people. In most cases, the poorest lose out – pastoral dropouts, women, people with disabilities, and indigenous peoples are particularly vulnerable.

3.7 Key governance dimensions of the ASALs food system

To understand the impact of government policy on ASAL food systems, consider the history of rangeland policy in Kenya, which has evolved for more than 100 years. The evolution of rangeland management policies helps explain the problematic legacy of the foundational knowledge on which the ASALs were understood and help solve many of the present-day barriers to resolving rangeland's governance challenges. The legacy of prevailing ideology about rangeland management has been an essential factor in influencing the problematic policies and attitudes initiated at various stages of the country's history, dating back from the pre-colonial era. Since the first encounter between rangeland inhabitants in the late 19th century, the laws, policies, and institutional frameworks went through three stages of different natures, and the fifth is in the making. These stages have contributed to the present-day structure, performance, and problems that have impacted the ASAL food systems and, by extension, rangeland degradation and the consequent development interventions.

3.4.1 Policy and institutional environment in Kenya's ASALs

There are two primary drivers behind the Government of Kenya's keen interest in strengthening the policy and regulatory environment for supporting sustainable land management (SLM). First, Kenya's economy is highly dependent on climate-sensitive sectors such as agriculture, water, forestry, and energy, with about 80% of Kenya's population, directly and indirectly, dependent on rain-fed agriculture for basic livelihoods. The Government of Kenya has been committed to developing an SLM policy focus due to its potential to minimize degradation, rehabilitate degraded lands, and increase food production. The second is the recent emerging policy changes undertaken as an integral component of the broader policy reforms in conformity with the 2010 Constitution, the Kenya Vision 2030, and the 2009 National Land Policy (NLP), which highlight the need to institute measures to rehabilitate degraded lands and implement various components of SLM. Thus, the policy environment to safeguard, conserve, and regulate natural resources and biodiversity continually changes with ambivalent results at different scales. Some of the most crucial institutional-, legal-, and policy instruments that have a bearing on the ASALs are summarized below.

The Kenya Vision 2030 is Kenya's long-term development blueprint for creating: "*a globally competitive and prosperous country with a high quality of life by 2030.*" The vision recognizes the importance of saving the lives and livelihoods of needy populations during emergencies and storing

relief supplies in addressing poverty and food insecurity challenges. The Kenya Vision 2030 recognizes and focuses on activities aimed at improving livestock production to safeguard real farm incomes and ensure availability and access to quality food. This entails investing in the necessary foundations to support livestock production and marketing, strengthening livestock marketing infrastructure and systems, and prioritizing interventions that add value within the pastoral system, such as the processing of milk, meat, hides, skins, and other livestock products.

The Food and Nutrition Security Policy (FNSP) provides an overarching framework covering the multiple dimensions of food security and nutrition improvement. The FNSP is framed in the context of the universal '*Right to Food*' and recognizes that hunger eradication and nutrition improvement is a shared responsibility of all Kenyans. The policy and associated actions will remain dynamic to address contextual changes in the ASALs, including a call for appropriately addressing political conflicts that disrupt economic activities are eliminated and that in the ASALs, conflicts and banditry activities that restrict the movement of people and livestock towards areas of better grazing, water or markets are eradicated. Furthermore, FNSP proposes better data on agronomic and livestock conditions, will support the generation of timely production forecasts and estimates, and systematized use of drought preparedness, prevention, and mitigation measures to cushion the negative impacts of droughts on development dynamics.

The Constitution of Kenya (2010), in Article 43 (1) (c) on the Social and Economic Rights, states that '*every person has a right to be free from hunger, and to have adequate food of acceptable quality,*' thus providing for a human rights-based approach to food security in Kenya. The constitution, which came into force in August 2010, puts in place elaborate provisions relating to environmental principles, a clean and healthy environment, and socio-economic rights such as the right to water, food, and shelter, among others. Most importantly, the constitution, which devoted a whole chapter to land and environment, entrenches a range of environmental imperatives and provides an avenue for remedying historical injustices related to land tenure and land use issues that have negatively affected Kenya's natural resources.

3.4.2 Institutions and actors affecting ASALs food systems.

Strategies to reduce hunger and increase the productivity of the ASALs' food systems require coordination. A handful of government agencies have a significant direct or indirect influence on the coordination of ASALs development. These institutions can generally be categorized into the line Ministries and semi-autonomous government agencies. Five national government ministries have a more significant mandate for addressing ASALs development.

The **Ministry of Agriculture, Livestock, and Fisheries** ensure sustainable land management in cultivated areas, grazing lands, and through all aspects of the agricultural value chains. The **Ministry of East African Community, ASALs, and Regional Development** does much work that contributes towards addressing ASALs development, primarily through the formulation of sector-specific planning modules and coordinating the work of the counties in all socio-economic-, political-, and environmental functions. The Ministry hosts the National Drought Management Authority and the State Department for the development of the ASALs directly involved in matters touching on the coordination, overall planning, and development of policies for arid and semi-arid lands and mitigation of the impacts of drought and land degradation, respectively. The **Ministry of Water and Irrigation** is tasked with collaborating with the local Governments, playing an essential role in developing policies,

programmes, and projects and implementing water management technologies for better livelihoods among the communities. The Ministry, which hosts essential agencies such as the National Irrigation Board and the Water Resources Management Authority, contributes to addressing ASALs' development through their work at national and county levels. The **Ministry of Lands, Housing, and Urban Development** is tasked with coordinating and implementing land governance and administration issues, such as setting policies and guidelines on land management and administration and coordinating their implementation by relevant state bodies. To deliver its land management and administration functions, the Ministry works closely with agencies such as National Land Commission, Land Property Tribunals, County Land Management Boards and Tribunals, and Land Courts and County Governments.

Kenya's 2010 Constitution created 47 new counties and empowered them to take over key aspects of agriculture, health, urban planning, housing, infrastructure, and energy to promote social and economic development and ensure state services are easily accessible nationwide. Agriculture and livestock were key sectors whose functions were devolved to the county government level, including responsibilities for implementing agriculture and veterinary policies. The 2010 Constitution established food as an economic and social right and provided a clear separation of powers regarding achieving food security in the country. In this respect, the role of the Local governments includes executing national strategies through the guiding implementation document of the County Integrated Development Plans (CIDPs), which are expected to be more attuned to the needs of local communities and households and the identification and implementation of context-specific integrated approaches to improve the food security of their people. The local Governments are expected to develop **Annual Development Plan (ADP)** and present them to county assemblies (CAs). The ADP sets out the county's sectoral annual development priorities approved in the CIDP and is based on implementation progress and experience captured in Quarterly Progress Reports (QPRs) and the Annual Progress Report (APR).

Local governments are expected to improve and diversify sustainable rural livelihoods and food and nutrition security through improved livestock productivity, diversification of incomes, sound marketing strategies, better management of droughts, and reduced livestock losses. Although progress in the implementation of devolved governance has been reported in the ASALs, the situation is, however, wanting since the current county investment plans are based on the CIDPs, some of which are not aligned with the national agriculture policy (GoK, 2017). In the ASALs counties, the CIDPs identify critical budgetary allocations of support and increased funds for the pastoralists and agro-pastoral producers to improve livestock productivity and animal health-regular vaccinations for endemics, and surveillance for ticks, zoonoses, parasitic infections, early drought warning systems, etc.

3.5 Summary of ASAL Food Systems outcomes

The Northern ASALs of Kenya are home to some of the poorest and least food-insecure people. Food insecurity is mainly occasioned by remoteness and the historical-, political-, and economic marginalisation that has left the region with limited access to markets, information, and services. The economic-, social-, and environmental outcomes of the ASALs food system are currently poorly sustainable. The most recent IPC showed an estimated 3.5 million people (equivalent to 24% of the ASALs population) are facing high levels of acute food insecurity primarily driven by a combination of shocks, including a fourth successive below-average rainy season, which was poorly distributed in space and short-lived and resulted in below average crop production to near crop failure and poor livestock production (IPC, 2022). More alarmingly, the protracted drought has exposed the

vulnerabilities in the ASALs' food systems due to significant drivers, such as localised resource-based conflict, land-use change, and population dynamics. These significant drivers increasingly occur simultaneously in the Northern ASALs, with interactions that seriously undermine food security and nutrition. According to a recent study, high rates of child Global Acute Malnutrition (GAM) are a continuing problem in the Northern Kenyan ASALs, despite ongoing humanitarian and development efforts (Young, 2021). Most of these populations are in eight counties: Garissa, Isiolo, Mandera, Marsabit, Tana River, Turkana, and Wajir, which are regions with predominantly pastoral livelihoods. Such trends put the region in sharp contrast to the rest of the country, where wasting rates are much lower, and rates of stunted growth and underweight are generally improving. The deterioration and severity of food insecurity and related issues of malnutrition are attributed to new and accelerating risks and constraints that undermine the resilience of livelihood systems and the sustainability of natural resources and challenge their coupled resilience and ability to adapt – leading to the transformation of livelihoods, increasing inequalities, and particularly the burden on women in marginal activities, all of which have negative implications for the nutrition of women and children (Young, 2021).

Other bottlenecks, such as poor infrastructure, population growth, the commodification of nature, globalization, and climate changes, are all accelerating the transformation of land use and land tenure in rangelands in the ASALs, causing loss, expansion, fragmentation, increasing barriers to livestock mobility and access constraints and reaggregation of rangelands as pastoralists solve the pastoral paradox in different ways (Birch, 2021). Most food producers in the ASALs are smallholder subsistence pastoralists and agro-pastoralists whose productivity in the value chain is inhibited by poor access to markets, such as when access to livestock markets and milk processing facilities are inaccessible because of floods, adversely affecting the manufacturing of livestock products (Abuya et al., 2019).

4. Findings and lessons from ASALs FNS interventions on the ground

This section provides a brief overview of the ASALs' FNS interventions in the Northern ASALs of Kenya. It focuses on past trends and the status of the interventions in Northern ASALs, compares practices of integrated interventions with an analysis of resilience policies, and shows how FNS in the ASALs is understood programmatically and translated into design, implementation and evaluation phases by development and humanitarian actors.

4.1 Past trends and performance of ASALs FNS programmes

Past development interventions in the ASALs are linked to broader political colonial projects of state-making and private property ownership for market exchange. Narratives of low resource value and productivity dominated early colonial and post-independence Kenyan administrations –in which the key policies attempted to codify, co-opt and override customary systems for control over natural resources, people, and production strategies leading to forceful removal of people and dismantling of production (Galaty 2011). These trends have produced multiple marginalisations of the ASALs communities. The rationale for the past development interventions stems from: *“the need to “modernize” indigenous modes of production to increase efficiency and productivity.”* The underlying philosophy is that what is *‘traditional’* is antiquated, inefficient, and incompatible with modern life. All development efforts are directed towards transforming the peasant in the ASALs from a subsistence-based pre-capitalist mode of production to one that will ensure a surplus (Jabane, 2016).

It is well documented that past development interventions have produced disappointing results. The most fundamental concern has been attributed to the stereotypical views and images of African pastoralists and their environments held by researchers, government officials, and aid and development workers. The state in Kenya, therefore, has instituted measures that include rural afforestation schemes, soil conservation measures, animal grazing restrictions, and settling pastoralists in the ASALs. In addition to setting the roots of marginalisation in Kenya's ASALs, development interventions have been environmentally damaging, primarily because they constrained the traditional mobility of herders, concentrating human and livestock populations in more fertile areas and thereby accelerating the depletion of soil nutrients, vegetation, and water resources (Hendrickson et al., 1996). This trend was further reinforced in the 1980s-90s by the increasing focus on relief operations during famines which had similar effects by confining herders to relief camps, thereby increasing their susceptibility to disease epidemics and dependence on outsiders. Another challenge in past development planning for the ASALs is seen in institutional weaknesses in the implementing agencies, especially in integrating an interdisciplinary approach into single-disciplinary livestock departments (De Haan et al., 1994).

4.2 New directions in ASALs development: resilience policies

The foundational knowledge in ASALs production strategies, such as pastoralism, which in the past government and donor policies was regarded as chaotic, irrational, or disruptive, saw a U-turn in the 2000s in terms of seeing pastoralism as production and livelihood system that is both ecologically sustainable and economically efficient and the rationality of herd flexibility, diversity, and mobility. The primary implication of these shifts renewed interest in the ASALs largely following increasing concerns about climate change, growing food and political insecurity, and the urge to “build resilient

communities” to extreme weather events (Semplici & Campbell, 2023). Within this new “reliance” perspective, progressive policy documents, including the first African Union policy on pastoralism, emerged as governments and the international community scaled up their presence in ASALs, calling for a paradigm shift in the approach to development planning and implementation. In a significant break with past policy toward developing ASALs in Kenya, recent government policy and donor interventions started applying some of the principles of the ‘*resilience*’ perspective ASALs production systems. In 2012, in a significant departure from the practice of previous national development policies, the Government of Kenya published Sessional Paper No. 8 of 2012 on the *National Policy for the Sustainable Development of Northern Kenya and other Arid Lands* and *Vision 2030 Development Strategy for Northern Kenya and other Arid Lands*, recognizing the primary policy challenge for Kenya’s ASALs to be: “*how to ensure food and nutrition security sustainably in environments that are prone to drought, where people’s access to and control over critical livelihood resources such as land is insecure, and where climate change will increase unpredictability.*” The most significant policy measure of this ‘*new*’ development paradigm was a clear recognition that a holistic and multi-dimensional regional approach - perceived to be of crucial importance to address vulnerability and risks in the ASALs. More specifically, this shift towards an integrated approach illuminated the need to complement emergency responses with a development package that includes transportation infrastructure, social services, livestock development, rural industries, afforestation, soil conservation, marketing, and small-scale irrigation.

4.3 Lessons, insights and innovations for developmental impact

From the preceding analysis of integrated interventions in the ASALs, some key messages emerge about how integrated programming in the ASALs is understood and applied in practice by the aid/development industry.

Firstly, progress has been made in understanding the ASALs, mainly for the recognition of pastoralism as an essential asset for livelihoods for many and as a critical food production system with important development implications for the design and evaluation phases of programming (and the internal structure of the organisation and funding mechanisms). As a result, more interventions targeting the ASALs have turned more strongly towards the benefits of approaching food security in an integrated way by coordinating the activities of diverse stakeholders in the public sector, the private sector, and civil society, and addressing risks in the socio-economic-climatic environment in an integrated and demand-responsive way. By emphasising an integrated approach, rather than one that focuses merely on single sectoral approaches, integrated approaches help identify and manage critical resources for a development package that complements the development of ASALs food production systems, such as livestock production, with supportive investments in transportation infrastructure, social services, rural industries, marketing, and small-scale irrigation.

These changes at the institutional donor levels, and indeed at project design and implementation levels, may lead one to think that there is a fundamental change in understanding the meanings of and aspirations for ‘*resilience*’ in the ASALs, which constitutes a significant break from the past policies of donor- and development agencies. Indeed, as proposed by a key informant: “*these approaches – with underlying integration of key pillars of pastoral production systems – livestock, natural resources,*

and human well-being – can help protect and restore the capacity of the ASALs ecosystems to provide key benefits and services.”¹

Secondly, applying some of the principles of mobility and flexibility emanates from the: “*opportunistic range management strategies*” (R. Behnke & Scoones, 1993) that best support productivity increases for pastoral food production. This approach tends to emphasize integrated landscape management that considers the health of the ecosystems that support human livelihoods and contribute to the resilience of ASALs communities. The ecological- and economic resilience for integrated landscape management takes centre stage in most of the programmes reviewed (World Bank’s NEDI programme, USAID Nawiri, USAID-KLMS Activity, and SDC’s Livestock Sector Strengthening). This improved overall governance of natural resources, producing ‘*multiple wins*’ — including improved food production, natural resources benefits, carbon sequestration, biodiversity, other ecosystem services benefits, and higher climate resilience (Krätli, 2015).

A third good practice principle emerging from the interventions reviewed for this study lies in the integrated approach to lesson learning and allowing evidence to be fed into the decision-making process effectively – ‘reading the context’ correctly, learning, and adapting by doing, social learning, community-based adaptation, and participatory assessment. These approaches share the view that strengthening the evidence base and flexible programme adaptation is vital to the ASALs resilience approach regarding the effectiveness and sustainability of interventions and incorporating new challenges producers face in pastoral systems. Two relevant examples are presented by USAID Nawiri and EKN’s LISTEN Projects, where project inception periods (Years 1 – 2) include ‘*a refine and implement period*’, in which the implementing partners conduct formative research to refine their approaches, tools, and processes for the implementation phase.

Fourthly, numerous examples of success exist where interventions have worked with/through county governments/regional economic blocs. A cross-cutting goal of the current integrated approaches in the ASALs is to promote a more enabling environment for inclusive FNS programming through advocacy for policy reform in relevant ASAL institutions, support people to formulate their demands, access services, and increase investments. For example, USAID, SDC, World Bank, and Dutch investments in the ASALs have successfully worked with the Frontier Counties Development Council (FCDC) and the Pastoral Parliamentary Group (PPG) to fully operationalise the Climate Change policies by developing County Climate Change Fund mechanisms, and Climate Change Action Plans outlining strategies and coordination mechanisms for building resilience to climate change and enhance capacities for adaptation. Crucially, SDC’s support to the PPG was able, in partnership with Drylands Learning and Capacity Initiative (DLCI), to fast-track critical legislations in the National Assembly, such as the Community Land Act, Revenue Sharing Bill, and re-introduce amendments to the draft legislation of the livestock bill and livestock product marketing Board, nomadic education, and the Equalization Fund.² USAID Kuza programme, implemented in close collaboration with the FCDC and select a financial institution, includes a component managing the Impact for Northern Kenya Fund, which lends capital to financial institutions for on-lending to micro, small, and medium-sized enterprises in counties within Kenya’s FCDC region. The project is complemented by support to technical assistance to local government officials’ capacity to govern effectively, manage public

¹ Key Informant Interview, Nairobi, May 17, 2023.

² Key Informant Interview, Nairobi, May 17, 2023.

resources, plan for, and mitigate against disasters, facilitate access to capital, and attract investment capital.

Finally, this study considered lessons from several multi-donor partnership programmes that have undergone several funding cycles. Implemented primarily through Multi-Donor Trust Funds (MDTFs) and other inter-agency pooled funding mechanisms, these partnerships aim to support interventions that help bridge and address implementation gaps of potentially impactful commitments in the ASALs. These interventions have become a critical funding mechanism to channel and leverage resources effectively and coordinate to support ASALs' development efforts and represent an effective tool to demonstrate that the integrated approaches are *'fit-for-purpose'*. For example, the support to the Kenya Accountable Devolution Programme (KADP) is a World Bank-managed MDTF started in 2012 with funding from the Governments of Denmark and the United Kingdom, whose objective is to help Kenya overcome performance barriers in national and county institutions to improve service delivery. Now in its third phase, the first two phases supported the building blocks for a successful transition to devolved government in Kenya and associated institutions following the adoption of a new Constitution in 2010 and the subsequent *'big bang'* introduction of a completely revised system of sub-national government. Key informants emphasize that the long-term nature of MDTF funding is one of its clear strengths, providing partners with a time horizon that allows for development and focus on core work (as opposed to the pressures arising from the need to identify new funding opportunities). However, local governments feel that more could have been done to capture lessons learned from previous funding cycles and that: *"funding was provided because this is how it had been done in the past, without maybe sufficient discussion on potential alternatives (or ascertaining the lack, thereof) of interventions or stakeholders."*³

There have also been examples where lessons from pilot projects from the ASALs have been added to ongoing long-term projects successfully, even if key principles of ASALs production systems had not been incorporated into programme objectives. For example, a long-term programme on financing locally-led adaptation in Kenya, implemented by the International Institute on Environment and Development (IIED) with United Kingdom funding, successfully pilot-tested County Climate Change Fund (CCCCF) mechanism in the five counties in Kenya – including three in Kenya's ASAL counties of Isiolo, Wajir, Garissa – as a way of channelling climate finance to vulnerable communities through local governments and using climate finance to build their resilience and reduce vulnerabilities to a changing climate. The success of these pilots generated demand from other counties, and it has since been scaled out (with World Bank funding) to other counties in Kenya, and its expansion is one of the priorities in the National Climate Change Action Plan, 2018-2022 (Crick et al., 2019). This is a potentially helpful experience of an adaptive programming approach. It demonstrates that there might be opportunities to consider ASALs entry points in integrated programmes even at an advanced implementation stage, where suitable opportunities become more evident than at the onset of intervention. The approach of the CCCC mechanism to prioritise locally identified priorities for adaptation and local leadership in climate action also aligns with the pastoralist's operational processes and institutional arrangements of embedding variability in their production practices. The principles include addressing structural inequalities that drive climate vulnerability for marginalised

³ Key Informant Interview, Nairobi, May 15, 2023

groups, investing in local institutions and multi-sectoral collaboration, ensuring flexible programming and learning, and integrating scientific and indigenous knowledge for adaptive management.

4.4 Integrated FNS interventions in context: Realities and challenges

While the potential for integrated FNS approaches in the ASALs, is enormous, especially from a multi-sectoral approach to programming, the collaboration between the stakeholders, and working across multiple scales, there are challenges. Overall, the concept of integrated programming was not well understood by stakeholders consulted for this study, and the most common confusion encountered was that integrated programming was *'development partners'* working with all levels and parts of partner countries' governments. Several non-stakeholder experts raised concerns specifically around the following issues (see Annex 2):

1. **The balance between different components of the ASAL production system.** Many of the integrated programmes reviewed seem to overemphasize physical rehabilitation projects without recognising that the fundamental issue is land-use management, a socio-economic phenomenon, not a technical one. That approach may lead to exclusion within the pastoralist group. The limited active use of the pastoral knowledge base and institutions also causes this lack of balance.
2. The usual **project duration** of 36-72 months is undoubtedly too short to impact the ASALs and provide lasting solutions to complex ASAL development challenges. Interventions adopt a short-term process favouring the complex technical solutions, after which donors' and governments' commitments end. They lack a long-term horizon to address the more complex soft problems and learn and adapt as the project progresses.
3. A more integrated approach puts heavy pressure on **planning-, monitoring-, and evaluation** processes. The ToC is not adapted in numerous cases, and implementation takes priority. Development agencies lack the staff capacity and skills to *'construct'* the best-fitting ToC, including the different result chains within the overall ToC. Resources have also been inadequately allocated to learning and M&E. As a result, the pastoral programme consists of several separate sectoral projects without overall integration.
4. The temptation of **emerging opportunities:** For many integrated FNS interventions in the ASALs, the most common forms of engagement with food production systems are to continue expanding opportunities for smallholder irrigation schemes and infrastructure development, including investment in hydro, geothermal, and wind energy to facilitate *'an exit'* from pastoralism. While these are promoted within a *'new resilience'* language, the development sector in ASALs reiterates old assumptions and myths reinforcing old views of the problematic ASALs and remains short-sighted or ignoring the long-term expansion/contraction of ASAL dryland potential altogether. This unchecked focus on *'emerging opportunities'* as a guiding principle might pull the attention away from the most critical food production activities – pastoralism and agro-pastoralism.
5. **Persistent misconceptions:** Stakeholders interviewed for this study were keen to point out the continuation of misconceptions (sometimes implicitly) from the nature of the FNS programmes implemented, leaving little room for the new programmes to enhance pastoral food production effectively. These unique logics, reflected in the preferred way of working, envisaged approaches, and desired solutions of partners, have been highlighted by many stakeholders as one of the most recognised features of programmes implemented through/with governments and government institutions where capacities within these systems have been eroded by policy disconnects in the past and continue to be overlooked as a vehicle for economic development. For example, a recent

evaluation of the EU-funded EDE Strategy (2012-2022) highlighted that close to 90% of its EDE strategy funds in 2014 was spent on standard sustainable livelihood projects and disaster risk-management activities, traditional policies linked to disaster reduction. (Carabine et al., 2015) This allows development/humanitarian interventions to continue their historical ASALs development intervention legacies on the ground, and fails to reverse historical biases in public policy and investment in these areas.

6. Generally, donor policies favour the private sector as a crucial driver of growth in the ASALs, with support aimed at providing financial services, power, and water supply. For many donor project design documents, expanding the scale and improving the relevance and quality of services in the ASALs, provide an enabling environment for private sector adaptation, with a particular focus on SMEs, which is seen as the primary policy solution to structural deficits, including widespread and rising informality, lack of upward mobility of enterprises, weak inter-firm linkages, and lack of innovation capabilities. While the specific interventions associated with supporting the private sector as a critical part of the economy in the ASALs relate well to theoretical considerations such as the spatial economy and market failures, in practice, there might be less benign effects (Crick et al., 2016). For instance, private sector engagement in providing livestock insurance under the Index Based Livestock Insurance (IBLI) project did not last beyond the pilot, which all significant donors heavily subsidized in Kenya to support private sector participation.
7. **Disturbing context dynamics:** Recent studies have documented a growing case of broad and sometimes brutal campaigns to shut down the space for community resistance and civil society activity against donor-supported projects at the intersection of conservation and development, large-scale infrastructure, and energy. In some cases, implementing agencies of these investments have been accused of going so far as to criminalize independent human rights work of donor-supported projects in the ASALs. A recent Oakland Institute report documented how in many cases, donor-supported initiatives have allegedly dispossessed pastoralist communities of their ancestral lands through corruption, cooptation, and sometimes through intimidation and violence to create wildlife conservancies for conservation dollars (Oakland Institute, 2021). The report further documents that donors failed to respond meaningfully to abuses that make a mockery out of their commitments to participation, accountability, and socio-environmental safeguards. Another concerning development in the Northern ASALs related to the recent High Court of Kenya ruling, which nullified title deeds for the land on which a multi-donor-funded energy project sits - the Sh70 billion Lake Turkana Wind Power project, saying it was acquired irregularly (Business & Human Rights Resource Centre, 2021).

5. Conclusion, recommendations, and recommended interventions

Reviewing the donor interventions in FNS and analysing the factors contributing to improving food systems development in the Northern ASALs of Kenya generated some helpful insights to help inform the new integrated FNS programming component and better incorporate the food systems approach for sustainable and resilient programming. Based on this review, we have formulated the following conclusions in this first section, followed by the recommendations in the next section.

5.1 Conclusions

- a) **Lack of understanding of the key ASALs food production system: pastoral livestock management.** Despite growing recognition of adapting the pastoral production system to ASAL conditions of highly variable climate, i.e. rainfall, most development agencies demonstrate critical weaknesses. This is shown by their analysis when they refer to rangeland degradation, and they propose activities for better rangeland management or grazing plans. They do not understand the new evidence on rangeland ecology in ASAL conditions, which are highly variable, uncertain, and unpredictable, and the way pastoralists manage their herds, make use of wet- and dry season grazing areas, and use mobility as their key resilience strategy managing these risks and achieve food security.
- I. Drylands are often viewed through a very optimistic lens, claiming higher potential than they have. But drylands are characterized by water and land scarcity; dry season grazing (wetter places) is relatively small and scattered.
 - II. Due to this scarcity of these critical resources, the competition for their use is continuous; droughts often lead to violent clashes. Land encroachment in pastoral areas has mostly focused on the better (i.e. wetter) places, fuelling these conflicts and undermining the pastoral production system, lowering livestock production.
 - III. The conflict sensitivity of development actors has been too limited. Irrigation projects disregarded pastoral access to water and grazing area. Rangeland management or grazing plans restrict the mobility strategy of pastoralists, causing conflicts.
 - IV. Socio-economic differentiation has occurred among pastoralists due to resource competition, demographic growth, and poorly conceived development policies. Though this differentiation is not always sufficiently articulated by development programmes, the donor community is aware of the marginalisation process in the ASAL and the need to support the most marginal groups and build their resilience.
 - V. Risk perception: for pastoralists, droughts are a given factor, but the more extreme and frequent weather events impact pastoralists, making it more challenging to manage their crucial risk coping strategies: mobility, herd size, and composition to avoid collapse. Donor agencies have another risk perception as they only see the vulnerability dimension of pastoral and not the inherent strength. The flood damage dimension has not yet received adequate attention in ASAL programmes in the form of the flood-proof water provision infrastructure in grazing areas.
- b) **Supporting the livestock economy.** Given the central role of livestock in the ASALs, many donor agencies have supported the following key features in the livestock market system: market infrastructure, animal health, water provision, fodder production and destocking, and restocking (during emergencies). These market-oriented interventions, organised within the setting of the

livestock Value Chain, support the pastoralists to better cope with and recover from droughts and have met a positive response from pastoralists.

- c) **Supporting sustainable alternative production systems.** All donor agencies recognise the need to develop alternative livelihood options for marginalised groups and dropouts, as they will likely not return to the basic pastoralist production system. Successful interventions consider the limited claim on water and land resources as a success factor: poultry, kitchen garden small trade and market stalls. Women are the main target group for such alternatives. The most frequently cited alternatives for youth are wage labour and vocational training. The small centres provide a host of other jobs not directly linked with the pastoral production system, and in that sense, they play a crucial role in this diversification strategy of pastoral society.
- d) **Support to dryland farming.** The need to support small farmers is well recognised by government and development actors. There is a consensus on the focus of this support: promoting Climate Smart Farming with key components like Good Agricultural Practices, Water Harvesting, small-scale irrigation, and fertility management. This dryland farming has limitations in terms of scale and scope for development. The risk of crop failures is considerable due to rainfall variability, irrigation water scarcity, and resource conflicts with pastoralists.
- e) **Collaboration with and support to the private sector.** The private sector is prominent in many major rural centres, mostly linked with the livestock marketing chain, providing essential services (trading, animal health, transport). Where basic market infrastructure was established, they have developed these services. Though private sector development in the ASALs has featured prominently in donor strategies and intervention design, it is only gradually being integrated. The quality and relevance of private sector services leave much room for improvement. As a result, donors' interventions are stepping in to provide more significant financial support to private sector programmes and the growth of public-private partnerships, such as the one advanced in the USAID-KUZA project. The main aim of these programmes is the sustainable development of service provision in the ASALs.
- f) **Strengthening pastoral institutions.** In programme design and implementation, the real attention to pastoralists' voice has often been insufficient. This refers to aspects like listening to and using pastoralists' knowledge and experiences and their informal institutions (dealing with rangeland management, conflict resolution, waterpoint management, etc.). Some agencies initiated new pastoral representation, like ward planning committees, but it remains how effective and respected these new institutions have been. At higher levels, the FCDC has been a relatively new but interesting coordinating and convening partner for development actors, representing the ten most arid counties in the Northern ASAL counties. The PPG is an older group in the national parliament, but its role has been limited in programme implementation. The study has not come across consistent and long-term interventions to raise the pastoralists' voice and build the capacities of pastoral and ASAL institutions at different levels. Efforts have been made, but again clear results are not yet available.
- g) **Integrating nutrition, gender, and equity in FNS programming.** The implicit assumption in most donor programmes in the ASALs is that target beneficiaries depend on livestock; hence, the interventions are designed to target livestock and related interventions (destocking, market assistance, and livestock inputs, e.g., fodder provision). However, this is not always the case because of cultural and social barriers relating to livestock control in the ASALs. Most programme activities will disproportionately benefit men even when targeted at pastoralist households. There are some good practice examples where benefits from a programme are defined not only by the

choice of beneficiaries but also by the assumptions of the context of programme and by the deliberate choice of activities targeting a specific section of the target beneficiaries. For instance, the USAID-KLMS Activity implemented by ACDIVOCA built vibrant markets for other industries (alongside livestock markets), targeting industries with more participation by women and youth, enabling women-headed households and youth to generate more income within the sector and diversifying their income sources and creating sustained non-livestock income pathways. Similarly, the USAID Nawiri project targeting poorer food-insecure adolescent girls with a safe-space model designed to support healthy, productive transitions to adulthood learned that identifying opportunities and linking individual and umbrella business groups with private sector actors for business expansion and diversification can play a key in supporting women to learn in the process and begin to build relationships and trust with market actors. However, an important lesson is that while this targeting offers women and youth a more comprehensive range of choices and opportunities to increase their income and improve their lives, the alternative activities supported are marginal with no significant effect beyond the direct beneficiaries and challenge the assumption that livelihood diversification per se can lead to a pathway out of poverty or enable households to better cope with the primary shocks and stresses that characterise pastoral systems.

- h) **The enabling environment.** There is a growing recognition by all donor agencies for the need to mainstream pastoralism and agro-pastoralism issues into the county and national policies and frameworks. The overall message of strengthening the enabling environment is that pastoralists and agro-pastoralist systems must be supported not only to maintain the extraordinary resilience inherent in their traditional way of life but also to adapt and – for some – to create viable alternative livelihoods in and beyond the ASALs. The local governments and local level institutions have mainly been targeted by donor interventions based on their power to shape the enabling environment to incentivise scaled-up investment in the ASALs food production systems appropriately and build sustainably on indigenous livelihood systems and sectors that have their production rooted in drylands is a better way forward. Many donors’ interventions target enabling environments for individuals and enterprises in drylands to adapt to climate change (FLOCA), provide inclusive financial services (USAID-KUZA), and adoption of the appropriate climate change adaptation (LISTEN), market and livestock policies (USAID-KLMS Activity). However, providing enabling environments in the ASALs has faced several interrelated institutional, financial, legal, knowledge, and policy barriers.
- i) **The integrated approach in ASAL.** Most development agencies express the need for an integrated approach and strive to focus on cross-sectoral programmes, involving multiple, integrated, complementary, and often sequential projects to achieve improved ASAL resilience and food security. At the same time, there are also instances of fragmented interventions and stand-alone projects. The overriding concern has been the lack of using knowledge and evidence from ASAL in programme design. Underlying context and problem analysis are generally weak, making simplified ToC and M&E mechanisms insufficient. The actual implementation does not match the donor commitment on paper. Learning and adaptive management are often cited as necessary for lasting results. But the lack of reported results of pastoral programmes makes it difficult to assess the performance of chosen approaches. A linked approach element that is potentially relevant is the landscape approach used by several donor agencies, especially those with a greater interest in natural resources. But there are two limitations of its relevance for pastoralists. Firstly, the landscape may well coincide with the pastoral space of dry and wet season grazing areas, but it

may also easily overlook the variability of these boundaries of such pastoral areas, also in the case of cross border areas. Secondly, landscapes have been combined with strict rangeland management plans, which undermines the pastoral production system. Where landscapes are used to describe river basins, they may form a useful point of departure for planning purposes of multiple interest groups.

5.2 Recommendations

This section discusses policy recommendations and related interventions based on the evidence gathered in this study. The recommendations cover a variety of policy instruments (for example, technical assistance, knowledge sharing, economic incentives, and regulatory agencies) and intervention scales (sector, stakeholders, and scale).

Firstly, the study formulates broad recommendations which target the future FNS programme underlining and confirming the interest, commitment, and ambition of EKN to intervene effectively in ASAL. Secondly, the study identifies promising interventions in different sectors, on different scales, and for different target group categories. The study wishes to observe that the preliminary recommendations constitute the foundation for effectively and successfully implementing the various promising interventions.

A. Broad recommendations.

1. **Development of a framework** for more systematic engagement with ASAL development, formulating its commitment in terms of the longer time frame of engagement. For a relevant FNS framework, see One Nawiri Framework (Box 2 in the Annex).
2. Specifying its **ambition and role**: it is recommended to limit itself in the early stages (e.g. three years) to an implementing role, gradually building up its experiences and reputation *vis-à-vis* other agencies in the ASAL developing scene. After that, the EKN may wish to take a more proactive role to develop a joint and common approach towards ASAL development, systematize lessons learned and coordinate and facilitate ASAL initiatives and programmes.
3. **Building a knowledge base** on ASALs is necessary for identifying and formulating an integrated FNS programme. There are different ways to realize such a knowledge base:
 - a) Work closely with knowledge institutes with a long history of pastoral production systems, rangeland management, and climate change, nationally and globally. Examples are IIED, IDS, and Dutch universities such as *Wageningen University & Research*, *ITC Faculty Geo-Information Science and Earth Observation*, and *IHE Delft Institute for Water Education*.
 - b) Work closely with local research and policy institutions, including establishing channels to share and disseminate knowledge and evidence with internal and external stakeholders in the ASALs—institutions such as ILRI and Tufts University (USA).
 - c) Establish opportunities to increase applied research funding on critical areas in ASALs that could be provided through Dutch research funding.
 - d) Access the technical expertise: necessary to identify and design the ASAL-specific interventions in food, water, and energy with a clear agro-pastoral focus and sensitivity to tailor sectoral solutions to local conditions.
 - e) Explore training for EKN staff, possibly in collaboration with knowledge and research institutes.

- f) Explore coaching opportunities: possibly from the same institutes, guiding specific points of the programme cycle.

B. For proper programme implementation and management, several components need more attention:

- a) Any new programme must start with a thorough analysis (or baseline study) of the recent and current dynamics in the selected intervention area and sector, other programmes, and their successes and failures as critical input for identification and formulation.
- b) Create a flexible & learning approach to FNS programmes in the ASALs better respond to variability, unpredictability, and uncertainty. This entails starting on a modest (or pilot) scale, introducing intensive monitoring and evaluation, and regularly updating or adapting ToC, targets set, activities selected, indicators and assumptions, and results to learn from.
- c) Inclusion of the voice of stakeholders: in all the above phases of programming and implementation, with particular attention to marginalised categories of beneficiary stakeholders.
- d) Conflict sensitivity: because of the dominant resource scarcity (water and land) in the ASALs, a thorough check on unintended negative effects on the interest of other categories of persons (inside/outside project boundaries) is critical.
- e) Collaboration with the private sector: already active in the different sectors but select them carefully by assessing their ASAL services in terms of quality, affordability, sustainability, impact, equity, and conflict sensitivity.

C. For more synergy, strategic partnerships, and sustainability

1. **Integrating nutrition, gender, and equity in FNS programming.** Prioritise policies and programmes that increase the participation of disadvantaged groups such as women, youth, and minorities in livestock value chains. Such steps will be increasingly vital for their food and nutrition security improvement, given that in the already marginalised ASAL context, women, youth, and ethnic minorities are further excluded, leading to increased vulnerability, inequality, and dependency.
2. **Scaling up promising FNS innovation in the ASALs.** Where Dutch policy aligns with other donor countries that have already developed innovative integrated programmes in the ASALs region or similar contexts, EKN-NAI should prioritize supporting the scale-up of these innovative solutions in the ASALs region for leverage and impact. This is only appropriate for groups of interventions that have documented good practices and impact in the ASALs generated to in-depth research and rigorous analysis of results beyond the pilot innovation phase.
3. **Investing in due diligence and social and environmental safeguards.** Review relevant social and environmental safeguards related to communal tenure, minorities, and indigenous people, and how these influence FNS programmes in the ASALs. Programme managers should ensure that implementing partners evaluate investments' potential social- and environmental impacts and actively involve all stakeholders when planning, implementing, monitoring, and evaluating aid programmes that will impact local communities or groups within communities.

5.3 Recommended FNS interventions in Kenya’s ASALs

Based on the analysis of gaps and lessons from past interventions and available evidence, this section presents twelve recommended interventions for focus and prioritisation by EKN-NAI in its new FNS programming component in line with the new MACS. The recommendations cover a variety of policy instruments (for example, technical assistance, knowledge sharing, economic incentives, and regulatory agencies) and intervention logics (reinforce, reform, and transform). For each proposed intervention, there is a need to make an inventory of the existing projects, including own initiatives of the target group, to determine the remaining niches where to implement such FNS interventions properly.

As integrated FNS interventions are highly context-specific, no single set of best practices can be put forward as a model for proposed interventions in the ASALs. But integrated FNS programmes functioning well in the ASALs have specific shared characteristics. They develop a more holistic approach that considers the ASALs food system as a whole, including a focus on the non-linear processes in the ASAL food system, various vulnerabilities of the food system (including the most limiting factors for achieving food security), and the socio-economic and environmental outcomes of food production and consumption. They are developed through a dynamic problem and context analysis and adopt a flexible learning approach with sufficient attention to M&E and resources for programme adaptations to appropriately respond to highly variable ASAL conditions. And they focus on helping pastoralists’ voices in a sustainable, inclusive, and fair way, acknowledge local conflict dynamics, and include strategies to address programme conflict sensitivity and prioritize providing support to the private sector in service delivery. The evidence base reviewed for this study is general to the ASALs of Kenya. The study has been unable to suggest intervention-specific locations due to insufficient information to make such an assessment. Location-specific programme design must be completed with more high-quality context analysis and empirical evidence to corroborate the proposed recommendations and interventions for this study.

Table 5.1 Integrated FNS intervention

	Proposed Intervention	Target audience	FSA focus/gaps addressed
1	Livestock market systems Facilitate establishment and operationalization of livestock market systems, including strengthening linkages of feeder markets to regional and main livestock markets. All market interventions need an actor mapping at the onset, assessing their performance, and jointly identifying current obstacles in the market system. This intervention should also consider strengthening animal health and advisory services and access to input and output markets; improving Total Economic Value .	Pastoralists, youth	Market systems development as the basis for income security and access to food

2	Camel milk value chain: Strengthen the productivity and competitiveness of the camel milk value chain to increase incomes and enhance the nutritional status of targeted households in Isiolo, Garissa, and Marsabit counties.	Pastoralists, women	Increasing access to food and ensuring better nutrition
3	Fodder production and storage: Promote innovations in and utilisation of fodder production and storage technologies as commercial activity and/or to cushion the impact of droughts on livestock cattle	Pastoralists, women, youth	Food availability, income security, and drought resilience.
4	Livestock drinking water. Strengthen and rehabilitate rangeland water provisions to ensure herd mobility, peaceful co-existence between pastoral groups, access to pastures, and strengthen drought resilience. Extra investments may be needed to make these water provisions flood-proof and easy to operate and maintain.	Pastoralists	Improved management of natural resources and conflict reduction
5	Cross-border linkages: Address constraints to livestock market linkages between the ASALs and the rest of the economy, including rehabilitation of regional cross-border markets and rehabilitation of existing market infrastructure in the cross-border counties of Marsabit, Turkana, and Wajir/Mandera.	Local- and livestock authorities	Improved income security and a more conducive enabling environment.
6	Livestock governance: Support the development of enabling environments and better governance frameworks for livestock cooperatives in the ASALs and enhance their role to support sustainable employment through business models resilient to economic and environmental shocks.	Livestock cooperatives, local- and livestock authorities	A more conducive enabling environment for livestock Value Chains
7	Small-scale irrigation for dryland farmers: Combines the most efficient irrigation method choice with proper land and crop management. Any intervention must be preceded by a baseline study at the river basin level to determine water availability and the water supply methodology.	Dryland farmers, youth	Food availability and drought resilience
8	Climate-smart agriculture: Support proper intensification of crop production systems to make them more resilient to droughts and improve crop yields. Specific attention is needed for trees as an integral component of the farming system (Agro-Forestry) and for Water Harvesting; Good Agricultural Practices constitute the third component.	Dryland farmers, youth	Food availability and drought resilience

9	Support smallholder poultry and kitchen garden projects in poor households for own consumption and sales at the local market.	Women	Improved nutrition and income security.
10	Private Sector support: improve the quality of their services and turn them more ASAL friendly; relevant and affordable: focus on Animal Health, farm inputs, finance, water provision, irrigation, energy.	SME's, supply companies, finance	Improved market system
11	Capacity building of pastoral institutions: Support the capacity of ASALs coordination bodies (such as PPG and FCDC) for improved coordination of integrated ASALs programming, convening multi-stakeholder initiatives, entry points into cross-county coordination, planning, and getting the pastoralists' voice heard.	Pastoral institutions: formal and informal	A more conducive enabling environment.
12	Knowledge sharing and learning platform: step by step building up of an informal platform, where other ASAL stakeholders meet to exchange successes, failures, discuss challenges, develop good practices.	ASAL actors and pastoral institutions	Common framework for effective ASAL programmes

The following table presents promising ongoing interventions by other agencies, which have great potential to build resilience in ASA. The embassy may be able to link with these initiatives and contribute to further upscaling.

Table 5.2 Scaling-up promising interventions in the ASALs.

	Proposed Intervention	State of implementation/ implementing agencies	FSA focus/gaps addressed
1	Support scaling up the implementation of CCCF mechanisms in the ASALs by co-investing in the World Bank-led FLloCA project.	WB, IIED, County Governments, National Government	Climate-change adaptation strategies among livestock producers can increase both productivity and household welfare
2	Support scaling up smartphone-based technology for recording syndromic symptoms, surveillance and reporting livestock diseases, and training and equipping community disease reporters (CDRs).	ILRI	Timely and accurate transmission of livestock disease data for a more effective disease prevention and control approach.
3	Support the cross-border livestock disease surveillance and control intervention in the FCDC region	SDC, FCDC, County Governments	Controlling zoonotic diseases have strong and economically

	under the Swiss-supported Livestock Sector Strengthening Project, including training and equipping community disease groups in the ten FCDC counties.		viable benefits for livestock productivity and human health.
4	Support the implementation of Community Land Registration (under the Community Land Act 2016) to speed up the process of community land reforms initiated by the Constitution of Kenya 2010.	Various agencies, including FAO, Namati, FCDC, and the National Land Commission	Securing land rights is critical for realising sustainable food systems and food security.
5	Co-invest in the early warning and drought surveillance operations by the National Drought Management Authority (NDMA) to produce context-specific quarterly bulletin for the ten arid FCDC counties.	NDMA, EU	Well-targeted investments in early warning and surveillance positively impact pastoral livelihoods.
6	Support the Household Dietary Diversity Score (HDDS) indicators in Kenya Health Information System (KHIS), the National Drought Management Authority (NDMA) early warning system, programme reports, and population-based surveys (SMART surveys) to strengthen the collection and analysis of data on the dietary status and household food access	Ministry of Health, NDMA	Robust nutrition information systems help governments collect, analyse, and use nutrition data to make decisions that improve maternal and child nutrition.

Table 5.3 Controversial interventions in the ASALs.

	Intervention	Reasons/evidence of 'bad practices'
1	Livestock insurance interventions in the ASALs	<ul style="list-style-type: none"> • It's framing of risk in the ASALs – calculable, defined, predictable (single hazard) – is contrary to development and advances in research in ASALs uncertainty – where futures are unknown/unknowable (multiple, intersecting, cumulative uncertainties). • Previous interventions were unsuccessful and led to the withdrawal of private insurance companies
2	Rangeland management plans and Community-based conservation interventions in the Northern rangelands under the 'community conservancy' model.	<ul style="list-style-type: none"> • Interventions are thought to advance land fragmentation and restriction of mobility. • A recent report details human rights abuses and land grab allegations in the implementation of community conservancies

3	Large-scale energy, infrastructure, and irrigation projects in the ASALs.	<ul style="list-style-type: none"> • Energy projects like the Lake Turkana Wind-Power project have no plans to provide energy locally and only produce for the national grid. • Large-scale irrigation projects, most notably – the Galana Kulalu scheme in Tana River, have been marred by allegations of misuse of funds, corruption, and exclusion of smallholder farmers. • Most of these large-scale investments were associated with a lack of respect for the local community and indigenous rights, land grabs, and elite capture.
---	---	---

6. References

- Abdullahi, A., Mohammed, S., & Eid, A. (2013). Town camels and milk villages: The growth of camel milk marketing in the Somali Region of Ethiopia. In A. Catley, J. Lind, & I. Scoones (Eds.), *Pastoralism and Development in Africa: Dynamic Change at the Margins* (pp. 142–150). Routledge.
- Abuya, R., Atela, J., Muhwanga, J., Said, M., Moiko, S., Atieno, F., Ndiritu, S. W., & Bedelian, C. (2019). *Contextualising Pathways to Resilience in Kenya's ASALs under the Big Four Agenda*. Kenya Markets Trust.
- Agade, K. M., Anderson, D., Lugusa, K., & Owino, E. A. (2022). Water Governance, Institutions and Conflicts in the Maasai Rangelands. *The Journal of Environment & Development*, 31(4), 395–420.
- Aklilu, Y., & Catley, A. (2010). *Mind the gap: Commercialization, livelihoods and wealth disparity in pastoralist areas of Ethiopia*. Feinstein International Centre: Tufts University.
- AU. (2010). *Policy framework for pastoralism in Africa: Securing, protecting and improving the lives, livelihoods and rights of pastoralist communities*. African Union InterAfrican Bureau for Animal Resources (AU-IBAR).
- Ayele, S., Khan, S., & Sumberg, J. (2017). Introduction: New perspectives on Africa's youth employment challenge. *IDS Bulletin*, 48(3), 1–12.
- Barrow, E., Davies, J., Berhe, S., Matiru, V., Mohamed, N., Olenasha, W., & Rugadya, M. (2007). *Power, equity, gender, and decision making in pastoralist natural resource management*. IUCN Eastern Africa Regional Office. Policy Brief No. 3 (of 5). <https://www.celep.info/wp-content/uploads/2014/08/Power-equity-and-gender-in-NRM.pdf>
- Barrow, E., & Mogoka, H. (2007). *Kenya's drylands—wastelands or an undervalued national economic resource?*. IUCN–The World Conservation Union.
- Behnke, R. H., & Muthami, D. (2011). *The contribution of livestock to the Kenyan economy*. IGAD LPI Working Paper No. 03 - 11. https://cgspace.cgiar.org/bitstream/handle/10568/24972/IGAD_LPI_WP_03-11.pdf
- Behnke, R., & Scoones, I. (1993). Rethinking range ecology: Implications for rangeland management in Africa. In R. Behnke, I. Scoones, & C. Kerven (Eds.), *Range Ecology at Disequilibrium: New Models of Natural Variability and Pastoral Adaptation in African Savannas*. Overseas Development Institute.
- Bekele, E., & Worku, Z. (2008). Women entrepreneurship in micro, small and medium enterprises: The case of Ethiopia. *Journal of International Women's Studies*, 10(2), 3–19.
- Birch, I. (2021). *Natural resource management and nutrition*. Feinstein International Center at Tufts University, USAID Nawiri project.
- Brouwer, I. D., McDermott, J., & Ruben, R. (2020). Food systems everywhere: Improving relevance in practice. *Global Food Security*, 26.
- Buchanan-Smith, M., Davies, S., & Petty, C. (2020). Food Security: Let Them Eat Information. *IDS Bulletin*, 51(1A), Article 1A.
- Business & Human Rights Resource Centre. (2021). *Kenya: Court rules that Lake Turkana Wind Power acquired community land unprocedurally*. <https://www.business-humanrights.org/en/latest-news/kenya-court-rules-that-lake-turkana-wind-power-acquired-community-land-unprocedurally/>
- Campbell, T. (2022). Climate change policy processes and pastoralism in the Horn of Africa: Old wine in new bottles? *Pastres*. <https://pastres.org/2022/03/11/climate-change-policy-processes-and-pastoralism-in-the-horn-of-africa-old-wine-in-new-bottles/>
- Carabine, E., Jouanjean, M.-A., & Tsui, J. (2015). *Kenya Ending Drought Emergencies Policy Review: Scenarios for Building Resilience in the ASALs* (Technical Report Series No. 2: Strengthening the Evidence Base for Resilience in the Horn of Africa.). International Livestock Research Institute (ILRI).

- Catley, A., Lind, J., & Scoones, I. (Eds.). (2012). *Pastoralism and Development in Africa: Dynamic Change at the Margins*. Routledge.
- Chen, L., Bolling, R., & Hollander, S. (2016). *A look at integrated approaches to food and nutrition security: Working towards better design and implementation*. The Broker & the Food & Business Knowledge Platform.
- Choge, S. (2005). *The challenges of eradicating Prosopis in Kenya*. Kenya Forestry Research Institute. https://assets.publishing.service.gov.uk/media/57a08c8040f0b652dd001388/R7295_eradication.pdf
- Crick, F., Diop, M., Sow, M., Diouf, B., Diouf, B., Muhwanga, J., & Dajani, M. (2016). *Enabling private sector adaptation in developing countries and their semi-arid regions—case studies of Senegal and Kenya*. Grantham Research Institute on Climate Change and the Environment Working Paper No. 258.
- Crick, F., Hesse, C., Orindi, V., Bonaya, M., & Kiiru, J. (2019). *Delivering climate finance at local level to support adaptation: Experiences of county climate change funds in Kenya*. Ada Consortium: Working Paper July 2019.
- Davies, J. (2008). Turning the tide: Enabling sustainable development for Africa's mobile pastoralists. *Natural Resources Forum*, 32(3), 175–184.
- De Haan, C., Gilles, J. L., & Vedeld, T. (1994). An overview of the World Bank's involvement in pastoral development. *Donor Consultation Meeting on Pastoral Natural Resource Management and Pastoral Policies for Africa Organised by UNSO (United Nations Sudano-Sahelian Office)*.
- Dorward, A., Anderson, S., Bernal, Y. N., Vera, E. S., Rushton, J., Pattison, J., & Paz, R. (2009). Hanging in, stepping up and stepping out: Livelihood aspirations and strategies of the poor. *Development in Practice*, 19(2), 240–247.
- Engida, E. (Ed.). (2015). *The Role of Livestock in the Tanzanian Economy: Policy Analysis Using a Dynamic Computable General Equilibrium Model for Tanzania*. Ethiopian Development Research Institute. Addis Ababa Ethiopia. https://pim.cgiar.org/files/2013/11/11_Engida_Dynamic-CGE-Model-for-Livestock-in-Kenya.pdf
- Ericksen, P. J. (2008). Conceptualizing food systems for global environmental change research. *Global Environmental Change*, 18(1), 234–245.
- Flintan, F. (2011). *Broken Lands: Broken Lives: Causes, Processes and Impacts of Land Fragmentation in the Rangelands of Ethiopia, Kenya and Uganda*. Regional and Advocacy Learning Programme (REGLAP).
- Flintan, F. (2013). *The changing nature of gender roles in the drylands of the Horn and East Africa: Implications for DRR programming*. REGLAP.
- Galaty, J. (2011). The modern motility of pastoral land rights: Tenure transitions and land-grabbing in East Africa. *Paper Presented at the International Conference on Global Land Grabbing 6-8 April 2011*. International Conference on The Future of Pastoralism in Africa, Brighton.
- Global Panel on Agriculture and Food Systems for Nutrition. (2016). *Food systems and diets: Facing the challenges of the 21st century*. London, UK. Global Panel on Agriculture and Food Systems for Nutrition.
- GoK. (1965). *African socialism and its application to planning in Kenya: Sessional Paper No 10*. Government Printer.
- GoK. (2008). *Agriculture, Livestock, Fisheries and Rural Development Sector Medium-Term Plan 2008-2012*. Republic of Kenya. Ministry of Agriculture.
- GoK. (2011). *Vision 2030 development strategy for Northern Kenya and other arid lands*. Government of Kenya Printer Nairobi. <https://www.ndma.go.ke/index.php/resource-center/policy-documents/send/44-policy-documents/4300-vision-2030-development-strategy-for-asals>

- GoK. (2012). *Sessional Paper No. 08 of 2012 on National Policy for the Sustainable Development of Northern Kenya and other Arid Lands*. Ministry of State for Development of Northern Kenya and Other Arid Lands. <https://www.ndma.go.ke/index.php/resource-center/policy-documents/category/44-policy-documents>
- GoK. (2016). *State Department for Livestock: Strategic Plan 2018—2022*. Ministry of Agriculture Livestock, Fisheries and Cooperatives.
- GoK. (2017). *Institutional Architecture Assessment (IAA) For Food Security Policy Reform in Kenya*. Ministry of Agriculture, Livestock & Fisheries.
- GoK. (2021). *Range Management and Pastoralism Strategy 2021-2031*. Ministry of Agriculture, Livestock, Fisheries and Cooperatives.
- Goldman, M. J., Davis, A., & Little, J. (2016). Controlling land they call their own: Access and women's empowerment in Northern Tanzania. *The Journal of Peasant Studies*, 43(4), 777–797.
- Hendrickson, D., Mearns, R., & Armon, J. (1996). Livestock raiding among the pastoral Turkana of Kenya: Redistribution, predation and the links to famine. *IDS Bulletin*, 27(3), 17–30.
- Hidoso, D., & Guyo, M. (2017). Climate Change Effects on Livestock Feed Resources: A Review. *Journal of Fisheries & Livestock Production*, 05(04).
- High Level Panel of Experts on Food Security and Nutrition. (2017). *Nutrition and food systems. A report by the High Level of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome. www.fao.org/3/a-i7846e.pdf.
- Hunt, S., Eshete, G., Tadesse, M., & Eshetu, Z. (2019). *Review of agricultural production systems in eastern Africa in relation to food and nutrition security and climate change*. International Livestock Research Institute. <https://cgspace.cgiar.org/handle/10568/106995>
- ILRI. (2015). *Corporate Report 2014–2015*. International Livestock Research Institute. <https://hdl.handle.net/10568/68631>
- Institute of Economic Affairs. (2001). Intensifying Livestock Production in Kenya's ASALs. *The POINT: Bulletin of the Institute of Economic Affairs*, No. 50.
- IPC. (2022). *Kenya: IPC Acute Food Insecurity and Acute Malnutrition Analysis (July—December 2022)*. The ASAL Humanitarian Network. <https://reliefweb.int/report/kenya/kenya-ipc-acute-food-insecurity-and-acute-malnutrition-analysis-july-december-2022-published-september-28-2022>
- Jabane, A. M. (2016). Rural Development and Marginalisation: The Drylands of Northern Kenya. *Bildhaan: An International Journal of Somali Studies*, 16(1), 15.
- Karmebäck, V. N., Wairore, J. N., Jirström, M., & Nyberg, G. (2015). Assessing gender roles in a changing landscape: Diversified agro-pastoralism in drylands of West Pokot, Kenya. *Pastoralism*, 5(1), 21.
- Ketiem, P., Diarra, A., Soura, A., & Konou, R. (2015). *Strategies for adapting to water stress in the arid and semi-arid regions of Africa*. International Development Research Centre. <https://idl-bnc-idrc.dspacedirect.org/handle/10625/54170>
- KIPPRA. (2020). *Kenya Economic Report 2020: Creating an Enabling Environment for Inclusive Growth in Kenya*. Kenya Institute for Public Policy Research and Analysis (KIPPRA).
- Kipuri, N., & Ridgewell, A. (2008). *A double bind: The exclusion of pastoralist women in the East and Horn of Africa*. Minority Rights Group International.
- Kolavalli, S., Mensah-Bonsu, A., & Zaman, S. (2015). *Agricultural value chain development in practice: Private sector-led smallholder development*. Discussion Paper 01460, International Food Policy Research Institute (IFPRI). <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/129473/filename/129684.pdf>
- Krätli, S. (2015). *Valuing variability: New perspectives on climate resilient drylands development*. IIED. <https://www.iied.org/10128iied>
- Krätli, S., Huelsebusch, C., Brooks, S., & Kaufmann, B. (2013). Pastoralism: A critical asset for food security under global climate change. *Animal Frontiers*, 3(1), 42–50.

- Krätli, S., & Swift, J. (2014). *Counting Pastoralists in Kenya*. DLCI/REGLAP. <https://dlci-hoa.org/assets/upload/studies-and-reviews/counting-pastoralists-in-kenya-FINAL-30-April-2014.pdf>
- Krätli, S., & Swift, J. J. (2013). *IFAD/FAO Engagement with Pastoral Development (2003-2013)*. IFAD & FAO. https://www.ifad.org/documents/38714182/39720979/pastoral_esr_e.pdf/64119418-e8d0-46bb-8d1d-f646a8b3c216
- Little, P. D., McPeak, J., Barrett, C. B., & Kristjanson, P. (2008). Challenging Orthodoxies: Understanding Poverty in Pastoral Areas of East Africa. *Development and Change*, 39(4), 587–611. <https://doi.org/10.1111/j.1467-7660.2008.00497.x>
- Lydall, J. (2004). The power of women in an ostensibly male-dominated agro-pastoral society. In T. Widlok & W. Tadesse (Eds.), *Property and Equality: Volume II: Encapsulation, Commercialization, Discrimination* (Vol. 2, pp. 152–172). Berghahn.
- Mahmoud, H. A. (2013). Pastoralists' innovative responses to new camel export market opportunities on the Kenya/Ethiopia borderlands. In A. Catley, J. Lind, & I. Scoones (Eds.), *Pastoralism and Development in Africa: Dynamic Change at the Margins* (pp. 98–107). Routledge.
- Mamo, G. (2007). "Community?" Forest Management in Borana. In A. Ridgwell, G. Mamo, & F. Flintan (Eds.), *Gender & Pastoralism Vol 1: Rangeland & Resource Management in Ethiopia: Vol. I* (pp. 15–32). SOS Sahel Ethiopia.
- Mehta, L. (2003). Contexts and constructions of water scarcity. *Economic and Political Weekly*, 38(48), 5066–5072.
- M'Mbogori, F. N., Kinyua, M. G., Ibrae, A. G., & Lane, P. J. (2022). Changes to water management and declining pastoral resilience in Marsabit County, Northern Kenya: The example of Gabra wells. *Wiley Interdisciplinary Reviews: Water*, 9(6), e1609.
- Mogaka, H., Gichere, S., Davies, R., & Hirji, R. (2006). *Climate variability and water resources degradation in Kenya: Improving water resources development and management*. World Bank Publications.
- Mortimore, M. (2013). *The place of crop agriculture for resilience building in the drylands of the Horn of Africa: An opportunity or a threat?* REGLAP & Oxfam GROW.
- Mutua, E., Bukachi, S., Bett, B., Estambale, B., & Nyamongo, I. (2017). Youth Participation in Smallholder Livestock Production and Marketing. *IDS Bulletin*, 48(3), Article 3.
- Njoka, J. T. (2016). *Kenya: Country situation assessment* [PRISE Working Paper]. University of Nairobi, Center for Sustainable Dryland Ecosystems and Societies (CSDES). <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/58566/IDL-58566.pdf>
- Oakland Institute. (2021). *Stealth Game: "Community" Conservancies Devastate Land & Lives in Northern Kenya*. The Oakland Institute. <https://www.oaklandinstitute.org/stealth-game-community-conservancies-devastate-northern-kenya>
- Oba, G. (2001). The Importance of Pastoralists' Indigenous Coping Strategies for Planning Drought Management in the Arid Zone of Kenya. *Nomadic Peoples*, 89–119.
- Oba, G., Stenseth, N. Chr., & Lusigi, W. J. (2000). New Perspectives on Sustainable Grazing Management in Arid Zones of Sub-Saharan Africa. *BioScience*, 50(1), 35–51. [https://doi.org/10.1641/0006-3568\(2000\)050\[0035:NPOSGM\]2.3.CO;2](https://doi.org/10.1641/0006-3568(2000)050[0035:NPOSGM]2.3.CO;2)
- Öborn, I., Vanlauwe, B., Atta-Krah, K., Thomas, R., Philips, M., & Schut, M. (2017). Integrated systems research for sustainable intensification of smallholder agriculture. In I. Öborn, B. Vanlauwe, M. Philips, R. Thomas, W. Brooijmans, & K. Atta-Krah (Eds.), *Sustainable Intensification in Smallholder Agriculture: An Integrated Systems Research Approach* (pp. 1–16). Routledge. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Integrated+systems+research+for+sustainable+intensification+of+smallholder+agriculture&btnG=
- Odhiambo, M. O. (2014). *The Unrelenting Persistence of Certain Narratives: An Analysis of Changing Policy Narratives about the ASALs in Kenya*. International Institute for Development and Environment (IIED). <https://www.iied.org/10081iied>

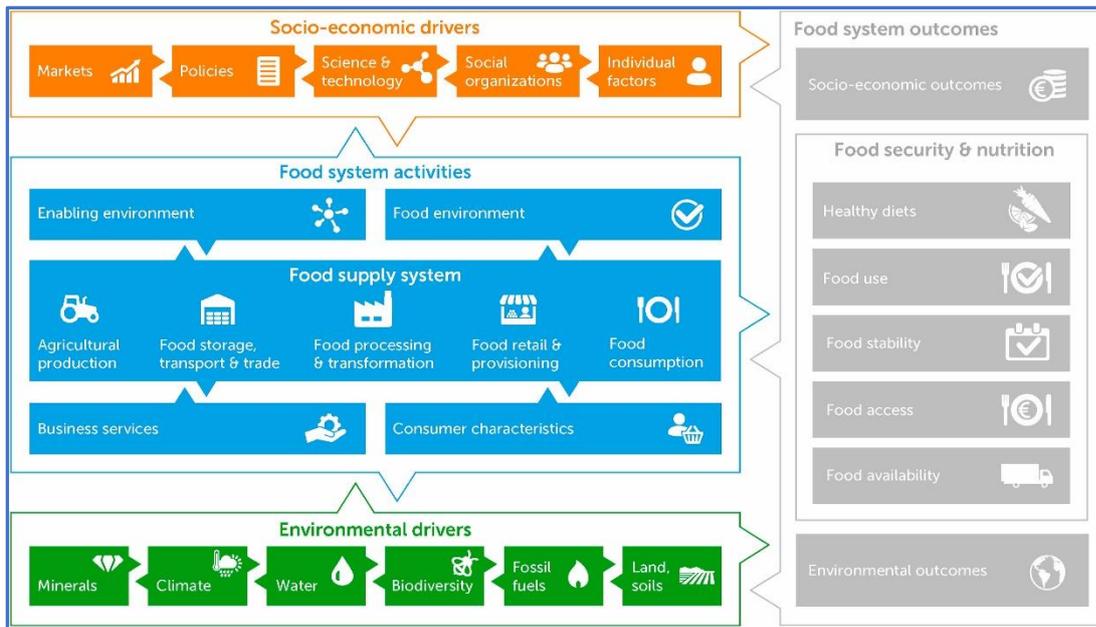
- Otolo, J. R. A., & Wakhungu, J. W. (2013). Factors influencing livelihood zonation in Kenya. *International Journal of Education and Research*, 1(12), 1–10.
- Oxfam International. (2006). *Delivering the agenda: Addressing chronic under-development in Kenya's arid lands* [Oxfam Briefing Paper]. Oxfam International Briefing Paper. <https://policy-practice.oxfam.org/resources/delivering-the-agenda-addressing-chronic-underdevelopment-in-kenyas-arid-lands-114117/>
- Reid, R. S., Fernández-Giménez, M. E., & Galvin, K. A. (2014). Dynamics and resilience of rangelands and pastoral peoples around the globe. *Annual Review of Environment and Resources*, 39, 217–242.
- Scoones, I. (2021). Pastoralists and peasants: Perspectives on agrarian change. *The Journal of Peasant Studies*, 48(1), 1–47.
- Scoones, I., Lind, J., Maru, N., Nori, M., Pappagallo, L., Shariff, T., Simula, G., Swift, J., Taye, M., & Tsering, P. (2020). Pastoralism and development: Fifty years of dynamic change. *IDS Bulletin*, 51(1A), 1–20.
- Semplici, G., & Campbell, T. (2023). The revival of the drylands: Re-learning resilience to climate change from pastoral livelihoods in East Africa. *Climate and Development*, 0, 1–14.
- Shanguhya, M. S. (2021). Insecure borderlands, marginalization, and local perceptions of the state in Turkana, Kenya, circa 1920–2014. *Journal of Eastern African Studies*, 15(1), 85–107.
- Tari, D., King-Okumu, C., & Jarso, I. (2015). *Strengthening local customary institutions: A case study in Isiolo County, Northern Kenya*. The Adaptation (ADA) Consortium. <https://www.celep.info/wp-content/uploads/2015/11/Strengthening-local-institutions.pdf>
- Tran, M. (2011). Investment in pastoralists could help combat east Africa food crisis. *The Guardian*. <https://www.theguardian.com/global-development/2011/sep/02/east-africa-crisis-investment-pastoralists>
- Turner, M. D. (2011). The new pastoral development paradigm: Engaging the realities of property institutions and livestock mobility in dryland Africa. *Society and Natural Resources*, 24(5), 469–484.
- Turner, M. D., & Schlecht, E. (2019). Livestock mobility in sub-Saharan Africa: A critical review. *Pastoralism*, 9(1), 13.
- Van Berkum, S., Dengerink, J., & Ruben, R. (2018). *The food systems approach: Sustainable solutions for a sufficient supply of healthy food*. Wageningen Economic Research. <https://library.wur.nl/WebQuery/wurpubs/538076>
- Waters-Bayer, A., & Bayer, W. (2016). Pastoralists in the 21st century: “Lo-tech” meets “hi-tech”. *Proceedings of the 10th International Rangeland Congress*, 24–31.
- Witsenburg, K., & Roba, A. W. (2007). The use and management of water sources in Kenya's drylands: Is there a link between scarcity and violent conflicts? In B. Derman, R. Odgaard, & E. Sjaastad (Eds.), *Conflicts over land and water in Africa* (pp. 215–238). Currey.
- Woodhill, J. (2019). *The Dynamics of Food Systems – A Conceptual Model*. Foresight4Food. <https://foresight4food.net/the-dynamics-of-food-systems-a-conceptual-model/>
- Woodhill, J., Kishore, A., Njuki, J., Jones, K., & Hasnain, S. (2022). Food systems and rural wellbeing: Challenges and opportunities. *Food Security*, 14(5), 1099–1121.
- Young, H. (2021). *A Synthesis of Research and Learning on Persistent Global Acute Malnutrition (PGAM) in the Kenyan Arid and Semi-Arid Lands (ASALs)*. Feinstein International Center, Friedman School of Nutrition Science and Policy at Tufts University, USAID, and CRS.

7. Annexes

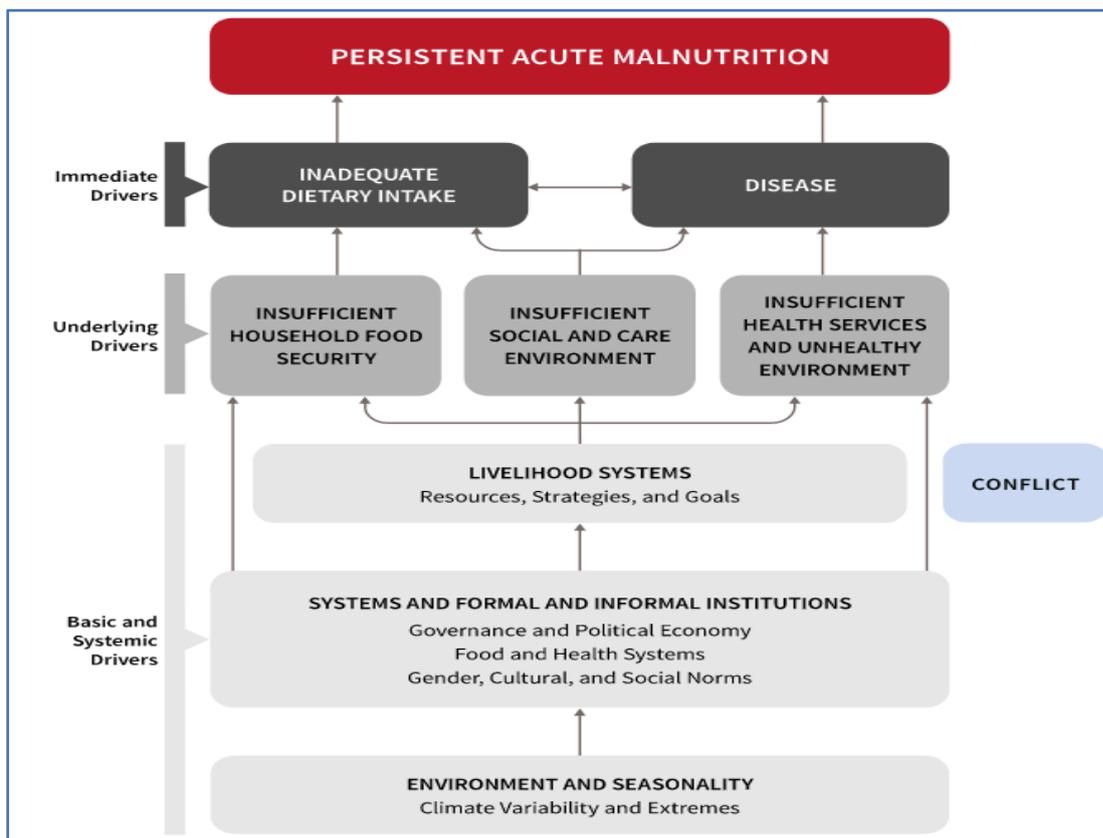
Annex 1. Stakeholders interviewed in this study.

Names have been withheld under privacy regulations for this public report. For the interviewee list please contact the Netherlands Embassy in Kenya.

Box 1. The FSA conceptual framework for *mapping the relationships of the food system to its drivers*.



Box 2. USAID-Nawiri: One Nawiri Framework: Driver Diagram



Annex 2. DGIS/IGG Result frameworks.

The FNS and water result frameworks are not directly applicable in the ASAL areas. They must be slightly adapted for the two central production systems in ASAL areas: 1. pastoralists' livestock system and 2. Dryland farming. The key critical observations are the following:

a) **Pastoralists' livestock system**

1. **Water:** based on the current scientific understanding of drylands like ASAL, the often-expressed degradation in rangelands and the need for better management plans is not supported. Livestock production in ASAL areas is not limited by pasture availability but by rainfall. Once rainfall returns, the rangeland quickly regenerates. The dryland ecosystem is unstable, but resilient. Hence the need to focus more on water provision for livestock, well-spaced in the rangeland landscape, to make optimal use of pastures and contribute to livestock production. Degradation is limited to specific spots where different user groups clash, mainly when droughts occur and/or where water provisions are poorly maintained or positioned.
2. **Food & Nutrition Security:** the most significant focus of pastoralists to achieve food security is on access to markets to sell their livestock and then buy food items that are not cultivated. ASAL conditions limit cultivation, so their production focuses on livestock and buying food. The production of food items is done by a limited group – women, marginal groups - on a small scale at a few suitable places.

b) **Dryland farming:**

1. **Water:** given overall water scarcity and the frequent clashes between competing groups, especially during droughts, further development of small-scale irrigation must be preferably limited to on-field water extraction, probably supported by licenses to pump up groundwater. Irrigation water distraction from rivers has two potential drawbacks: 1. It is extremely vulnerable during floods (see damage overview during 2020 floods), and 2. It may further fuel water conflicts with pastoralists. River basin planning is extremely sensitive and complicated. The results framework has limited importance.
2. **FNS:** Climate Smart Agriculture and Good Agricultural Practices for improved yields of dryland farmers, all adequately covered by this results framework. A water-related intervention Water Harvesting is a crucial component of GAP. However, it is essential to note that dryland farming yields will still be more variable than humid areas.

The table below summarizes interventions, outcomes and impact with regard to ASAL areas.

	FNS results framework	water results framework: focus on IWRM; Integrated Water Resource Management
Pastoral livestock system	Intervention livestock marketing; alternative livelihood activities; employment, support to private services .	Intervention: drinking water provision for livestock at landscape level (rangeland) through construction or rehabilitation.

	Outcome: higher production; access to food items on market; more diverse sources of food; livestock sales; jobs.	Outcome: operational and maintained structures; access to all rangeland pastures.
	Impact: income security; better nutrition; livestock investments.	Impact: better resilience during droughts and floods; livestock production (numbers) increase.
Dryland farming	Intervention: Climate Smart Agriculture, promotion of Good Agricultural Practices.	Intervention: introduction of water management techniques at field level. Small scale solar powered pumping for irrigation.
	Outcome; effective use of specific techniques like agro forestry; water harvesting (WH), fertility management, crop selection.	Outcome: effective use of WH, operational pumps on field; licenses on pumping groundwater .
	Impact: acreage of farmland under sustainable use; more stable, drought resilient higher yields.	Impact: more stable yields.

Annex 3. List of FNS projects implemented in the Northern ASALs (2015 – 2020) taken from the Aid Atlas website (https://aid-atlas.org/profile/all/kenya/all/2015-2020?usdType=usd_commitment)

Donor name	Project name & objective	Project Budget	Implementing partners	Integration themes	Adoption date
Netherlands	The Laikipia, Isiolo, and Samburu Transforming the Environment through Nexus (LISTEN) project seek to enhance food, nutrition, and water security resilience in the three selected Arid and Semi-Arid Lands (ASAL) counties.	€3,500,000	Frontier Counties Development Council (FCDC) Alliance for a Green Revolution in Africa (AGRA) SNV Netherlands Development Organisation	FNS Environment Water Supply & Sanitation	2020
	DeSIRA applies research towards building a more resilient market and addressing low adoption of and upscaling innovative and climate-smart technologies.		SNV, Kenya Agriculture and Livestock Research Organisation (KALRO)	Agriculture and Livestock, Markets Climate Smart Technologies	
Germany	Building Resilience to Drought and Adaptive Capacity of Vulnerable Communities in Drought-Affected Areas of Marsabit County			Climate change adaptation, Disaster risk reduction (DRR), Livelihood diversification	2016
Switzerland	Resilience for Pastoralist Communities in Northern Kenya			Water Supply & Sanitation Livestock	2015
	Strengthening Livestock Sector in Arid and Semi-Arid Lands (ASAL) Counties			Livestock Advocacy	2020
	Water for Livestock in Garissa and Isiolo Counties, Northern Kenya			Livestock Water Supply & Sanitation	2017
United Kingdom	Index-Based Livestock Insurance			Livestock Disaster risk reduction (DRR) Financial Inclusion	2015
	Maternal and Child Nutrition Programme (MCNP)	\$20,366,137		Health and Nutrition	2019
	Develop renewable energy generation's technical and economic potential via anaerobic digestion in Kenya.	\$330,758		Energy	2019

	Cash Transfer Payment to Hunger Safety Programme Beneficiaries	£94,550,000		Disaster risk reduction (DRR) Enabling environment & Institutions Emergency Response	2015
United States	Kenya Resilient Arid Lands Partnership for Integrated Development (Kenya RAPID) WASH GDA	\$35,500,000	Millennium Water Alliance	Agriculture & Livestock Water supply and Sanitation Natural Resources Management	2015
	USAID Nawiri - funding two USAID Implementing Partners to sustainably reduce malnutrition rates in Kenya's arid and semi-arid lands (ASALs).	\$186,000,000	Mercy Corps Catholic Relief Services	FNS Enabling environment & Institutions	2020
	KLMS - Expanding and Diversifying Viable Economic Opportunities in Kenya	\$45,000,000	ACDIVOCA Mercy Corps Boma Project Smart Regional Consultants	Agriculture & Livestock Markets Enabling environment & Institutions	2018
	Associate Award 1: Expanding and Diversifying Viable Economic Opportunities in Kenya	\$22,000,000	ACDIVOCA Mercy Corps Boma Project Smart Regional Consultants	Agriculture & Livestock Markets Enabling environment & Institutions	2019
	USAID-Kuza - USAID Kuza aims to work through local systems to improve the enabling environment for economic opportunities, accelerate public-private investment, expand and deepen county-level capacity to build resilience, foster self-reliance, and reduce the need for humanitarian assistance.	\$22,500,000	ACDIVOCA Frontier Counties Development Council (FCDC)	Agriculture & Livestock Markets Enabling environment & Institutions	2020
European Union	Promote and Strengthen Enterprises and Market Systems in Drought Prone ASAL Areas	\$600,000	National Drought Management Authority (NDMA) Deutsche Welthungerhilfe (Welthungerhilfe)	Agriculture & Livestock Markets Financial Inclusion	2015

	ASAL Drought Contingency Fund Project (ASAL DCFP)	\$2,187,266		Disaster risk reduction (DRR) Emergency Response	2015
	Food Security and Resilience to Climatic Shocks under the Ending Drought Emergencies (EDE) Common Programme Framework	\$190,000,000		Agriculture & Livestock Markets Enabling environment & Institutions Disaster risk reduction (DRR) Emergency Response	2015
Norway	Scatec Solar ASA Feasibility study hybrid solar power project in Kenya	\$100,000		Energy Research	2017
	Support to Devolution in Kenya 2018-2020 - This project shall also strengthen the coordination of multi-UN agency initiatives on devolution for FCDC counties.	\$819,236		Governance Public Financial Management Enabling environment & Institutions	2019
Sweden	AECF 2017-22 Renewable Energy and Adaptation to Climate Technologies (REACT) - REACT - Kenya	SEK 79,900,000	World Vision Kenya (WVK) Northern Rangelands Trust (NRT) Stockholm Environmental Institute (SEI)	Energy Climate change adaptation Climate Change Technology	2015
	WFP - enhanced complementarity and capacity for sustainable resilience building in Kenya's ASALs - enhanced complementarity, capacity, and resilience	\$6,000,000	World Food Programme (WFP)	Agriculture & Livestock Markets Enabling environment & Institutions Disaster risk reduction (DRR) Emergency Response	2017
World Bank	North & North Eastern Development Initiative (NEDI). Multiple projects covering off-grid solar access for underserved counties, water and sanitation development, climate-smart agriculture, and pastoral livelihood resilience.	\$1 billion	National Government Sector Ministries Local Government	Energy Agriculture & Livestock Markets Climate change adaptation	2018

				Water supply and Sanitation Climate Change Technology	
	The Kenya Livestock Insurance Programme (KLIP) was developed as a public-private partnership where the government creates enabling conditions, including premium support. The insurance companies focus on service delivery, including insurance product development and paying claims to the insured beneficiaries.		National Government Sector Ministries Local Government Private Insurance Providers	Livestock Disaster risk reduction (DRR) Financial Inclusion	2018
	The De-risking, Inclusion, and Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Project – regional project aims to cushion pastoralists in Djibouti, Ethiopia, Kenya, and Somalia from the impacts of drought and better connect them to markets. This regional initiative is designed to enhance de-risking, financial inclusion, and value addition of pastoral economies.	\$325,500,000	National Government Sector Ministries Local Government Private Insurance Providers	Livestock Disaster risk reduction (DRR) Financial Inclusion	2021
	Financing Locally Led Climate Action Programme - This initiative aims to strengthen county governments' capacity to plan, implement and monitor resilience investments in partnership with communities. The proposed programme aims to achieve the following results: (i) increase capacity at the county level for participatory climate risk assessment and management planning; (ii) strengthen local level climate and disaster resilience through local action and adaptation investments; and (iii) improve monitoring, reporting and verification and coordination of climate change activities and results from local to national level.	\$300,000,000	National Government Sector Ministries Local Government Private Insurance Providers	Livestock Disaster risk reduction (DRR) Financial Inclusion	2020
Japan	Enhancing Community Resilience against Drought in Northern Kenya aims to develop a model of community-		Local Governments	Agriculture & Livestock Markets	2015

	based disaster management and rural development, targeting the ranchers of Turkana County and Marsabit County in Northern Kenya.			Disaster risk reduction (DRR)	
Green Climate Fund	Towards Ending Drought Emergencies: Ecosystem-Based Adaptation in Kenya's Arid and Semi-Arid Rangelands. This project aims to reduce the cost of climate change-induced drought on Kenya's national economy by increasing the resilience of the livestock and other land use sectors in restored and effectively governed rangeland ecosystems.	\$35,000,000	IUCN (International Union for Conservation of Nature) Ministry of Agriculture and Irrigation (MoAI) National Drought Management Authority (NDMA) Conservation International (CI)	Agriculture & Livestock Markets Enabling environment & Institutions Disaster risk reduction (DRR) Emergency Response	2019
Multi-donor partnership	Enabling access to climate-friendly energy supply focuses on decentralized energy solutions, particularly for rural regions. These solutions provide access to electricity, for example, from solar systems and isolated networks supplemented by modern cooking energy.		Ministry of Energy Private sector	Energy Private sector engagement Enabling environment & Institutions	2015
	Water and Energy for Food (WE4F) This investment aims to establish an Innovation Hub and provides financial support, technical assistance, and investment facilitation to water-food, energy-food, and water-energy-food innovations, to help smallholder farmers unlock missing inputs, finance, technology, and markets.	€12,000,000	Turkana Basin Institute Dedan Kimathi University of Technology Companies, NGOs, and other actors, through advertised regional calls	Energy Water Supply & Sanitation Financial Inclusion	

Annex 4. Elements of the ASALs Food System – development approaches vs. local views

	Emerging integrated FNS approach	Local view and response
Priority primary food production sectors	<ul style="list-style-type: none"> • Linear thinking towards food production – increase security by targeting small- and medium-sized enterprises (SMEs) and women-owned businesses and better coordination and accountability across significant players in the agricultural sector, including government ministries and private sector entities. • Focus on supporting private institutions to provide services and manage resources, and attention to the incentive and institutional framework is developed. • Interventions focus on developing livestock and communal areas by funding water, roads, markets, and other infrastructure. In many instances, projects in this category had a strong involvement in supporting alternative livelihoods and diversification. 	<ul style="list-style-type: none"> • ASALs food production system is complex and differs in location and food production systems. • Pastoral and agro-pastoral producers employ real-time management strategies and decision-making based on articulated knowledge and continuous observation/shared information at a large scale to benefit the most from variability. • Local rules and institutions develop forms of flexible or negotiable access to land, adapting the herding household's size to seasonal labour requirements and alternative options.
Environmental dimension	<ul style="list-style-type: none"> • The local is framed as vulnerable and subject to recurrent disasters seen as isolated events. The crisis is the main conceptual framework for explaining people's behaviour, and resilience operates as a 'discourse of survival.' • Progress is described linearly through stages to bounce forwards or back. • Limiting mobility and competition in the use of resources through the assertion of government authority, fixing borders, and reducing conflict were high priorities. • Famine, and early warning systems, systematically collect data on rangeland conditions, livestock health, market sales, and household livelihoods. 	<ul style="list-style-type: none"> • Food production systems integrate variability into production processes: inputs, breeding, land tenure, marketing strategies, and links with other livelihood systems. • Progress implies being able to forage, incorporate and adapt to what is perceived as an opportunity, remaining attentive to what else is happening, and always being ready to readapt. • Through mobility, pastoral producers interface variability in the environment by embedding variability in their production system.

	<ul style="list-style-type: none"> Insurance products that pay out according to indices aim to provide market-based protection from potential droughts, reducing vulnerability 	<ul style="list-style-type: none"> Pastoral social networks are generally 'open' rather than 'closed' as they offer, give, receive, or ask for help from a wide range of kin or others beyond their immediate nuclear family.
Socio-economic dimension	<ul style="list-style-type: none"> Human and livestock population pressures, interventions orientation towards sedentarisation and facilitating exit from pastoralism. Achieving transformation of livestock production through overlapping and essentially reinforcing investments: (1) commercialising and outreach of livestock markets; (2) improving natural resource management; (3) economic diversification including irrigated crop agriculture; (4) improved social infrastructure, and (5) more effective disaster risk management strategies. 	<ul style="list-style-type: none"> Highly socially differentiated pastoral livelihood pattern (i) pastoralists who will 'step up' to commercial livestock production, (ii) pastoralists that will 'hang in' subsistence herding for the time being, and (iii) pastoralists who will 'step out' of pastoralism. Wealth and gender differences are significant, indicating an often highly socially differentiated livelihood pattern.
Cross-cutting issues	<ul style="list-style-type: none"> Gender. Pastoralist women face enormous challenges and inequality, which affects the use and control of income, assets, resources, and services. These inequalities restrict women's development potential and limit the opportunities and economic growth of the entire family. 	<ul style="list-style-type: none"> Gender: Access to livelihood resources, the functioning of institutions, and outcomes about both poverty and environmental indicators are highly gendered, with men and women negotiating livelihoods in different ways.
	<ul style="list-style-type: none"> Institutions. Developing an enabling environment for ASAL development, including multi-level systems involving formal governmental agencies and NGOs, to gain access to new forms of knowledge that can contribute to their adaptive capacity. 	<ul style="list-style-type: none"> Institutions. Institutional arrangements allow for effective management of common-range resources in the ASALs. These institutions often take hybrid forms, incorporating traditional management systems with flexible, negotiable, and overlapping boundaries, often key features in pastoral systems.

	<ul style="list-style-type: none"> • Insecurity and localised conflict: ASALs development challenges are interwoven with violent extremism and political and natural resource-based conflicts. Interventions are designed at the interface of violent extremism, political and natural resource-based conflicts, and the positive role that vibrant mobile pastoral economies can play in populating and 'monitoring' remote areas. 	<ul style="list-style-type: none"> • Insecurity and localised conflict. Conflict over resources is interwoven with the redistribution of assets and competition over the same resources.
--	---	--

Annex 5. Some examples of interventions targeting diverse ASALs beneficiaries

Good practice example	Description of innovation for ASALs	Target beneficiaries	Easy references
<p>Providing small grants to small-scale farmers to enhance their capacity for fodder production.</p>	<p>A USAID Project, Feed the Future Kenya Livestock Market Systems Activity provided small grants to farmers in the ASALs to fully integrate fodder production into their operations and provide a continuous supply of fodder for livestock, increased production, and increased income at the household level. In Garissa County, the project provided the Kamuthe Farm with a grant of US\$149,580 against a cost share of US\$21,980 to construct a modern hay barn, installed a solar-powered water pump for irrigation, and procured a tractor with a trailer, and hay baler, plough rake, and mower.</p>	<p>Pastoral dropouts, diversifying livestock herders</p>	<p>ACDIVOCA https://www.acdivoca.org/2022/08/in-kenya-fodder-farmers-provide-livestock-lifeline-during-drought/</p>
<p>Providing small grants to small-scale farmers to enhance their capacity for fodder production.</p>	<p>USAID REGAL-AG projects issued business development grants to support entrepreneurs in setting up livestock-related businesses. The project's support to the business consisted of constructing a chicken abattoir and related infrastructure, battery cages for birds, and procuring chicken processing equipment. Improved access to finance (grants and concessional) and complementary services (extension, capacity building, technology, and/or access to markets) to smallholder farmers increases their capacity and impact.</p>	<p>Agro-pastoralists, women, drop-outs</p>	<p>USAID https://pdf.usaid.gov/pdf_docs/PA00STP1.pdf</p>
<p>Farmer Managed Natural Regeneration (FMNR)</p>	<p>Through support from the Australian Department of Foreign Affairs and Trade, World Vision introduced the Farmer Managed Natural Regeneration (FMNR) in several ASALs counties to restore degraded lands and improve depleted farmland. FMNR is a rapid, low-cost, easily replicated approach to restoring and improving agricultural, forested, and pasture lands through</p>	<p>Agro pastoralists</p>	<p>FMNR in Baringo County https://fmrhub.com.au/wp-content/uploads/2020/09/WV-Baringo-FMNR-Report-FTS-2018-02-Final.pdf World Vision https://www.wvi.org/sites/default/files/2022-</p>

	<p>reforestation and agroforestry. It is an approach by which a farmer decides to regrow trees on their farm without planting new trees. FMNR is based on the systematic re-growth of existing trees or self-sown seeds and is possible wherever there are living tree stumps with the ability to re-sprout or seeds in the soil that can germinate. When trees are cut down, most species' root system remains alive, underground. The underground forests are vast, with millions of trees waiting to be regenerated.</p>		<p>08/FMNR%20Impact%20Newsletter%202016.pdf</p>
<p>Water for Livestock</p>	<p>Through Swiss Development Cooperation (SDC), IUCN supported a Water for Livestock project in the ASALs sought to build the resilience of the pastoralist communities through sustainable management of rangeland resources and improved natural resource governance in Northern Kenya, targeting communities in Isiolo and Garissa Counties. The project supported fundamental production principles of pastoralism by:</p> <ul style="list-style-type: none"> • Developing strategic water infrastructure development. • Conducting Multi-stakeholder dialogues over water for livestock access and use. • Site-specific training on operations and maintenance, water governance, and sustainability for water committees. 	<p>Pastoralists</p>	<p>IUCN https://portals.iucn.org/library/sites/library/files/documents/2014-088.pdf</p>

<p>Village Community Banks (VICOBA)</p>	<p>VICOBA is a concept that empowers vulnerable community members with knowledge and skills to fight poverty by mobilising their resources (i.e. savings) and using them as loans to improve living standards from household to group/association level. It helps community members discover and appreciate the types and amount of resources they have and develop their own organised resource mobilization and utilisation system for mutual benefit. VICOBA aligns with the principles of Asset-Based Community Development (ABCD). Assets owned and mobilised by the communities, such as land, people (knowledge, skills, labour, networks), and natural resources (pasture, water, forests), must be employed for a better life.</p>	<p>Pastoralists, pastoral dropouts</p>	<p>VSF Belgium http://vsf-international.org/project/action-research-disaster-risk-reduction/</p>
<p>Small-scale irrigation</p>	<p>While the technologies for small-scale irrigation in the ASALs is well known and documented, actual practice in the ASALs have fallen short. According to a major study commissioned by Oxfam in 2013 a narrowly sectoral approach to irrigated farming can run into trouble where system-wide linkages are ignored. Irrigated smallholdings usually form only one element in household livelihoods which (given the context) feature livestock, rain-fed farming, and off-farm incomes, whether local (e.g., charcoal making) or distant (involving migration elsewhere). The strongest argument in favour of promoting irrigation for agro-pastoralists is the existence of spontaneous uptake of irrigation, using private capital, in riverine locations such as the E-wasp Ngiro River Basin, The Turkwel river basin and the Mandera Triangle.</p>	<p>Agro pastoralists</p>	<p>The Oxfam report on the principles good practice in irrigation development in the ASALs: https://dici-hoa.org/assets/upload/key-resilience-and-climate-change/20200803114729364.pdf</p>

<p>Honey value addition for pastoralist women</p>	<p>Training women group members on modern beekeeping and honey production techniques and supplying them with modern beekeeping has been used in some ASALs to provide additional income and livelihoods to vulnerable groups. This activity has been prominent in Baringo, West Pokot, and Isiolo Counties. However, more information is needed to support such investments effectively. However, no experience is reported from the Northern arid regions.</p>	<p>Women, youth</p>	<p>African Bee Keepers https://www.africanbeekeepers.co.ke/index.php/en/component/k2/item/47-baringo-honey-value-chain-progress</p>
--	---	---------------------	---