

A photograph of a man in a dark patterned shirt and yellow patterned trousers holding a small white and brown goat. He is standing in a dry, rocky landscape with sparse vegetation. In the background, another goat is visible. A large white circle is overlaid on the image, framing the man and the goat he is holding.

Somaliland: Food System Resilience Assessment Report

Building food system resilience in protracted crises
FNS-REPRO Programme
14th January 2022 – updated final draft

Charleen Malkowsky, Julius Kaut, Gerrit-Jan van Uffelen, Eelke Boerema



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This research was funded by Buza, IGG (inclusive green growth department), part of FAO FNS-RERO project.

Wageningen Centre for Development Innovation
Wageningen, February 2022

Report WCDI-22-197



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Charleen Malkowsky, Julius Kaut, Gerrit-Jan van Uffelen, Eelke Boerema, 2022. *Somaliland: Food System Resilience Assessment Report; Building food system resilience in protracted crises*. Wageningen Centre for Development Innovation, Wageningen University & Research. Report WCDI-22-197. Wageningen.

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This report can be downloaded for free at <https://doi.org/10.18174/564862> or at www.wur.eu/cdi (under publications).



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Report WCDI-22-197

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Definitions

Concept	Definition
Absorptive capacity	The capacity to withstand threats and minimize exposure to shocks and stressors through preventative measures and appropriate coping strategies to avoid permanent, negative impacts (persistence) (Béné, et al., 2012)
Adaptive capacity	The capacity to adapt to new options in the face of crises by making proactive and informed choices about alternative livelihood strategies based on an understand of changing conditions (incremental adjustment) (Béné, et al., 2012)
Building resilience	<p>The United Nations Office of Disaster Risk Reduction (UNISDR) definition of resilience: ‘The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions’.</p> <p>In relation to the Rome Based Agencies’ focus on agriculture, food security and nutrition, resilience is essentially about the inherent capacities (abilities) of individuals, groups, communities, and institutions to withstand, cope, recover, adapt, and transform in the face of shocks.</p>
Capacities	The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals (UNISDR, 2009).
Food system	A food system consists of a food supply system (from producing to storing, processing, and till consumption) and its direct environmental factors and activities such as available business services or consumer characteristics. Furthermore, the larger natural environmental and socio-economic drivers such as climate or markets shape the dynamics in food systems (adapted from: van Berkum, et al., 2018).
Food system resilience	The concept of food system resilience analyses how system components and their actors (from producer, middleman, traders, consumers etc.), are affected by and respond to shocks and stressors, accounting for ripple effects across the food system, and providing insights into varying existing and required resilience capacities and strategies which enable system actors and components to mitigate, prepare for and recover from negative impacts, ensuring desired, improved socio-economic, environmental, and food and nutrition security outcomes.
Hazard	A dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage (UNISDR, 2009).
Leverage point	A leverage point is a place/characteristic in a complex system where a small shift in one factor or process can contribute to building food system resilience.
Protracted crisis	Those environments in which a significant proportion of the population is acutely vulnerable to death, disease, and disruption of livelihoods over a prolonged period of time. The governance of these environments is usually very weak, with the state having a limited capacity to respond to, and mitigate, the threats to the population, or provide adequate levels of protection. Food insecurity is the most common manifestation of protracted crises (FAO, 2010).
Resilience	<p>The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. (UNISDR, 2009).</p> <p>The ‘capacity of a system to deal with change and continue to develop; withstanding shocks and disturbances and using such events to catalyse renewal and innovation’ (Stockholm Resilience Centre, 2014)</p>
Risk	The combination of the probability of an event and its negative consequences (UNISDR, 2009).
Risk landscape	‘Risk landscape’ refers to the wide range of risks to which local people are exposed, like disaster risks, but also risk as a result of diseases, famine, unemployment, insecure land rights or violence (Heijmans, 2017).
Shock	<p>Shocks are sudden events that impact on the vulnerability of the system and its components. There are many different types of disaster-related shocks that can strike at different levels. These include disease outbreaks, weather-related and geophysical events including floods, high winds, landslides, droughts or earthquakes. There can also be conflict-related shocks such as outbreaks of fighting or violence, or shocks related to economic volatility (DFID, 2011).</p> <p>Shocks can also be defined as “external short-term deviations from long-term trends, deviations that have substantial negative effects on people’s current state of well-being, level of assets, livelihoods, or safety, or their ability to withstand future shocks” (Zselezky and Yosef, 2014).</p>

Concept	Definition
Stressor	<p>Stressors are long-term trends that undermine the potential of a given system or process and increase the vulnerability of actors within it. These can include natural resource degradation, loss of agricultural production, urbanisation, demographic changes, climate change, political instability and economic decline (DFID, 2011).</p> <p>An alternative definition is: Stressors are long-term pressures (e.g. degradation of natural resources, urbanization, political instability or diminishing social capital) that undermine the stability of a system (i.e. political, security, economic, social or environmental) and increase vulnerability within it (Bujones et al., 2013).</p>
Transformative capacity	The capacity to transform the set of livelihood choices available through empowerment and growth, including governance mechanisms, policies/regulations, infrastructure, community networks, and formal and informal social protection mechanisms that constitute an enabling environment for systemic change (transformational response) (Béné, et al., 2012)
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard (UNISDR, 2009).

List of abbreviations and acronyms

(FNS)-REPRO	Food and Nutrition Security Resilience Programme
CBO	Community Based Organisation
CVA	Capacity and Vulnerability Assessment
DFID	Department for International Development
FAO	Food and Agricultural Organisation of the United Nations
FGD	Focus Group Discussion
FNS	Food and Nutrition Security
FoSRA	Food System Resilience Assessment
FSNAU	Food Security and Nutrition Analysis Unit
FSR	Food System Resilience
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
INGO	International Non-Governmental Organisation
IPC	Integrated Food Security Phase Classification
KIT	Royal Tropical Institute
MoPND	Somaliland Ministry of Planning and National Development
NUFFIC	Netherlands Universities Foundation for International Cooperation
NU	Nugaal University
PAR	Pressure and Release Model
RIMA	Resilience Index Measurement and Analysis
UNISDR	United Nations Office for Disaster Risk Reduction
UNSCR	United Nations Security Council Resolution
USTEC	Sanaag University of Science and Technology
VHL	Van Hall Larenstein, University of Applied Science
WCDI	Wageningen Centre for Development Innovation, Wageningen University & Research
WFP	World Food Program
WUR	Wageningen University & Research

Executive summary

- (1) **REPRO seeks to sustainably increase resilience in the protracted crises area of Sool and Sanaag in Somaliland**, through meaningful engagement with various local actors and on the foundation of strengthening (pastoralists and agro-pastoralists' existing capacities. The thematic scope is set on livestock, particularly the fodder value chain system in the light of shocks and stressors of the last 10 years, but also groupings such as gender will be considered to build inclusive resilience.
- (2) **Current food system activities** indicate the regions' high **dependency on food imports**. Agricultural production exists (maize, beans) but on a minimal scale in comparison to the role of livestock. Typically, a household earns money through the (often informal) livestock system to purchase imported food.

Several socio-economic drivers influence these dynamics: 1) there is a strong connection between the GDP and the livestock market, giving food a rather commercial frame than a 'basic need' perspective; 2) there are very limited enforced land tenure systems or local authorities in rural areas, leading to frequent clashes between farmers and herders, making it difficult to create a more formal business chain.

Moreover, **environmental drivers** exist in form of shocks and stresses, inherently influencing the food system towards livestock rather than agriculture.

Regarding **food system outcomes**, the **food security outcomes** are rather poor, with current IPC 3 levels, embedded in a long food insecurity history.

Socio-economic outcomes include increasing urbanisation trends, which can provide better income. However, it makes the elderly more dependent on remittance payments since they often cannot herd alone.

The most significant seems to be **environmental outcomes**, since overgrazing and deforestation have led to soil and land degradation. This degradation has resulted in the loss of many natural livestock fodder sources like grasses and shrubs, which has further led to increased flood risks. Attempts were made to counter these issues by introducing edible invasive species, but these became a source of soil degradation themselves.

- (3) Sool and Sanaag's **risk landscape** consists of the key shocks and stressors: droughts, locust, inflation, COVID-19, livestock disease, and conflict, with no significant difference between male and female respondents.

Coping strategies include reliance on loans, destocking, fodder storage, charcoal cutting, migration, restocking, taking up casual labour, reducing fodder use and reducing meal frequency, making use of water storage, livelihood diversification, and reliance on external assistance, among other diverse options. There were some differences among female and male respondents.

Key capacities mentioned by communities in Sool and Sanaag include farmlands, water infrastructure, livestock, governance, peace and security, leadership structures, community cooperation, schools, and remittances, amongst others.

Key vulnerabilities include water infrastructure, fodder storage facilities, road infrastructure, farming capacities, associations/ groups, education levels, schools, committees, a lack of skills, khat usage, governance, strategy and preparation, conflict during elections, lack of policies, and others.

Key resilience capacities (existing and missing) in Sool and Sanaag are:

	Absorptive	Adaptive	Transformative
Existing	<ul style="list-style-type: none"> • livelihood diversification • loans • charcoal production • change in diets • destocking 	<ul style="list-style-type: none"> • destocking • running small businesses • reduction of expenses • livelihood diversification. • livestock migration • rationing of food 	<ul style="list-style-type: none"> • migration • urbanization • livelihood diversifications • 'none'
Perceived as required	<ul style="list-style-type: none"> • water and food distribution 	<ul style="list-style-type: none"> • livelihood opportunities • distribution of food • grazing land • water infrastructure and distribution 	<ul style="list-style-type: none"> • training of skills • agricultural investments • water infrastructure • migration • cash for work

(4 & 5) Sool and Sanaag food system and risk landscape analyses, in line with the REPRO strategy and spheres of influence, led to these **key leverage points**:

Conflict, governance, environment

- Land tenure policies and water management appear central to clashes and conflicts but are also impactful when considering environmental impacts of, for example, overgrazing. Recurring key issues appear to be unstable governance systems and the lack of rural representation of such authorities to enforce access policies. Considering reviving **governance structures** that originate from the communities and formalizing them to “**land/ water management committees**” could be a feasible alternative that might also reduce local tensions through dialogue creation.

Diverse livelihoods

- **Livelihood diversification** (also in rural areas) and business investments.
- There are **invasive tree** species that are problematic, but also environmental destruction through **charcoal production (deforestation)**, which could be linked strategically to a win-win, at least in the short-term.

Fodder and livestock

- **Fodder production and storage**, to ensure that pastoralists are not forced to commit to irreversible strategies, including destocking at unsuitable times. Insufficient existing **storage infrastructure for food, fodder and water** could be linked to missing investments. Since fodder is not commercialised, people may not consider engaging in fodder production as a promising alternative livelihood activity, although they recognize the need to address frequent fodder shortages. The production of fodder could also reduce continuous overgrazing, hence have environmental advantages.
- The livestock business is a large GDP contributor which has impacts on FNS since animal food products are an exportable commodity, not only a basic need. This can be positive since money can be earned to purchase food, but also creates market dependency. Analysing the traditional fodder production ways could be insightful to assess if commercialising fodder is the most suitable approach to make fodder available and accessible, or if it might erode customary safety nets through class formation.

The pastoralist pathways appear to be relevant and insightful in this context but need further research and data collection to be used strategically.

This report concludes with detailed recommendations (see p. 42).

1 Introduction

The objective of the FNS-REPRO (hereafter: REPRO) programme is to increase resilience of Somaliland's food system and of the communities living within the areas of Sool and Sanaag, specifically regarding their food and nutrition security outcomes.

This report's objective is to inform the design, strategies, and evidence-based programming of the REPRO programme; its goal is to increase understanding of the local context, especially concerning dynamics of the food system and the lived reality of the local communities. First, this section provides a brief background of the REPRO programme, then the five-step food system resilience assessment framework (hereafter: FoSRA) is introduced by putting it into the context of the Sool and Sanaag areas, explaining the approach including its strengths as well as limitations. Each chapter represents a step/ section of the FoSRA framework, providing the structure of the report.

1.1 Background to the report

This report was written as part of the REPRO programme. In order to follow the report, it is important to have a basic understanding of what the programme is about; hence, for the readers unfamiliar with it, the following provides a brief summary.

1.1.1 What is REPRO?

REPRO is a four-year programme funded by the Dutch Ministry of Foreign Affairs and implemented by FAO and its partners. Wageningen Centre for Development Innovation is responsible for facilitating REPRO's learning agenda on food system resilience.

Building food system resilience in protracted crises is an important goal of REPRO. REPRO adopts a food system approach to analyse, understand, and promote absorptive, adaptive and transformative resilience capacities in the face of shocks and stressors for improving food & nutrition security outcomes (FNS).

The REPRO programme's objective is to set examples of building food system resilience in protracted crisis; this in line with UNSCR-2417 which calls upon the international community to develop innovative approaches to tackle protracted food crisis. REPRO is one of the first programme in Eastern Africa specifically designed to foster food security and peace at scale, through a multi-year, area-based livelihood and resilience-based approach, in some of the least stable regions -South Sudan, Sudan and Somaliland- where interventions are normally of a humanitarian nature. REPRO looks at the multidimensional threats and risks that communities are exposed to, while identifying and utilizing opportunities for improved livelihood resilience. REPRO is also unique in its approach to the humanitarian-development-peace nexus, as it encompasses a serious and rigorous learning agenda. For each country, one value chain was selected as REPRO's focus point; the seed sector in South Sudan, gum Arabic in Sudan and the fodder system in Somaliland.

1.1.2 Sool and Sanaag in Somaliland

Target areas were selected strategically (see Appendix 2 for detailed selection criteria).

Key selection criteria included situations characterized by conflict and both chronic as well as acute FNS insecurity, or in general areas characterised by protracted crisis situations.

In Somaliland, Sool and Sanaag were selected as REPRO intervention areas with a strong focus on fodder and fodder value chains, which underpin the predominant livestock food system. This will be further elaborated upon in section 1.1.2. Section 1.1 provides an in-depth description of Sool and Sanaag.

1.2 Food system resilience assessment framework

This study employs the food system resilience assessment (FoSRA) and facilitation tool developed by WCDI. The FoSRA tool builds on the 'decision-support tool for the design of FNS programming' as developed by WUR-KIT (Wageningen University & Research and Royal Tropical Institute) cooperation. REPRO expanded this tool by making it more sensitive to protracted crises contexts, its risk landscapes and by introducing a resilience lens (see Appendix 3). Moreover, for the purpose of analysing the role of fodder in underpinning pastoralist systems within the food systems, this report has a specific focus on the fodder value chain.

The framework uses theoretical insights from systems thinking literature (Meadows, 1999; Nguyen & Bosch, 2013) and tacit knowledge of key informants through expert and policy workshops and consultations with local stakeholders and communities on the ground. Further, the MoPND (Somaliland Ministry of Planning and National Development) contributed to collection of information including RIMA (resilience index measurement and analysis) data. The tool combines these types of knowledge through practical steps to focus, prioritise and strategize interventions for improving policy and practice on building food system resilience. It has the potential to co-create an understanding of food system behaviour in the face of shocks and stressors, informing the development of fodder pathways that build more resilient livelihoods and improved FNS outcomes.

The aim of the framework is to inform REPRO's actions and it consists of 5 steps: 1) defining resilience goals, 2) a food system analysis, 3) a risk landscape and capacities assessment, 4) a causal food system process analysis and 5) a final section on how these inform REPRO's strategy concretely.

Figure 1 provides an overview of the adapted food system assessment tool as suitable for the Somaliland context. The 5 steps in Figure 1 each represent a chapter in this report.

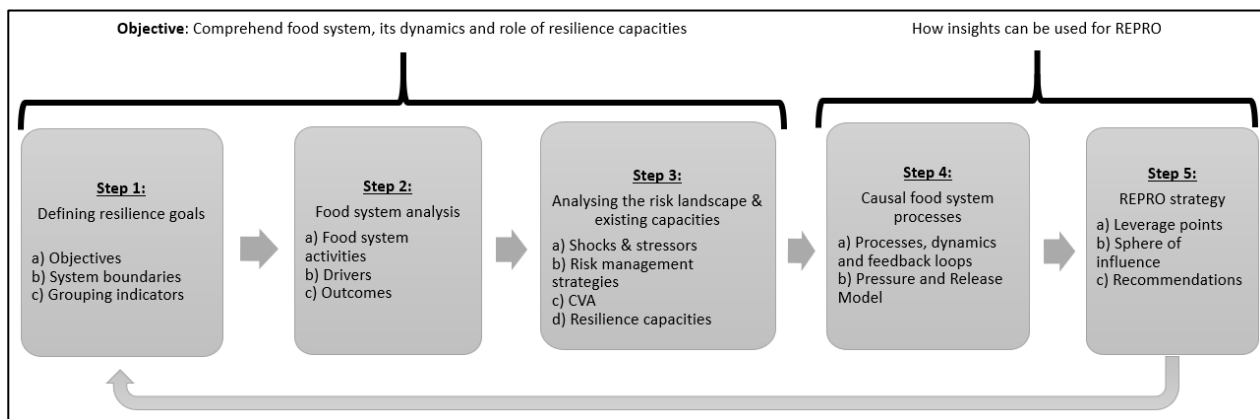


Figure 1 Food system resilience assessment and facilitation tool

To utilise this framework, data needed to be collected from a variety of sources, ranging from thematic and geographic knowledge experts to communities in the target areas Sool and Sanaag. The framework was designed to involve policy makers, experts, researchers, and target communities to co-create context-specific understanding, insights and prioritisation of interventions promoting food system resilience. However, this was not fully feasible due to Covid-19 and other limitations (see section below), and hence led to adaptations required to nonetheless maximise insights based on the available data. Generally, systems thinking and system behaviour analysis were central to the final construction of this report.

When reading this report, it is important to keep in mind that the FoSRA tool aims to collect people's perceptions; in particular, the questions of what people perceive to be the most serious shocks and stresses posing a threat to the food and fodder systems of a community, and further, what people perceive as their coping capacities and resilience strategies to address these shocks and stressors to ensure continuous access to food and fodder. Understanding people's perceptions contributes directly to a better understanding of food

and fodder systems. Acknowledging rather than ignoring people's perceptions allows for better programming and interventions customized to local needs and realities. In addition, collecting perceptions does not compete with more quantitative approaches to assessing disaster risk and food insecurity. Rather, it provides another dimension/ layer, adding additional depth to the analysis allowing for validation of previous quantitative findings.

1.2.1 Limitations of the assessment

The tool could not be applied as initially intended due to limitations imposed by Covid-19 and subsequent travel restrictions. FoSRA is designed as a highly participatory and interactive process that brings together different local actors and stakeholders to co-create an understanding of how food systems work and the importance of fodder systems therein. This common and shared understanding serves as a starting point to developing intervention strategies that build more resilient food systems (in this case Somaliland's fodder systems), taking into account local circumstances, dynamics and shocks and stressors.

Due to Covid-19, some elements such as expert validation, participatory workshops and discussions or an in-depth stakeholder assessment could not be included in this report version, which is a 'light' FoSRA¹, and therefore led to the report's restructuring (as compared to its original construct). Nonetheless, this report provides a sound insight into the food system, risk landscape and community dynamics in place in the Sool and Sanaag regions of Somaliland.

For this report, an emphasis has been on processing findings from a second round of data collection. Yet, findings of a first round of data collection have been taken into account, as they complement and enrich findings of the second round of data collection. Differences in findings between the two rounds of data collection are elaborated on in section 3.5. A third round of data collection is in progress. Learnings from the previous data collections will be taken into account in this third round. The FoSRA tool is a novel tool and to be seen as work in progress. Each new round of data collection assists in the validation and further fine tuning of the tool for future application.

¹ Another FoSRA mission and report for Somaliland is planned for early 2022.

2 REPRO's Somaliland food system resilience goals and objectives

This chapter provides a summary of REPRO's food system resilience goals and objective in Somaliland. Section 1.1 provides an overview of REPRO's general principles and how these determine goals and objectives. Section 1.2 provides an insight into the specific target areas, setting out grouping criteria (1.3).

2.1 Food system resilience goals and objectives

In relation to the Rome Based Agencies (FAO, WFP, and IFAD) focus on agriculture, food security and nutrition, resilience is essentially about the inherent capacities (abilities) of individuals, groups, communities, institutions, and systems to withstand, cope, recover, adapt and transform in the face of shocks and stressors. This implies that all interventions, including the REPRO component in Somaliland, must begin by identifying and building upon existing capacities and resources of local inhabitants and communities (FAO, IFAD, and WFP, 2015).

The REPRO programme has adopted the following definition of resilience:

The ability to prevent disasters and crises as well as to anticipate, absorb, accommodate or recover from them in a timely, efficient and sustainable manner. This includes protecting, restoring and improving livelihoods systems in the face of threats that impact agriculture, nutrition, food security and food safety.

2.1.1 Principles, practices and challenges for strengthening FNS resilience

For REPRO, a guiding document is the Rome Based Agencies' conceptual framework for strengthening resilience for food security and nutrition in protracted crisis contexts². This conceptual framework of resilience is guided by six principles, which were also applied to the contexts of Sool and Sanaag (FAO, IFAD, and WFP, 2015):

1. Local and national ownership and leadership

"People, communities and governments must lead resilience building for improved FNS". In the case of Somaliland, this means that all efforts must not only be participatory and inclusive but be led by local actors as much as feasible. Specifically, this means that programming decisions should be made in consultation with local stakeholders based on the ultimate foundation of strengthening existing capacities and capturing the ideas of local actors for the intended building of capacities.

2. Multi-stakeholder approach

"Assisting vulnerable people to build their resilience is beyond the capacity of any single institution." In the case of Somaliland, this means that a variety of actors need to be involved to work effectively, including local organisations, communities, and governments (also see above). Depending on the exact resulting actions, it may be essential to involve specific actors, if it is a specific knowledge/ expert platform related to specific themes or local traditional leaders and/or governing structures; ultimately, resilience is a complex "thing" to build since it needs to reflect real struggles that require more than one perspective to address.

3. Combining humanitarian relief and development

"Planning frameworks should combine immediate relief requirement with long-term development objectives". REPRO in Somaliland works around the IPC classification of food insecurity and takes trends into account, thinking long-term. Hence, for example in phase 2, resilience building is a central theme, aiming to provide capacities that can be used to reduce impacts once phase 3 is reached.

4. Focus on most vulnerable people

"Ensuring protection of the most vulnerable people is crucial for sustaining development efforts." In the

² <https://docs.wfp.org/api/documents/WFP-0000062320/download/>

case of Somaliland, this means that the REPRO programme takes a conscious focus on gender and youth to build inclusive community resilience and avoid future tensions.

5. **Mainstreaming risk-sensitive approaches**

“Effective risk management requires an explicit focus in the decision making of national governments, as well as enhanced monitoring and analysis.” Strategic links to governance actors are in place to ensure that risk management knowledge can underpin community actions and be mainstreamed.

6. **Aiming for sustained impact**

“Interventions must be evidence-based and focused on results.” Learning is central to REPRO; hence, data is collected (e.g. through a FoSRA process) to determine adaptive management decisions on the basis of evidence. If strategies in Somaliland fall short of expectations or are not working as expected, REPRO strategies and actions will be adapted on the basis of programming evidence and consultations with stakeholders, to maintain a focus on results that strengthen community capacities best.

2.1.2 Programming challenges in protracted crisis

Protracted crisis situations, such as in Sool and Sanaag, pose particular programming challenges. In Sool and Sanaag, the crisis is long-lasting and food insecurity levels have been high over prolonged periods of time (Waithanji, et al., 2020). While conflict is one of the central factors determining the protracted crises, other factors contributing to unsustainable livelihoods include environmental degradation, climate change and unsustainable livelihood practices. International actors, development donors and private sector actors are hesitant to intervene in complex and dynamic situations such as in Sool and Sanaag, further limiting potential pathways out of the crisis. As a consequence, humanitarian actors are predominant and while addressing the consequences of the crisis, they are unable / unwilling to address the crises’ root causes. Furthermore, building resilience in such a protracted crisis area is a challenge as it requires a certain level of social cohesion as well as it assumes stable institutions and governance systems to rely on long-term, but these are less predictable in such a context.

The following section introduces the selection of the food system boundaries, defining the target area in further detail.

2.2 Food system boundaries

The selected target areas in Sool and Sanaag were identified based on several criteria (see Appendix 2): livelihood zones (section 1.2.1), land use (section 1.2.2) and thematic scope (section 1.2.3).

2.2.1 Livelihood zones: Sool and Sanaag

The region of Somalia, Somaliland and Puntland can be divided into 19 livelihood zones, as Figure 2 shows.

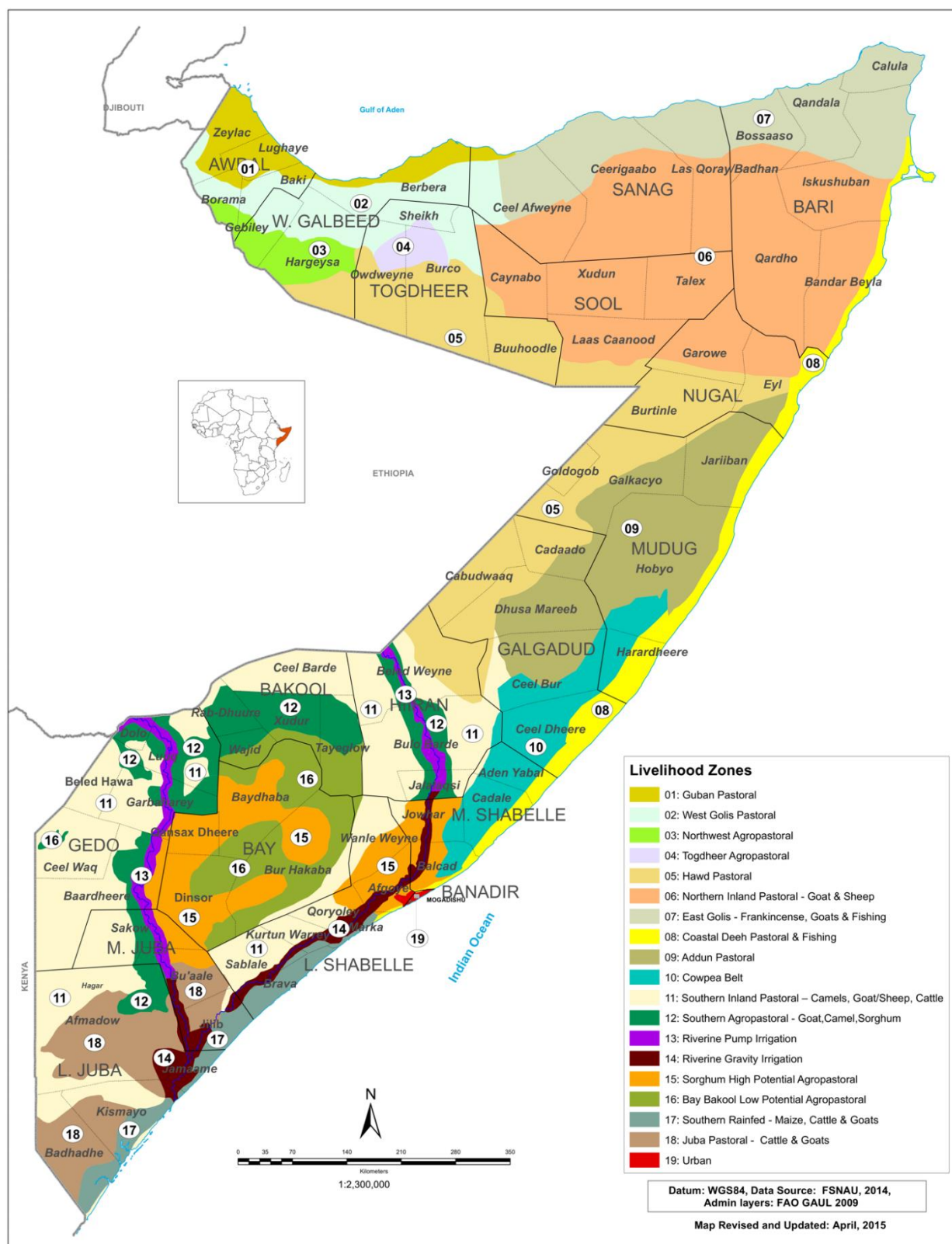


Figure 2 Map of Somalia's livelihood zones

Based on the assessment criteria (Appendix 2), the Sool and Sanaag regions in Somaliland were selected. The regions are in the very east of Somaliland, bordering Puntland, and consist of five of Somaliland's 19 livelihood zones: Guban Pastoral (zone 01); West Golis Pastoral (zone 02); Hawd Pastoral (zone 05);

Northern Inland Pastoral (zone 06) and East Golis Pastoral (zone 07) (Figure 2 and 3). Livelihoods in Sool and Sanaag are dominated by livestock, and to a smaller degree crop production, both of which are important for subsistence and generating an income (Waithanji, et al., 2020; FSNAU, 2015).

As Figure 3 shows, the main livelihoods of people in these zones are:

- (1) (nomadic-) pastoralism
- (2) agro pastoralism.

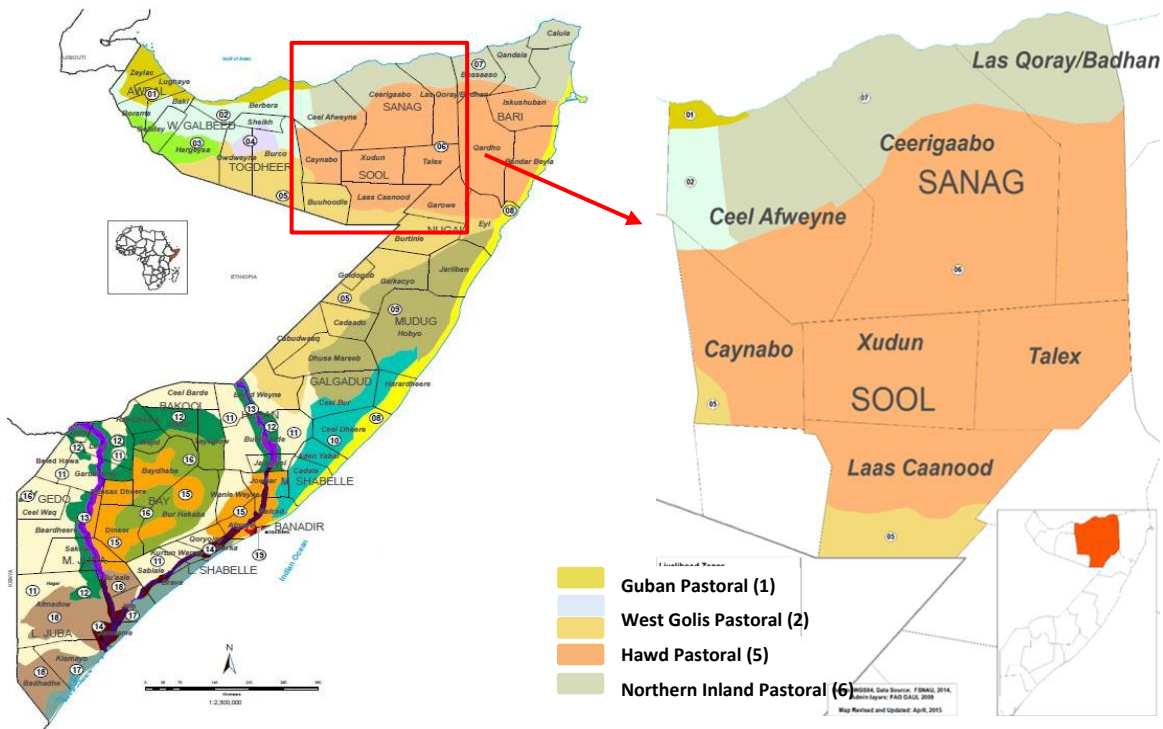


Figure 3 Positioning Sool and Sanaag in Somaliland's livelihood zones. Adapted from FSNAU, 2015

The following five paragraphs provide further insights into these selected livelihood zones.

The Guban Pastoral Livelihood Zone (1) is sandy and has spare vegetation, as typical for steppes. Guban means 'burnt area' in Somali, describing the area's high temperature and humidity. The zone's economic basis is in pastoralism. The soil is sandy mixed with marine soil with vegetation largely emerging after the rains arrive, providing some grazing areas for pastoralism. Livelihood activities largely relate to camels, goats, and sheep, which are prized trading commodities and provide milk during droughts. Agricultural activities are entirely absent, meaning that such products must be purchased. Hence, vulnerability to market fluctuations is high (Waithanji, et al., 2020).

The West Golis Pastoral Livelihood Zone (2) is ecologically seen as semi-desert and the basis of the economy is pastoralism. The zone is vulnerable to water scarcity and depends in dry seasons on communal wells; however, during the rainy season, there are shallow wells, ballis, springs and small seasonal streams that allow trees and bushes to flower after the rains. Forests are used to feed livestock (like acacia) and for charcoal production. Rearing camels and small livestock for milk production and trade are the dominant livelihood activities. Livestock migrates with herders, searching for pastures (Waithanji, et al., 2020).

The Hawd Pastoral Livelihood Zone (5) is, with the Northern and Southern Inland Pastoral Zones, one of the three largest livelihood zones in the country. This semi-arid zone, with altitudes of between 800 and 1200 metres above sea level, stretches from just inside Hiran, where it meets the Southern Inland Pastoral Zone, through Central Somalia far into Somaliland. As such the Hawd is essentially a vast plateau that forms the prime grazing and browsing area, with patches of flat lowland covered with extensive bush and shrubs.

The soil type in the Hawd is reddish loamy sands that are widely distributed in the Somali peninsula and found in the northeast and northwest regions. Vegetation cover is composed substantially of acacia (geed qodaxeed) and comiphora (geed hagar), which extend over a large area, together with a mix of numerous trees and shrubs. However, there are also extensive grassy plains (banka) which are a distinctive feature of the ecology. In the plains of the northwest region open grasslands are more dominant and suitable for sheep. However, as these become overgrazed the finer soil particles are loosened and washed or blown away by the agents of erosion (flash floods and wind) leaving a surface less favourable to grass growth. Overall, both the area and the intensity of the pastoral livelihoods are shrinking. (Waithanji, et al., 2020).

The Northern Inland Pastoral Livelihood Zone (6). The pastoral economies of all three sub-zones have been in transition for many decades but the changes arguably accelerated after 2000 due to the extended drought of 2001-2004 and because of (i) recurrent water stress since then and (ii) because the increasing loss of traditional grazing lands to environmental degradation and enclosure of rangeland. Overgrazing is mainly due to increased number of livestock in combination with the lack of law enforcement to regulate access to rangeland and water resources. In the Northern inland Pastoral Livelihood Zone fodder is a key limiting factor and fodder production will support body condition of livestock, maintain or improved milk yields and reduce, in combination with livestock drought cycle management, the loss of livestock in times of drought.

The East Golis Frankincense, Goats and Fishing Zone (7) covers an area which includes the districts of Calula, Iskushuban, Qandala and Bosasso in northern Bari region, and Las Qorey, Ceerigaabo and Ceel Afweyne districts in northern Sanaag region. The zone is characterized by rugged terrain as it contains the central and eastern sections of the Golis mountain range, a succession of barren mountain peaks incised by valleys and dry seasonal rivers and ravines. The ecology of the zone is semi-desert, and the basis of the economy is frankincense trade and livestock rearing (Waithanji, et al., 2020).

Frankincense production is the key economic activity for households in the livelihood zone, it provides income through sale but also creates employment opportunities for men and women in the tapping, harvesting and sorting of resins. Frankincense trees grow in the wild and are not subject to any management practices. Traditionally the ownership of frankincense fields is clan-based, and each family has a right to directly work in the fields where the trees grow to collect the incense, to rent out the land for exploitation by someone else or to engage in sharecropping (Waithanji, et al., 2020).

Livestock is second to frankincense in terms of the economic importance in the livelihood zone. The mountain goat is the dominant livestock species, a highly adaptable animal to the topography of the zone, but sheep and camels are also reared. The species of sheep and goats kept in the zone are low in meat and milk production and they mature later than species kept in other zones (Waithanji, et al., 2020).

2.2.2 Land use systems

In line with these livelihood zones, the dominant **land use systems** (indicating peoples primary land use system) in the districts targeted by REPRO can be classified as follows (Waithanji, et al., 2020):

- livestock grazing on rainfed rangelands
- farming with irrigation systems, feeding livestock with crop residue
- rainfed farming, producing animal fodder.

As these livelihood zone labels and land use systems indicate, the livestock sector is dominant in this area. As the FNS-REPRO proposal elaborated upon, livestock is tightly interconnected with the fodder system, which is the focus of REPRO in Somaliland.

Fodder availability is a constraint, but also represents a major opportunity considering higher levels of rainfall in this livelihood zone plus the availability of crop residues as a source of animal feed.

2.2.3 REPRO's thematic scope: feed and fodder

In Somaliland, FSN-REPRO will focus on the fodder value chain in the predominantly pastoral north, where frequent animal feed shortages severely impact pastoral livelihoods, food security, nutrition and overall well-being. The fodder value chain is a priority that cuts across humanitarian and development interventions, with numerous missing links in between (particularly its access and use by economically vulnerable pastoralists). Fodder represents both a major need and opportunity, considering its scarcity, demand, and market potential, and it being a recurrent need in humanitarian response that is difficult, costly, and inefficient to import, as experienced during the 2016/17 drought (see REPRO proposal).

FSN-REPRO will improve fodder availability and access while responding to these nexus challenges by deliberately engaging economically vulnerable pastoralists in animal feed production and range management practices, and by supporting communities to produce fodder in ways that are climate-savvy and protect the environment. The latter includes sourcing scarce feed ingredients from harvests (crop residues) and from invasive plants that resist drought (prosopis pods and leaves), while contributing to control their spread and expansion.

Box 1 shows an overview of REPRO's goals in Somaliland (Source: REPRO proposal).

Box 1: Summary: REPRO's plans to increase Somaliland's food system resilience

FNS-REPRO proposed activities centred on the fodder/feed value chain in Somaliland will increase the resilience of communities and their food security status by:

- **Increasing fodder and feed productivity and reducing production costs**, through capacity building, aggregation, increasing storage capacity and processing capacity, and achieving economies of scale;
- **Restoration of degraded rangelands and actions against desertification**, such as Prosopis management and community tree planting;
- **Strengthening the capacity of agro-pastoral and pastoral producer organizations** to effectively participate in the feed/fodder value chain, and
- **Promoting good agriculture practices** to maximize crop yields and improve the nutrition quality of crop residues while diversifying food available for people.

2.3 Grouping indicators

In summary the main grouping indicators are:

- the location of a target population: Sool and Sanaag, Somaliland
- type of livelihood systems: Northern Inland Pastoral Livelihood Zone and the Northwest Agropastoral Livelihood Zone
- beneficiary groups: pastoralists and agro-pastoralists
- shocks and stressors: main shocks and stressors over the last 10 years, according to local prioritisation
- gender is a persistent topic in the region; hence, a focus is set that men and women are targeted, and best efforts will be undertaken to document their respective perspective and dynamics and programme accordingly, for example through separated focus group discussions (FGDs)
- meaningful engagement of youth in the area to mitigate future tensions.

2.4 Step 1 summary of findings

Box 2: Summary of step 1; resilience goals, objectives, and system boundaries

REPRO seeks to sustainably increase resilience in the protracted crises area of Sool and Sanaag in Somaliland, through meaningful engagement with a variety of local actors and on the foundation of strengthening existing capacities of pastoralists and agro-pastoralists.

The specific thematic scope is set on livestock and particularly the fodder system in the light of shocks and stressors of the last 10 years, but also gender will be taken into account to build inclusive resilience.

3 Sool and Sanaag food systems and their outcomes

The previous chapter 1 provided an overview of the target area and food system resilience objectives, concluding in the definition of the scope, covering communities in Sool and Sanaag with a specific focus on the fodder system. This chapter provides an overview and understanding of the current status of the food system / fodder system and its FNS outcomes.

Section 2.1 introduces the food system framework (see Figure 4), which guides the whole of step 2. In the rest of the chapter, each section goes into more detail on the framework, as follows: food system activities; the drivers of the food system (environmental drivers and socio-economic drivers); and food system outcomes.

3.1 The food system framework

The food system framework (Figure 4) developed by van Berkum (2018) was used to:

- provide a checklist of topics to be addressed
- draw attention to the vulnerabilities of the food system
- identify the most limiting factor or factors to achieving FNS.

Applying a food systems framework helps to identify strengths and weaknesses of the key food system components in Sool and Sanaag and the role of fodder in underpinning these systems. Such understanding allows for making targeted, specific investments in the fodder-food system interface for improved food system performance and outcomes.

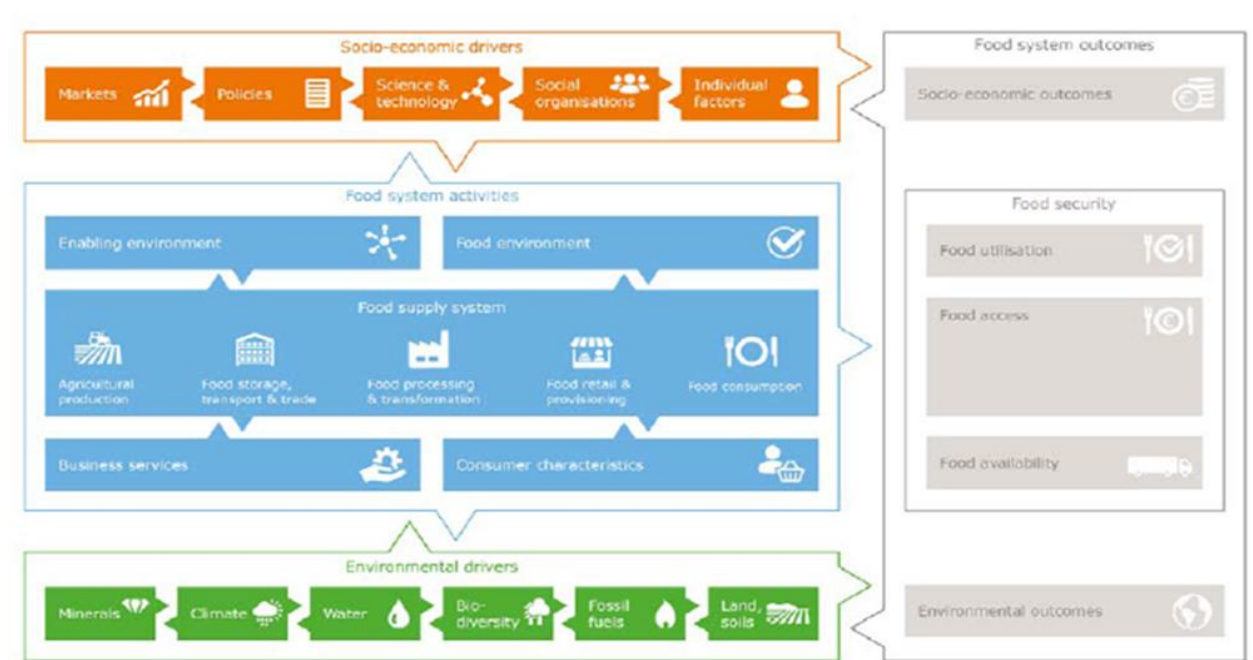
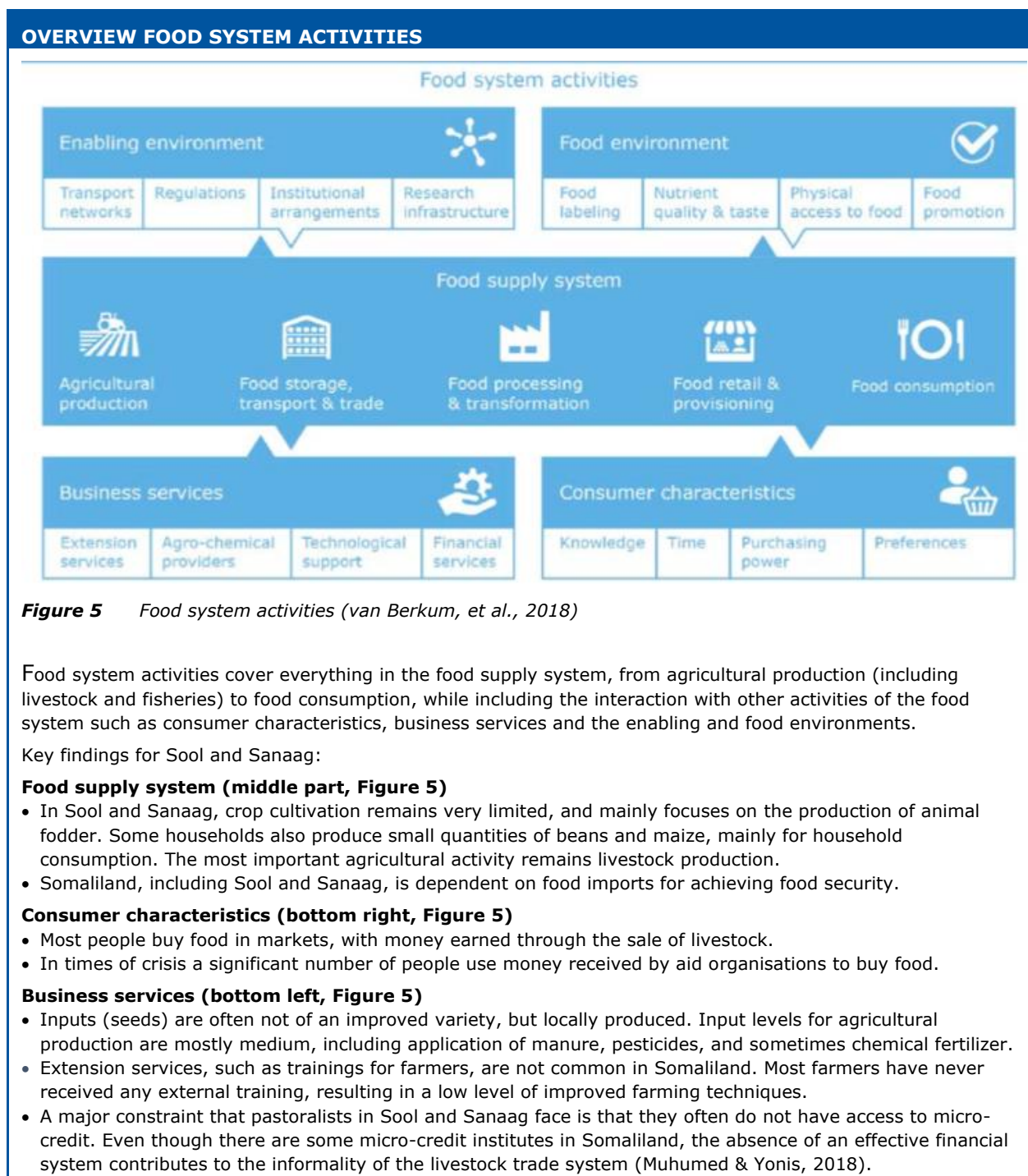


Figure 4 Mapping food systems and their relationship with drivers (Berkum et al., 2018)

3.2 Food system activities

Somaliland and the specific area are overall highly dependent on food imports. Some maize and bean production exists on a small scale for household consumption, but livestock is the key food system aspect in Somaliland and is therefore the focus of this report, rather than extension services, seed systems and agriculture. Furthermore, the informal nature of the livestock business is reinforced through the lack of financial systems, for example access to loans. Overall, the data is consistent with the theory that the ordinary household earns money from livestock trade and uses this income to buy imported food. Key findings of on food system activities in Sool and Sanaag are presented below.

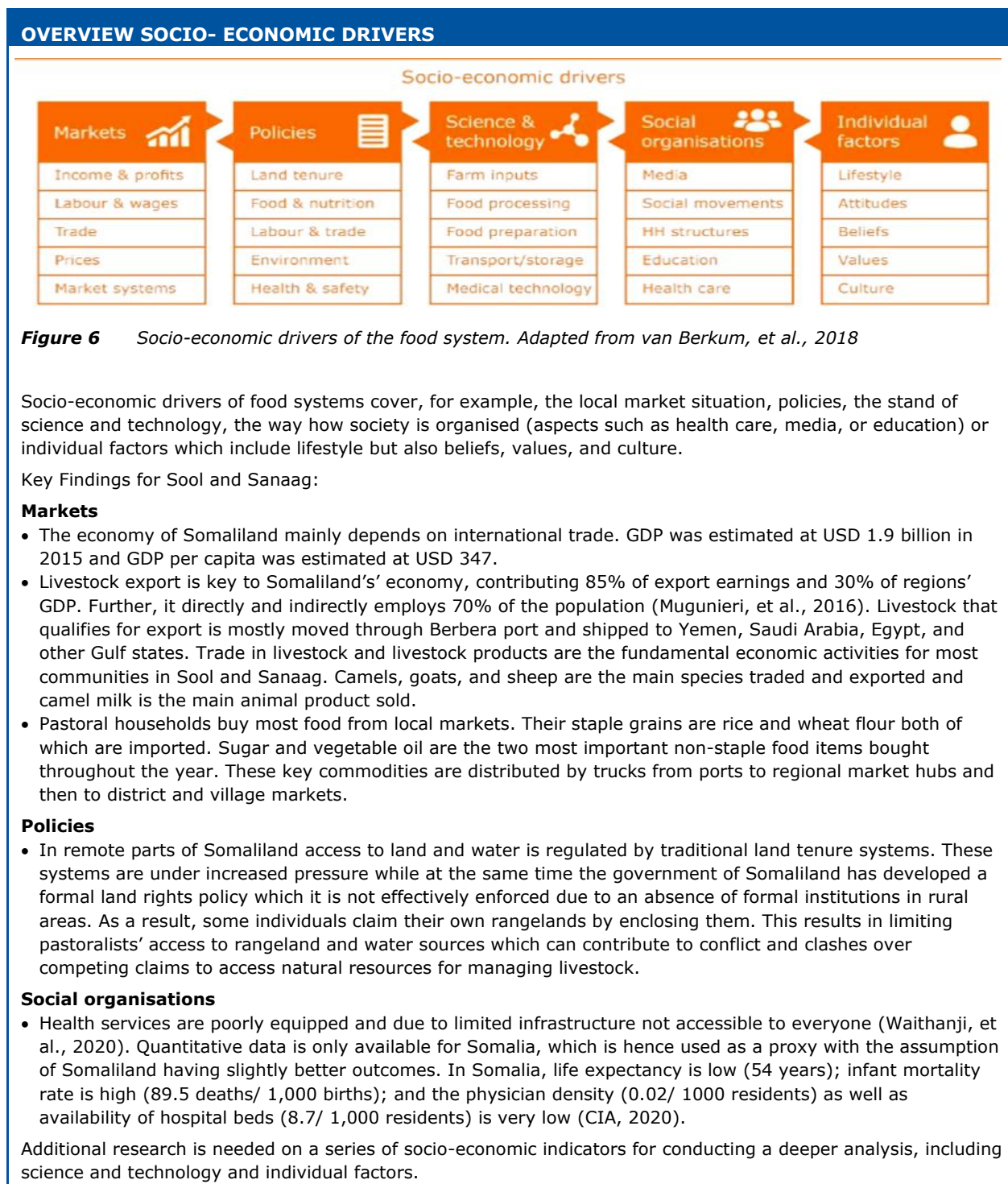


The food system is impacted by drivers that impact food system performance and outcomes. These drivers will be further discussed in the next section to further comprehend the dynamics of the food system.

3.3 Food system drivers

The food system drivers, impacting on food system activities and food system outcomes, include socio-economic drivers (section 2.3.1.) and environmental drivers (2.3.2).

3.3.1 Socio-economic drivers

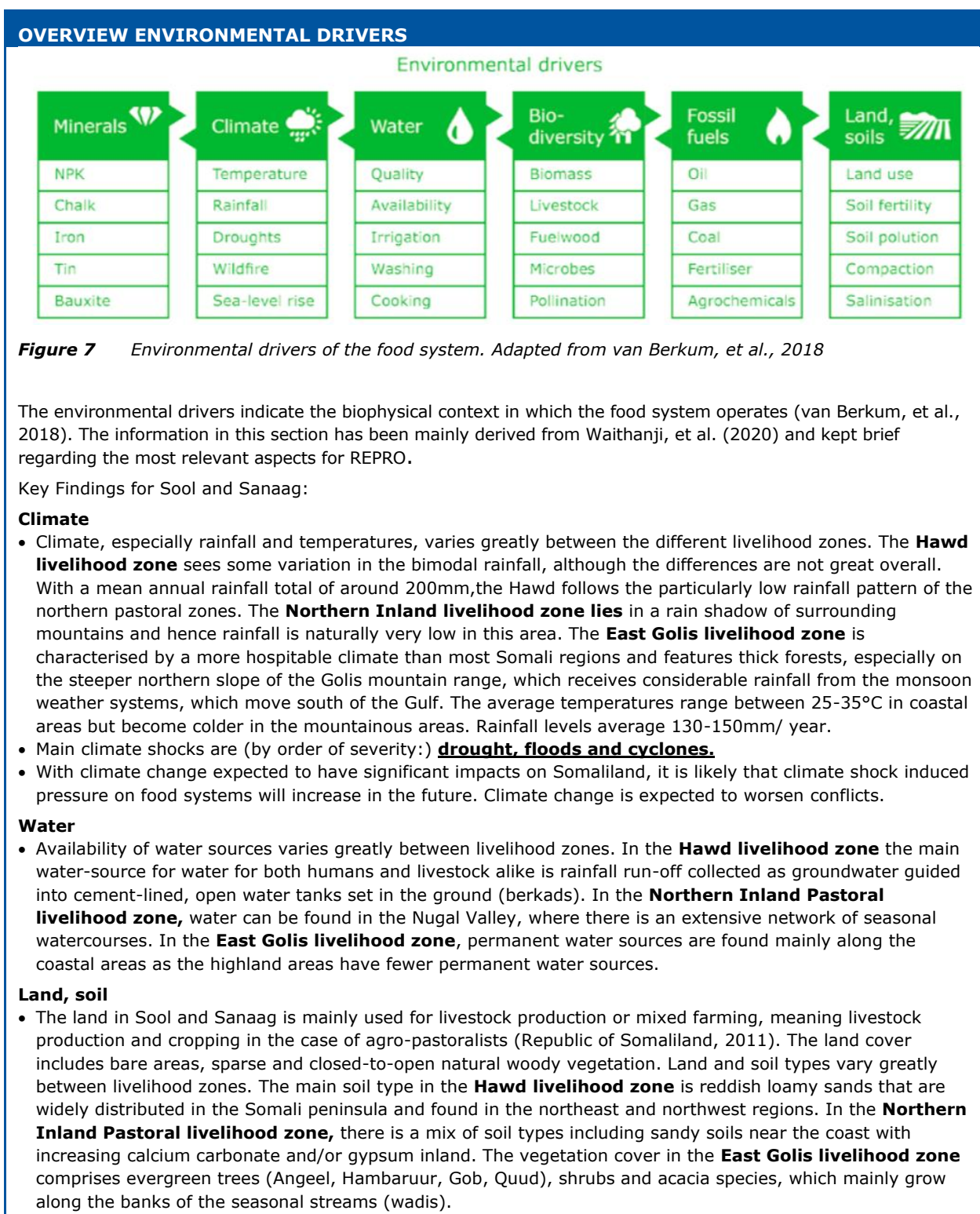


Whilst the food system activities already highlight the informal nature of the livestock business, the socio-economic drivers show that this is driven by the lack of formal institutions in rural areas and concomitant lack of enforcement of land tenure systems. Individuals self-claim their land access, causing regular clashes which must be considered carefully within REPRO when aiming to intervene in fodder chain activities. The significance

of the livestock sector for the regions' GDP is outlined and shows that this may be a promising entrance point. Since livestock is currently central to the export market, it is more than 'just' about food production, it is about generating an income to purchase food later, making FNS outcomes dependant on external markets.

3.3.2 Environmental drivers of Sool and Sanaag's food systems

The environmental drivers impacting food systems are particularly affected by climatic factors – droughts, floods, and cyclones. This explains the dominance of livestock keeping as, in general, livestock is more resilient in the face of such climatic factors than farming.



The question remains as to what all these drivers and food system activities really mean in terms of practical outcomes. While it is important to understand these dynamics, the final results of the food system are more graspable and serve as a basis to connect the dots between all elements.

3.4 Food system outcomes

According to van Berkum's (2018) food system framework, there are three different types of food system outcomes to be distinguished:

1. outcomes relating to food security
2. socio-economic outcomes
3. environmental outcomes.

While the previous chapter described the drivers and existing activities of Sool and Sanaag food systems, this section focuses on outcomes in terms of food and nutrition security (2.4.1), socio-economic outcomes (2.4.2), and environmental outcomes (2.4.3).

3.4.1 Food and nutrition security outcomes

FNS outcomes are presented by making use of IPC analyses. In addition to providing a simple overview of current food and nutrition outcomes, the outcomes were also analysed within their dynamic context and history in order to better understand IPC trends and changes over time. IPC data reveals how FNS in Sool and Sanaag fluctuated between the years 2012 and 2021. This time frame has been analysed, as the first IPC analysis was in 2012. Since then, each year four analyses have been published; in January and July of each year there has been a technical release, showing the current IPC, and each year two projections for the coming months of the same year have been published. IPC levels for Sool and Sanaag (Figure 8) were at level 3 (crisis) in early 2021 (January – March) and were projected to remain at this level between April and June.

3.4.1.1 IPC Levels in Sool and Sanaag 2012-2021

The original IPC classifications do not use uneven numbers. However, for practical reasons, uneven numbers were used for this analysis, given that there was a clear division visible between IPC levels within a region. Data in Figure 8 were adapted from: (FAO/FSAU, 2021).

Overall, these insights illustrate how the food security situations of Sool and Sanaag are changing over time and could support and guide programming choices and strategies. For example, investing in resilience building through strengthening the capacities of local communities and livelihoods could be done proactively during a phase 2, and if a prediction suggested a worsening situation, this could be taken into account directly, meaning that actions could be taken to prevent further deterioration of IPC levels.

Furthermore, food security outcomes are not static, and it is important to understand relations between climatic events, conflict shocks, and the respective FNS outcomes, to fully comprehend related dynamics and maximise the insights' possible impact. Section 3.1 discusses the shocks and hazards in this timeframe and shows that times of high IPC levels are consistent with the immediate and prolonged effects of drought in particular, but also conflict, in the area of Sool and Sanaag. This illustrates the dynamic through which food system outcomes are shaped in the face of shocks and stressors. On the following page, a more detailed map with current nutrition outcomes is provided (Figure 9).

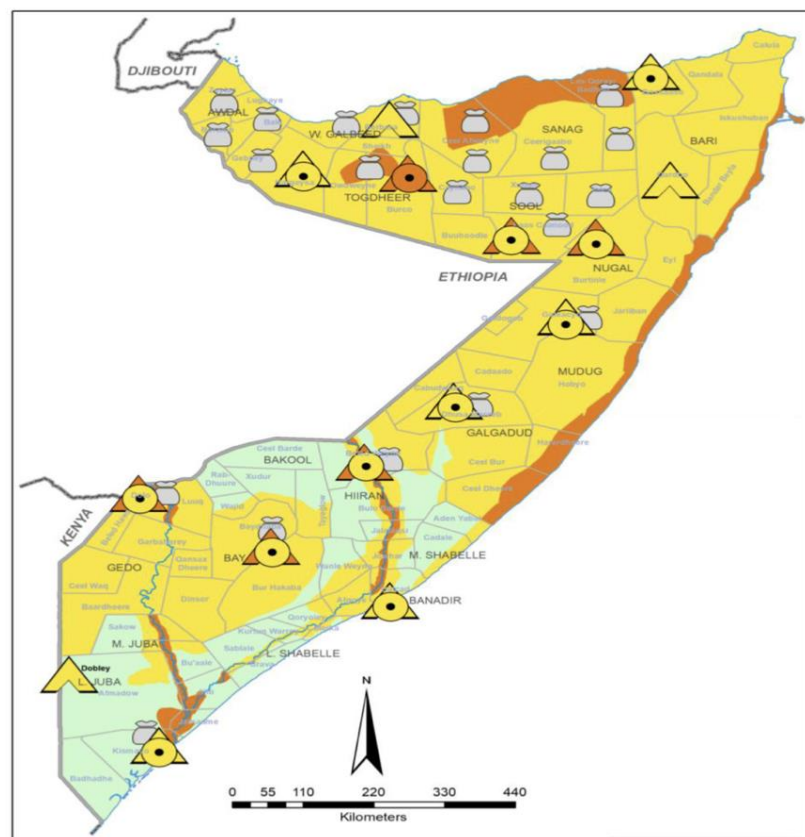
IPC Level	Situation
1	Minimal
1,5	
2	Stressed
2,5	
3	Crisis
3,5	
4	Emergency
4,5	
5	Famine

Name	Year	Month	IPC Sool	IPC Sanaag
2012-1	2012	7	2	2,5
2012-2	2012	8-12	2	2,5
2013-1	2013	1	2	2
2013-2	2013	2-6	2	2
2013-3	2013	7	2	2
2013-4	2013	8-12	2	2
2014-1	2014	1	2	2
2014-2	2014	2-6	2	2
2014-3	2014	7	2	2
2014-4	2014	8-12	2	2
2015-1	2015	1	2	2
2015-2	2015	2-6	2	1,5
2015-3	2015	7	1	1,5
2015-4	2015	8-12	1	1,5
2016-1	2016	1	2	2
2016-2	2016	2-6	2	2
2016-3	2016	7	2	2
2016-4	2016	8-12	2	2
2017-1	2017	1	3	2,5
2017-2	2017	2-6	4	3,5
2017-3	2017	7	4	4
2017-4	2017	8-12	4	4
2018-1	2018	2-10	4	3,5
2018-2	2018	8-12	3	2,5
2019-1	2019	1	2	2
2019-2	2019	2-6	3	3
2019-3	2019	7-9	2	2
2019-4	2019	10-12	3	3
2020-1	2020	1-3	2	2
2020-2	2020	4-6	2	2,5
2020-3	2020	7-9	2	2,5
2020-4	2020	10-12	2	2,5
2021-1	2021	1	3	3
2021-2	2021	2-6	3	3
2021-3	2021	7-9	2	2,5
2021-4	2021	10-12	2	3

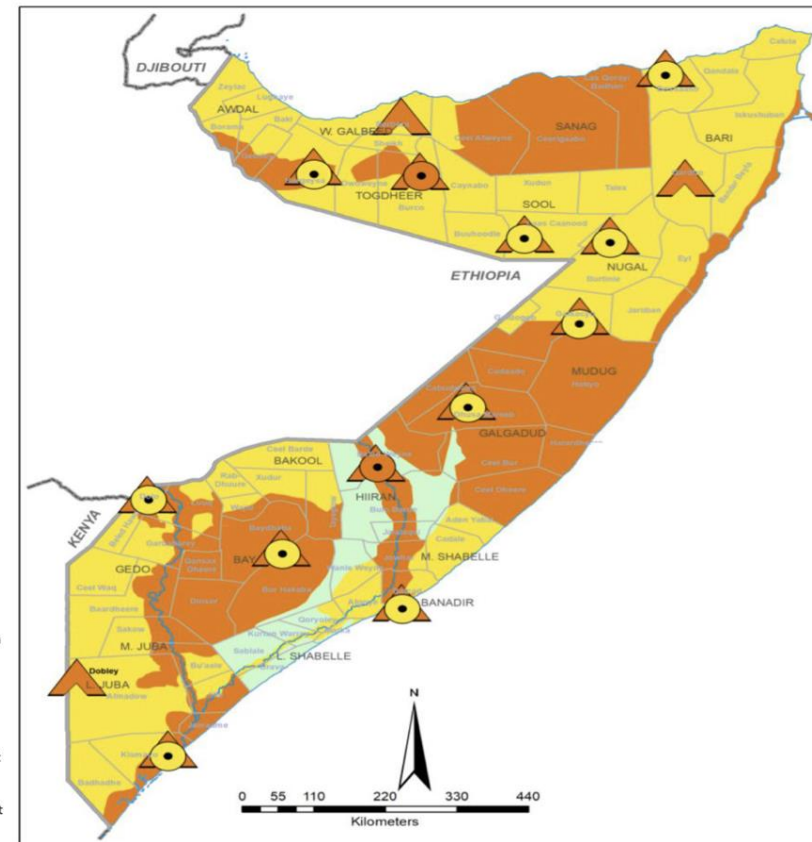
Figure 8 IPC levels in Sool and Sanaag, 2012-2021

SOMALIA: Food Security and Malnutrition Snapshot

Current Map of Acute Food Insecurity | July - September 2021



Projected Map of Acute Food Insecurity | October - December 2021



MAP KEY IPC Acute Food Insecurity Phase Classification

(mapped Phase represents
highest severity affecting at
least 20% of the population)

- 1 - Minimal
- 2 - Stressed
- 3 - Crisis
- 4 - Emergency
- 5 - Famine

Areas not analysed

Map Symbols

- Urban settlement classification
- IDPs/other settlements classification

Classification takes into account levels
humanitarian food assistance provided

At least 25% of households meet
25-50% of caloric needs from
humanitarian food assistance

At least 25% of households meet
over 50% of caloric needs from
humanitarian food assistance

Figure 9 IPC levels mid-2021 (FSNAU, 2021)

3.4.2 Socio-economic food system outcomes

The socio-economic outcomes of the food system involve 'incomes and living conditions of farmers' families and other actors in the food system, as well as the employment and wealth that these activities generate. They also involve the social, political and human capital generated by these activities (van Berkum, et al., 2018).' For brevity, only the three key aspect that were identified in the context of Sool and Sanaag are presented.

1. The socio-economic outcomes of food systems in Sool and Sanaag remain poor and are dependent on various factors. In economic terms, seasonality plays a major role, with the food security situation in some years being worse than in others, depending (amongst other factors) on climate conditions, aid availability, local conflicts, and personal circumstances, all of which inherently impact the economy on an individual as well as national level. Hungry people work less efficiently, representing a circle of economic impact. If livestock is sold, status (social) as well as income generating assets (economic) suffer. It is noteworthy to consider that an outcome is that food is a commodity as well as a basic right to life, meaning that social aspects and the economy are tightly intertwined.
2. A general trend that has been observed in Sool and Sanaag in recent years, just as in the whole of Somaliland, is urbanization (see Figure 10). Urbanization seems to be mainly a result of population growth; however, poor food system outcomes may contribute to urbanization (Pfeifer, et al., 2018). Observations indicate that especially in years of drought there are large numbers of young men, often former pastoralists, moving to urban areas such as Hargeisa in the hope of earning a better living there. This directly leads to less workforce in the rural areas being available to support the remaining pastoralists in moving their animals - a reason why elderly people also increasingly give up on pastoral lifestyles and start relying on remittances instead, especially in times of drought. Hence, an outcome is a reduction in traditional lifestyles and livelihoods with an increase of alternative, urban livelihood strategies.
3. Among young people who move to the urban areas, some find decent employment, and others do not. The unemployed urban youth often survive on charcoal production and sale and other small jobs and often get addicted to khat. On the other hand, the young people who get decent urban jobs play a key role in sustaining livelihoods in their rural communities. Employed youth act as a sort of insurance for their relatives who remained in the pastoralist lifestyle. Indeed, during droughts, the employed youth support their communities with remittances.

Overall, socio-economic outcomes of the food systems concentrate around dynamics of increased urbanisation and seasonality.

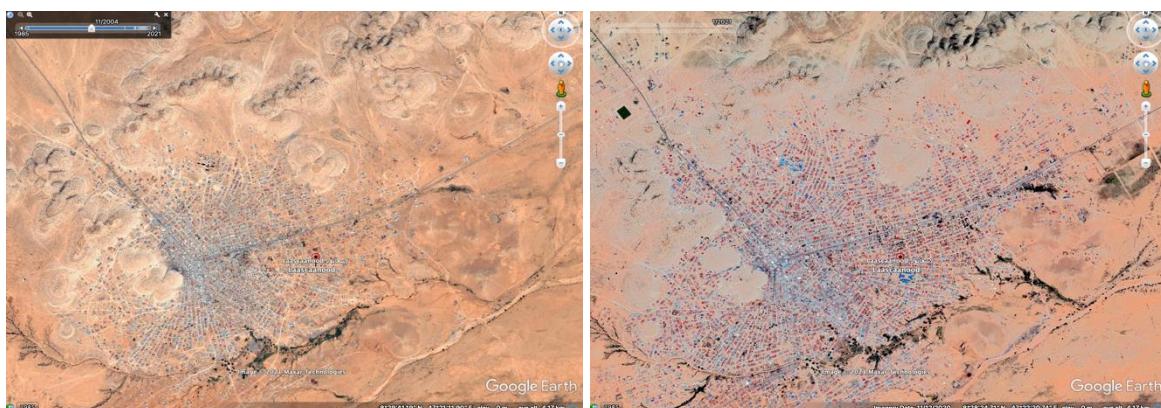


Figure 10 Visual impression of progression of urbanisation, Las Anod, Sool
Visualization of urbanization in Sool. Picture on top left: Las Anod in 2004. Picture on top right: Las Anod in 2021. Source: Google Earth

3.4.3 Environmental food system outcomes

Environmental outcomes refer to the impact of a food system on natural resources and the biophysical drivers of the food system (van Berkum, et al., 2018).

Somaliland, including the regions of Sool and Sanaag, is affected by severe land and soil degradation. It is estimated that about 30% of Somaliland's land is severely degraded (MoNDP, 2017). This may be partly resulting from agricultural and livestock-related activities. However, the main causes identified for land degradation are as follows.

1. Natural reasons; soil degradation because of land mismanagement such as overgrazing; deforestation because of charcoal production; and construction of new roads. Vegetation types that have been most affected by soil degradation include grass, forbs, sparse shrubs, and some trees, which all are natural sources of livestock fodder. A consequence of soil erosion is that flood occurrence is increasing. The reason is that the soil infiltration capacity reduces when soil is increasingly eroded.
2. Drought occurrence has increased significantly, possibly due to climate change (Waithanji, et al., 2020).
3. Invasive species pose a threat to the natural environment. A tree called 'prosopis', which was mainly planted along dry riverbeds to combat the consequences of deforestation (Meroni, et al., 2016), has turned out to decrease the quality of pastures, reducing soil quality. The ongoing loss of native vegetation creates ideal conditions for the prosopis tree to spread in the region. Other invasive plant species, such as Parthenium weed and Tiintin cactus, which are resistant to drought and other climate shocks, also benefit from the loss of native vegetation.

3.5 Step 2 summary of findings

Box 3: Summary of step 2; Sool & Sanaag food systems and outcomes

This section provided a variety of insights. First, the current food system activities indicate that the region is highly **dependent on food imports**. Agricultural production exists (maize, beans) but the scale and level of extension services is minimal in comparison to the role of livestock. Typically, a person earns money through the (informal) livestock system and then spends it on imported food items.

These dynamics are influenced by several **socio-economic drivers**: 1) there is a strong connection between the GDP and the livestock market, giving food a rather commercial frame than a 'basic need' perspective; 2) there are very limited enforced land tenure systems or local authorities in rural areas, leading to frequent clashes between farmers and herders, making it difficult to create a more formal business chain.

Moreover, **environmental drivers** exist in form of shocks and stresses, inherently influencing the food system towards livestock rather than agriculture, as will be further elaborated upon in the following chapter.

In terms of **food system outcomes**, the **food security outcomes** can be summarised as rather poor, with current levels of IPC 3 and a long history of food insecurity.

Socio-economic outcomes include the increasing trend of urbanisation, which can provide better income but can also push youth onto a bad path. Furthermore, it makes the elderly more dependent on remittance payments since they often cannot herd alone.

Environmental outcomes seem the most significant since overgrazing and deforestation has led to the degradation of soil and land. This degradation has resulted in the loss of many natural livestock fodder sources like grasses and shrubs which further reinforces flood risk. Attempts were made to counter these issues using edible invasive species, but these became a source of soil degradation themselves.

Environmental degradation, including the loss of natural livestock fodder, as well as the strong linkage between commercial interests (GDP, food imports) and food security, appear central from a systems perspective. Furthermore, the dynamics of urbanisation and remittance dependencies and the lack of formal land tenure structure appear of high relevance.

Overall, a better understanding of shocks, stressors and the populations' vulnerabilities, capacities and risk management strategies are required. This is dealt with in the next chapter to deepen insight and move towards recommendations for REPRO programming.

answers, indicating that drought was most frequently mentioned, followed by locust, livestock disease, inflation, COVID-19, and conflict. This chart does not show the priority level given to each hazard.

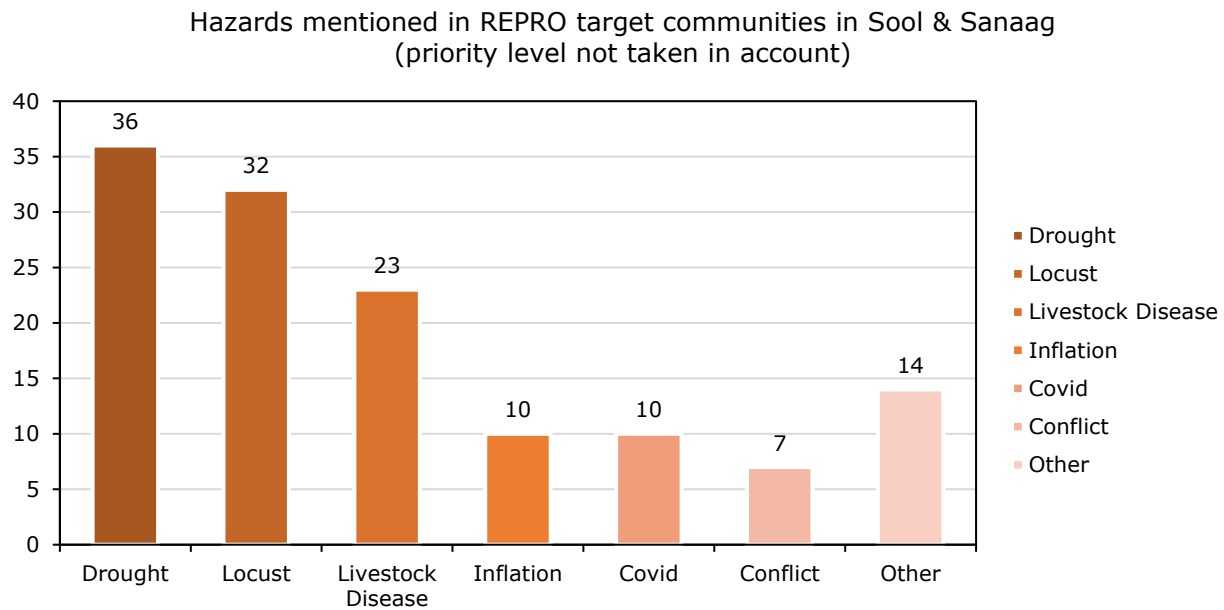


Figure 12 Sool and Sanaag hazards in a chart, as mentioned by the communities

To better understand not only which hazards were mentioned where, but also which ones were perceived as a priority and by whom, further groupings were made when ranking the hazards by looking at differences between male and female perceptions of hazards.

Priority hazards (1st, 2nd, 3rd) by gender were:

- all: 1st drought, 2nd locust, 3rd livestock disease
- male: 1st drought, 2nd locust, 3rd livestock disease
- female: 1st drought, 2nd locust, 3rd livestock disease

The results indicate that there were no significant differences between male and female risk perceptions.

Hazards that were visualised as 'other' included water scarcity, crop disease, livestock market failure, pests, flood, poor rainfall and crop failure. It is important to note that from a risk management literature point of view, not everything that has been mentioned would fall under the category of a hazard. Some might be considered either drivers or the result of natural hazards (for instance, water scarcity because of drought, or inflation and livestock market failure as social economic factors). Yet, it is important to highlight that these issues were perceived by communities as hazards.

4.2 Risk management strategies

This section makes sense of how communities respond to recurring shocks and stressors and how risk management strategies are adopted when dealing with the hazard identified above. This section highlights some, albeit not all, coping strategies that were mentioned recurrently throughout the two different rounds of FOSRA data collection. Unfortunately, generated data did not allow for establishing a direct connection between specific shocks and/or stressors and the respective coping strategies; however, many of the mentioned hazards were interconnected and more than half of the people referred to drought in this exercise. Therefore, the data could be regarded as being likely to refer to drought and water risk management strategies, but not exclusively.

The following risk management strategies were identified as part of the FoSRA assessment in Sool and Sanaag. The risk management strategies are presented in alphabetical order.

Casual labour and charcoal production

Charcoal production is a coping strategy that can in some cases provide a decent income for mostly young people, who do not see a future in pastoralism. The ongoing trend of moving towards charcoal production needs to be regarded as very critical, as it compromises natural resources resulting in environmental degradation.

Changes in herd species

Another trend that has been observed is a change or diversification in animal species. Instead of or additionally to camels, pastoralists start to increasingly herd goats and sheep.

Destocking or 'timely selling of livestock'

Destocking of herds is a common strategy. In practice, the 'timely selling of livestock' leads to only a few animals being affected by the effects of drought and extra cash being available for survival.

Drought committees

These committees link communities with government agencies. Their mandate is to coordinate drought response measures. However, often these committees also manage other disasters and responses, and have units specialized in conflict resolution or disease control.

Establishing enclosures, or 'relocation of livestock'

When pastoralists lose all or most of their animals, most often because of drought, they cannot sustain a nomadic lifestyle and start to settle near water points. Setting up enclosures often triggers bloody clan clashes when there is dispute over land use. Further, enclosures often block traditional transhumance routes that support the regeneration of natural resources, resulting in environmental degradation. More and more enclosures are being set up over time, as Figure 13 shows.

Fodder storage

Making use of stored fodder is a common strategy to mitigate the impacts of shocks and stressors. However, not every household can afford to store fodder and stock levels depend on previous years. If the years preceding a hazardous event have been stressed, there is usually no or little stored fodder available.

Increasing agricultural production

As an indirect result of the construction of enclosures (see section 3.2.4), agricultural activities are increasing. Agro-pastoral production systems have the potential to improve household food security for some livestock keepers by practicing subsistence farming and generating cash by selling crops.

Loans

Taking up loans is a coping strategy commonly adopted in times of crises to compensate for losses. Loans can be taken up from banks, micro-credit institutes, or more informally, from other community members. The generated data did not allow for insights on what loans are being used for. Generally, however, loans are often used for the purchase of food and animal fodder as well as other household expenses.

Migration and urbanisation

With ongoing population growth and pressure on natural resources, this trend is expected to continue. Those who migrate to urban centres and cities in the search for better livelihood options are mostly young people who do not pursue a livelihood in pastoralism, but also pastoralists who have given up on their traditional lifestyle.

Overgrazing

Also partly resulting from the construction of enclosures, overgrazing of remaining pastures increasingly becomes an issue, further degrading the soil. This is exacerbated by climate stress and meteorological hazards.

Provision of humanitarian aid

Government and humanitarian support in times of crisis, often requested and organized by local committees, includes the provision of water, food and medicine. This assistance directly benefits households and helps to avoid the worst forms of malnutrition.

Reducing food intake / reducing meal frequency

Another common practice in Somaliland is to reduce the quantity and frequency of food being eaten in one day, in order to stretch food savings over the weeks and months to come.

Reducing fodder use

Similar to the above strategy, the use of animal fodder is being reduced in times of crises to stretch food savings over the weeks and months to come.

Remittances

Remittances paid by work migrants (often urban youth) and the diaspora overseas, to rural family members, are a crucial coping strategy at times of drought or other hardship. They create close domestic and international connections between urban areas in Somaliland and abroad and the rural areas.

Restocking

In the recovery phase of a disaster, pastoralists often resort to restocking. If possible, herds of animals are increased in size.

Water storage

Capacities for water storage are limited in Somaliland, yet this strategy was mentioned frequently in the data collection. Unfortunately, the generated data does not allow for more detailed insights into how, where and in what quantities water is stored. This is of particular importance for agro-pastoralists, who rely on a water supply for both their crops and their livestock.



Figure 13 Satellite image of enclosures.

The pictures show Kalabaydh, a target village of the REPRO program. The image on the left was taken in 2004, the one on the right in 2021. One can see how the number and size of enclosures (black circle-like structures) has increased. One can also see an increase in structures such as building. Source: Google Earth

4.2.1 Sool and Sanaag coping strategies

Zooming further into REPRO's target areas, identified coping strategies are defined, first according to prevalence (Figure 14), then by who adopts them (Figure 15).

Figure 14 provides an overview of the prevalence of existing coping strategies in Sool and Sanaag.

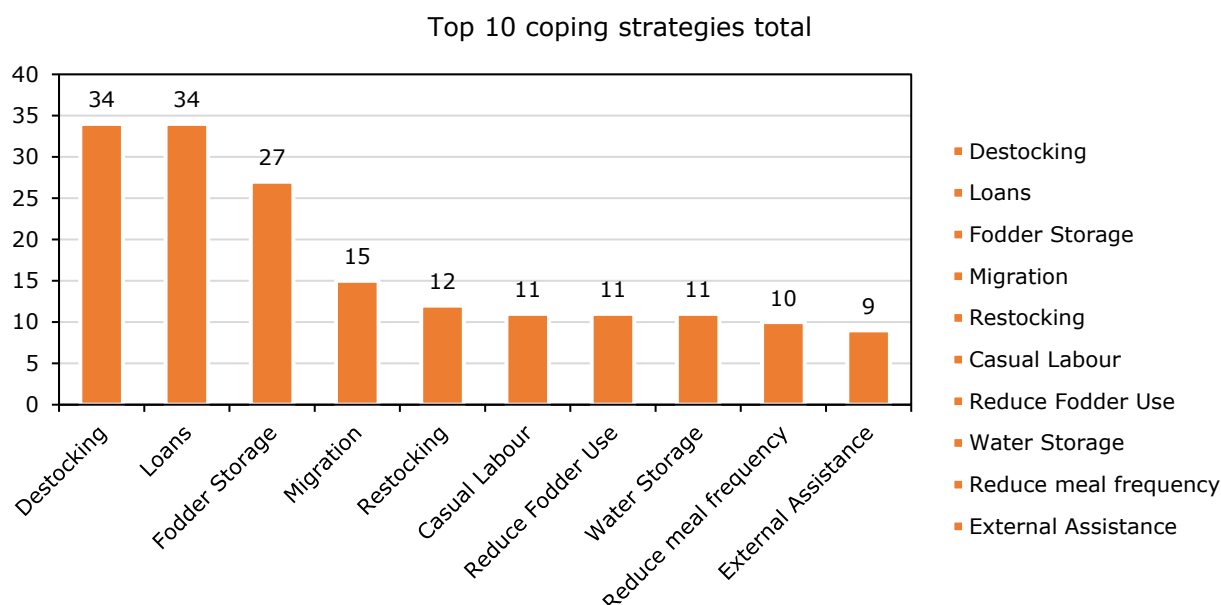


Figure 14 Prevalence of coping strategies in Sool and Sanaag

The most identified coping strategy was destocking as well as the taking up of loans. The coping strategy that was seen the most after was making use of stored fodder, followed by migration. Other, less frequently mentioned, were the following coping strategies: restocking, casual labour, reduced fodder use, water storage, reducing meal frequency, and relying on external assistance.

While the above presents the ten most common coping strategies as mentioned by the communities in Sool and Sanaag during the second round of data collection, it is important to note that a wide range of additional strategies was mentioned that falls under 'other', such as livelihood diversification, livestock migration, charcoal production, and remittances. Charcoal production and remittances deserve special attention, as these are coping strategies that were prioritized during the first round of data collection.

A complete overview of coping strategies identified can be found in Appendix 8.

4.2.2 Prevalence of coping strategies by gender

A separation was made for coping strategies according to gender. Figure 15 shows that there were differences in coping strategies adopted by gender, with destocking, loans and fodder storage more frequently mentioned by women than by men. However, for both genders, these strategies were the ones that were mentioned the most often. Except for destocking, loans, fodder storage and water storage, all other strategies were mentioned more frequently by men.

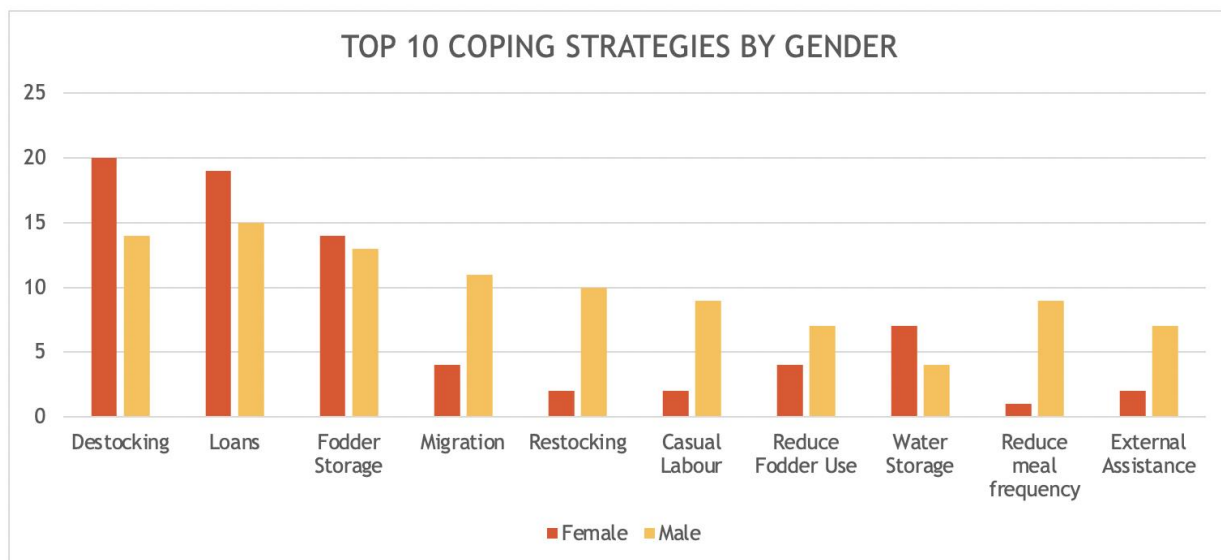


Figure 15 Prevalence of coping strategies by gender

4.2.3 Internal and external coping

During the data collection, participants further classified coping strategies as either internal or external coping, belonging to the categories of coping, mitigation, preparedness, and recovery. The results are shown in Figure 16.

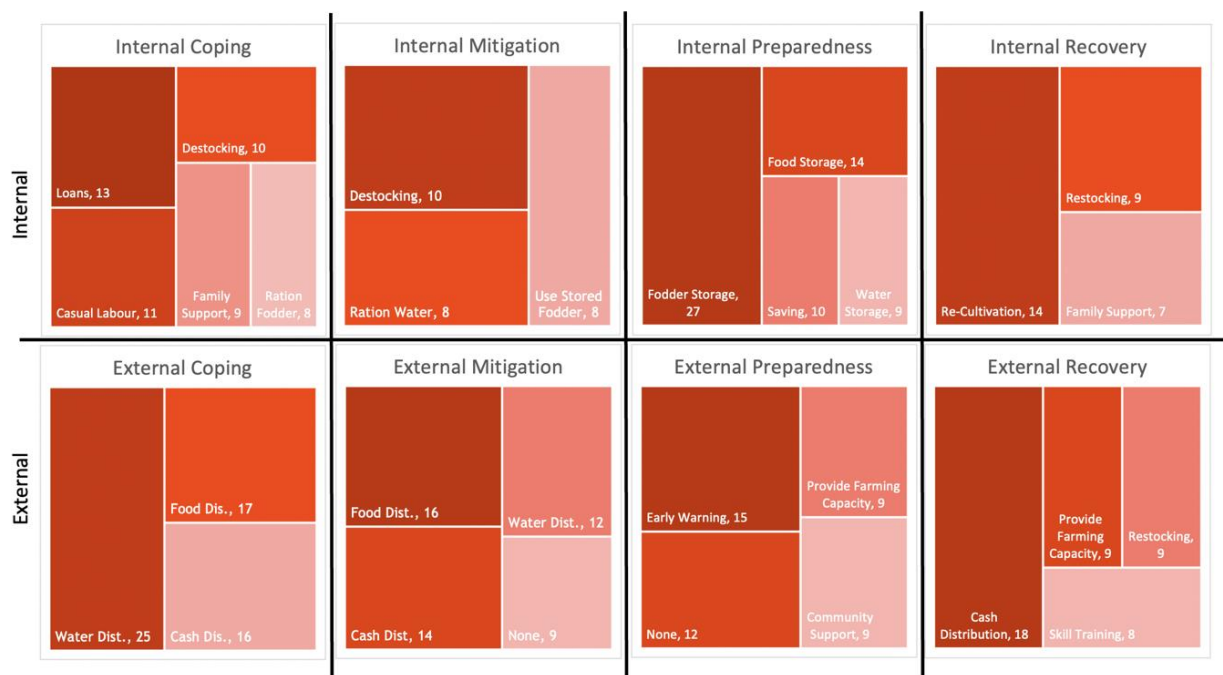


Figure 15 Internal and external strategies

The most common **internal or community-based** coping strategies were loans (coping), destocking (mitigation), fodder storage (preparedness), and re-cultivation (recovery). The most common external coping strategies were water distribution (coping), food distribution (mitigation), early warning (preparedness), and cash distribution (recovery).

But what are these strategies based on? To comprehend existing dynamics within the food system in the face of shocks and stressors even better, it is important to consider what the basis of these strategies is, best regarded through defining vulnerabilities and capacities of the communities.

4.3 Vulnerability and capacity assessment for Sool and Sanaag

This section describes the capacities and vulnerabilities (CVA) of the target communities, taking a variety of shapes, which can be arranged in the pillars of four sections: physical/ material capacities or vulnerabilities (Figure 17); social/ organisational capacities and vulnerabilities (Figure 18); motivational/ attitudinal capacities and vulnerabilities (Figure 19); and political /institutional capacities and vulnerabilities (Figure 20).

Unfortunately, the data did not allow the matching of capacities and vulnerabilities with hazard type. Hence, the collected information describes overall community capacities and vulnerabilities in face of shocks and/or stressors, particularly regarding droughts since this is the most prevalent and impactful hazard in Somaliland.

The following sections and respective graphs illustrate a distribution of identified capacities and vulnerabilities for each section, with the capacities on the left and the vulnerabilities on the right.

4.3.1 Physical / material capacities and vulnerabilities

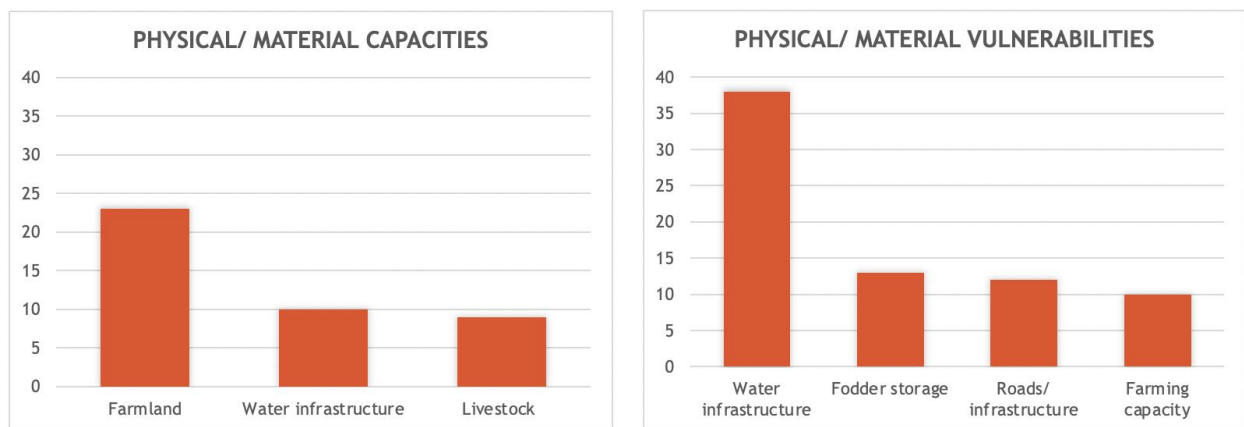


Figure 16 Physical / material capacities and vulnerabilities

It is noteworthy that the community members gave a variety of responses, indicating a certain level of diversity of assets, but also of vulnerabilities in the physical/ material domain. Key capacities include an appreciation of their natural resources and the availability of livestock. The key vulnerability is a lack of water infrastructure, followed by a lack of capacities for fodder storage, insufficient roads and public infrastructure and little farming capacities.

4.3.2 Social / organisational capacities and vulnerabilities

Social capacities identified include good community cooperation, schools, remittances, and community support. In contrast, the key mentioned vulnerabilities are, in decreasing order of importance: associations/ groups, level of education, schools and committees.

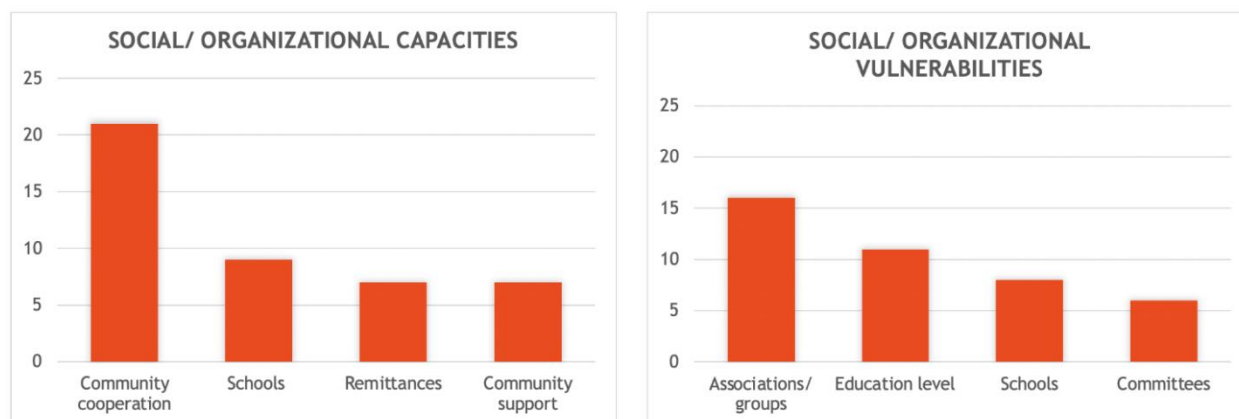


Figure 17 Social / organisational capacities and vulnerabilities

4.3.3 Motivational / attitudinal capacities and vulnerabilities

From a motivational / attitudinal perspective, capacities mentioned are adaptive capacities, peace and conflict management mechanisms and community cooperation. On the other hand, the mentioned vulnerabilities cover a lack of skills, khat usage and a lack of community cooperation.

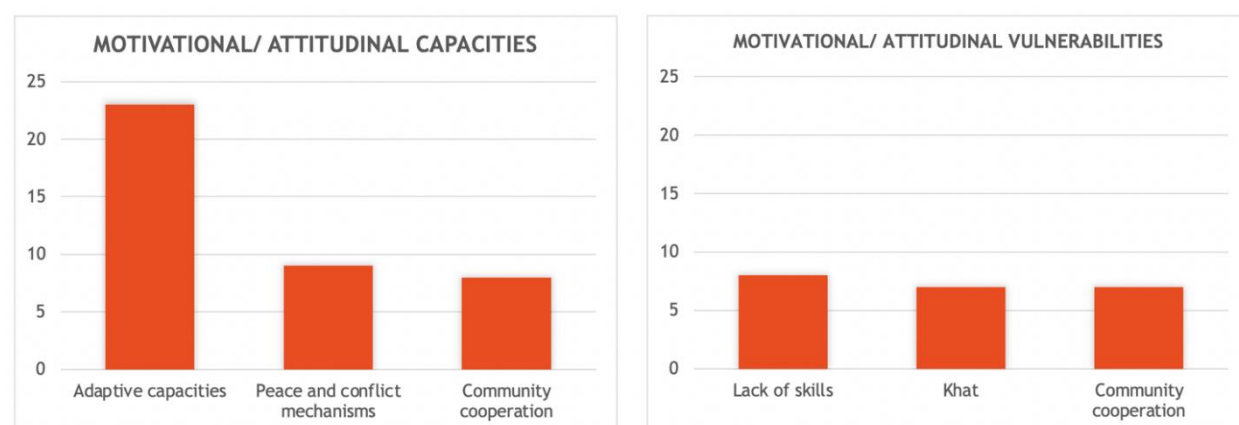


Figure 18 Motivational / attitudinal capacities and vulnerabilities

4.3.4 Political / institutional capacities and vulnerabilities

Lastly, from a political / institutional perspective, identified capacities referred to aspects like peace and security, existing leadership structures, and good governance.

On the contrary, a lack of governance systems and structures was identified as the number one vulnerability, followed by lack of strategy and preparation policies, conflict during election times, a lack of policies and trust in political leaders.

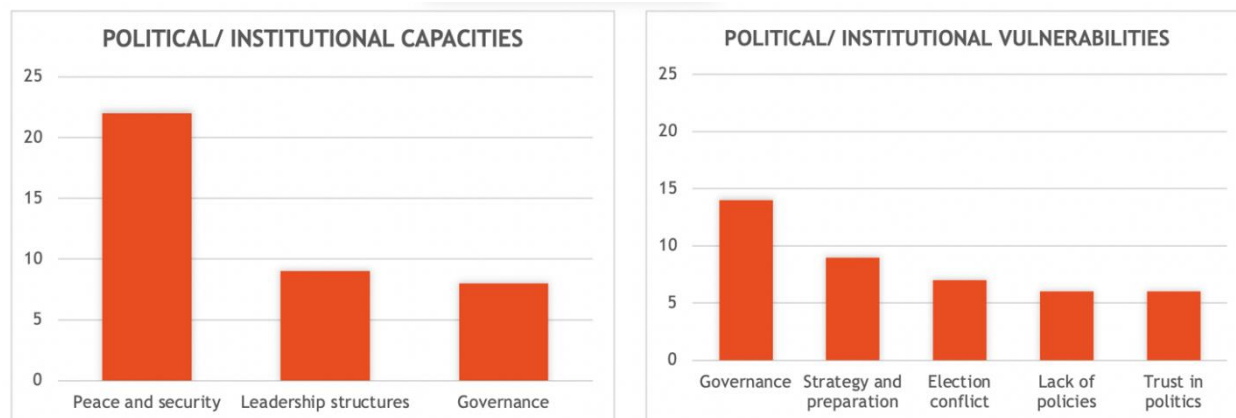


Figure 19 Political / institutional capacities and vulnerabilities

4.3.5 Overview of key capacities and vulnerabilities

Overall, these graphs show that some key capacities that were indicated by the target community emerged in several categories, which further emphasises their importance. Box 4 below provides a summary of the identified key capacities and vulnerabilities.

Box 4: Key capacities and vulnerabilities

Key capacities	Key vulnerabilities
Physical/ material <ul style="list-style-type: none"> • farmland • water infrastructure • livestock 	Physical/ material <ul style="list-style-type: none"> • water infrastructure • fodder storage • road infrastructure • farming capacities
Social/ organisational <ul style="list-style-type: none"> • community cooperation • schools • remittances • community support 	Social/ organisational <ul style="list-style-type: none"> • associations/ groups • education level • schools • committees
Motivational/ attitudinal <ul style="list-style-type: none"> • adaptive capacities • peace and conflict mechanism • community cooperation 	Motivational/ attitudinal <ul style="list-style-type: none"> • community cooperation • lack of skills • khat usage
Political/ institutional <ul style="list-style-type: none"> • peace and security • leadership structures • governance 	Political/ institutional <ul style="list-style-type: none"> • governance • strategy and preparation • election conflict • lack of policies

4.4 Resilience capacities

While analytically distinguishable, the capacities of the CVA and the resilience capacities are in reality not only overlapping, but largely the same. Therefore, this section can be seen as an extension of the above CVA, just with an increased focus on the capacities from a resilience perspective. From an analytical perspective, resilience focuses attention on the relationship between well-being (in this case food and nutrition outcomes in Sool and Sanaag, Somaliland), shocks and stressors, and the capacity to preserve and improve well-being in the face of shocks and stressors. Building resilience involves making investments that

strengthen the absorptive, adaptive and transformative capacities (see Appendix 5 for detailed definitions of the categories) of vulnerable populations to cope with and recover from specific shocks and stressors. Understanding how different types of shocks and stressors affect household and community well-being is fundamental to designing resilience-building programmes.

Community members were asked to define their existing vs. their required resilience capacities, as Figure 21 shows below.

4.4.1 Prevalence of present and required capacities

Figure 21 reveals which present and required capacities people in Sool and Sanaag indicated, making a distinction between adaptive, absorptive, and transformative capacities.

As Figure 21 highlights, the most common adaptive resilience capacity was destocking, followed by running small businesses, reduction of expenses and livelihood diversification. Other existing adaptive capacities cover livestock migration and rationing of food. In contrast, community members were also asked to indicate which adaptive capacities they perceived as still required for them to manage risks better; in other words, resilience capacity gaps. Here, again livelihood opportunities and distribution of food were mentioned, followed by grazing land. Moreover, water infrastructure and distribution was brought up as a central capacity that should be increased / built.

In terms of absorptive capacities, livelihood diversification (for example through beekeeping) was mentioned once again, followed by loans, charcoal production, a change in diets and destocking. On the side of required absorptive capacities, water and food distribution dominated.

For the transformative capacities, migration, urbanization, and livelihood diversifications were listed. In addition, 'none' was listed, indicating a lack of transformative options. On the side of the required transformative capacities, training of skills, agricultural investments, water infrastructure, migration and cash for work were listed as the desired capacities.

In addition to the capacities listed below, some more capacities have been mentioned in the first round of FoSRA data collection. On the side of absorptive capacities, the storage of food and water was mentioned both, an existing and required capacity during the first round of data collection. In terms of adaptive capacities, restocking had been mentioned as both present and required capacities, in addition to requiring the capacity to increase agricultural outputs and a lack of farming trainings available. Lastly, existing transformative capacities of livelihood diversification and community risk management committees were mentioned in the first round of data collection.

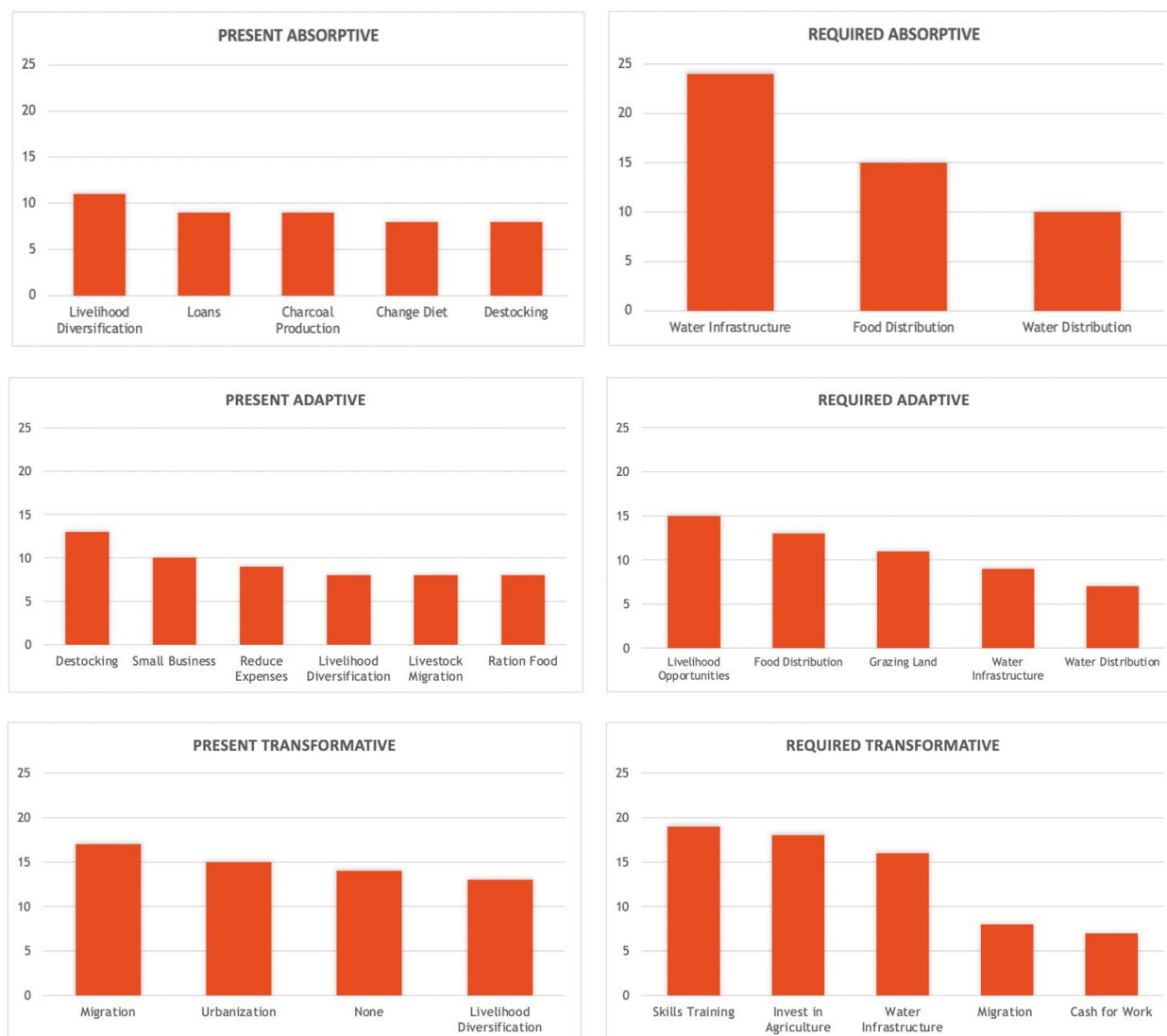


Figure 20 Present and required adaptive, absorptive, and transformative resilience capacities

4.4.2 Overview of types of resilience capacities

The findings represented in the graphs in Figure 21 were now regarded through the 3D resilience framework, analysing the nature of the resilience capacity. Box 5 presents an overview of the results.

Box 5: Resilience capacities overview

Resilience capacities overview

	Absorptive	Adaptive	Transformative
Existing	<ul style="list-style-type: none"> livelihood diversification loans charcoal production change in diets destocking 	<ul style="list-style-type: none"> destocking running small businesses reduction of expenses livelihood diversification. livestock migration rationing of food 	<ul style="list-style-type: none"> migration urbanization livelihood diversifications 'none'
Perceived as required	<ul style="list-style-type: none"> water and food distribution 	<ul style="list-style-type: none"> livelihood opportunities distribution of food by grazing land water infrastructure and distribution 	<ul style="list-style-type: none"> training of skills agricultural investments water infrastructure migration cash for work

4.5 Reflection on the validity of the findings

Covid-19 meant that it was not feasible to collect all data as part of the same mission. As a result, in addition to the initial data collection mission, there was a second round to complete the data. However, there were some inconsistencies between the two data collection missions (partially caused using different enumerators, partially caused by the time span between the missions) which impacted the quality of data.

For example, in terms of shocks and stressors, drought, locust and floods remained major concerns. New in the second round of data collection was that inflation and COVID-19 were frequently mentioned, seemingly capturing recent global developments and trends. This shows that the FoSRA tool can not only capture local issues but also display trends and developments on a global scale which impact on Somaliland communities.

Moreover, deforestation and related charcoal production, a recurring major theme in the first round of data collection, were hardly mentioned in the second round. It is of particular importance as deforestation was listed as a main concern in the first data collection round, while charcoal production was listed as one of the most prominent coping strategies. Due to the importance of charcoal cutting in the previous round of data collection, it remains a key topic in this report, combining findings of both data collection missions. As a result, one key recommendation in this report is to investigate options of how to make charcoal production more sustainable, in order to halt deforestation and its negative consequences. One such solution, as is proposed, would be to look into options of how to make use of invasive plant species for charcoal production. Yet, this recommendation can only hold true if deforestation and charcoal production are as relevant as it appears from the first data collection round, which is contradicted by the second. Thus, it is important to further investigate this discrepancy and to adapt data collection accordingly in the future.

In addition, while factoring in land use types as an additional variable when looking at shocks and stresses, coping and resilience capacities, the second data collection round did not record land use types during the data collection. As there had hardly been any correlations between answers of FGD participants and land use type, this category is not deemed relevant anymore.

In the first data collection round, FGDs were conducted with three types of groups: male, female, and youth. After the first data collection round, FGDs were conducted with male, female, and youth groups. In the second round no specific data on youth was captured, so FGDs were conducted with male and female groups. Focusing on youth is important, however, as it is most frequently young people who give up on pastoralism and engage in alternative livelihood options. In future data collection rounds, therefore, every effort will be made to capture specific data on youth as well as gender.

4.6 Step 3 summary of findings

Box 6: Summary of step 3; risk landscape and capacities

This section describes the **risk landscape** of the target population in Sool and Sanaag.

- Key shocks and stressors mentioned were droughts, locust, livestock disease, inflation, COVID-19, and conflict, with no significant differences between male and female perceptions.
- Coping strategies included destocking and taking up of loans and fodder storage, among many other diverse options. Here there were some differences between male and female respondents.
- The CVA detailed on which basis such decisions are being made (see table):

Key capacities	Key vulnerabilities
Physical/ material <ul style="list-style-type: none"> • farmland • water infrastructure • livestock 	Physical/ material <ul style="list-style-type: none"> • water infrastructure • fodder storage • road infrastructure • farming capacities
Social/ organisational <ul style="list-style-type: none"> • community cooperation • schools • remittances • community support 	Social/ organisational <ul style="list-style-type: none"> • associations/ groups • education level • schools • committees
Motivational/ attitudinal <ul style="list-style-type: none"> • adaptive capacities • peace and conflict mechanism • community cooperation 	Motivational/ attitudinal <ul style="list-style-type: none"> • community cooperation • lack of skills • khat usage
Political/ institutional <ul style="list-style-type: none"> • peace and security • leadership structures • governance 	Political/ institutional <ul style="list-style-type: none"> • governance • strategy and preparation • election conflict • lack of policies • trust in politics

Finally, the resilience capacities described as existing or required by the community can be summarised through the overview table:

	Absorptive	Adaptive	Transformative
Existing	<ul style="list-style-type: none"> • livelihood diversification • loans • charcoal production • change in diets • destocking 	<ul style="list-style-type: none"> • destocking • running small businesses • reduction of expenses • livelihood diversification. • livestock migration • rationing of food 	<ul style="list-style-type: none"> • migration • urbanization • livelihood diversifications • 'none'
Perceived as required	<ul style="list-style-type: none"> • water and food distribution 	<ul style="list-style-type: none"> • livelihood opportunities • distribution of food • by grazing land • water infrastructure and distribution 	<ul style="list-style-type: none"> • training of skills • agricultural investments • water infrastructure • migration • cash for work

5 Causal food system processes

This chapter aims to bring together the food system analysis (section 2) and the risk landscape (section 3) in order to establish linkages and to make sense of the information available, laying the foundation for identifying leverage points. First, chapter 4.1 presents a general connecting casual diagram that integrates the insights of chapter 2 and 3 and interlinks them logically. Then, chapter 4.2 further processes the information into the pressure and release (PAR) model, applying a disaster risk management lens to make sense of the nature of causes and progression of vulnerabilities in the face of hazards. Finally, section 4.3 briefly links these insights with the pastoralist pathways (as also used in the REPRO proposal) to set the background for planning further actions.

5.1 Food system outcomes: processes and feedback loops

As already indicated, the data does not allow matching of the different occurring shocks and stressors with the livelihoods and subsequent capacities, vulnerabilities or risk management strategies, which hinders detailed construction of causal diagrams for the different hazard scenarios. However, a general causal diagram was developed and presents the Sool and Sanaag food system from a livelihood lens in the face of key hazards (Figure 22) that impact the food system. Red represents the shocks and stressors; purple marks livelihood paths (main activity, it is acknowledged that further overlaps exist); blue shows the contextual insights and subsequent livelihood actions; green are the outcomes of the system (a red frame means that the outcomes reinforce the initial shock / stressor); and bright green highlights actions that have emerged from the basis of prior outcomes. The diagram serves as a visual analysis to identify causal linkages in the complex, even chaotically appearing system. It was not conducted as part of a multi-stakeholder process as intended, but instead emerged from the above-described data.

The linkages in Figure 21 show how livelihood actions depend on a variety of contextual aspects and how they all carry opportunities as well as threats with them. This means it is specific to Sool and Sanaag's overall context, but also to the shocks / stressors that occur at a specific time. Livelihood activities are hence dynamic and change with their context in order to stay relevant and ensure desired FNS outcomes.

Most significantly, the **linkages between pastoralist activities and environmental conditions are coming to light**. On the one hand, **pastoralism appears to be a resilient livelihood option since many pathways of coping / managing a shock or stressor exist**. Existing capacities and strategies are various and can be chosen according to the exact context at the time. On the other hand, pastoralism also appears to be linked to negative outcomes from an environmental perspective, as well as providing the basis for land conflicts.

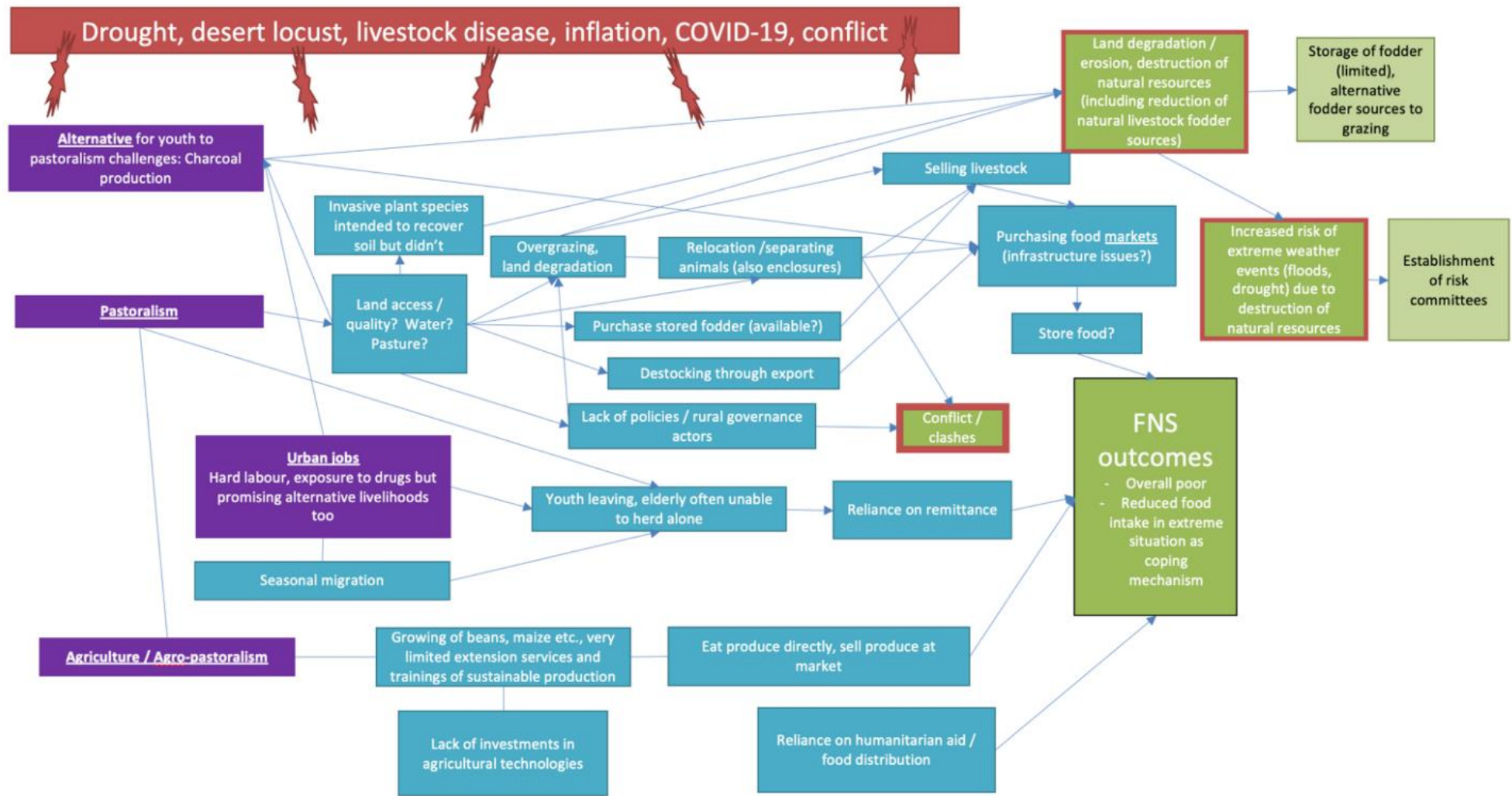


Figure 21 Causal diagram

Consequently, it is of crucial importance to design interventions strategically, being aware of potential trade-offs and risks of causing harm if not taking care.

While there are a variety of interesting additional dynamics emerging, the further key findings from this casual diagram can be summarised as follows.

1. Land tenure policies and water management appear central to clashes and conflicts but are also extremely impactful when considering the environmental impacts of, for example, overgrazing or deforestation.
2. Diversification of livelihoods (also in rural areas, not just in terms of urban jobs) and business investments could improve resilience of people and the environment since dependency on foreign markets and natural resources is high.
3. Fodder appears like a logical entry point to ensure that pastoralists are not forced to commit to irreversible strategies, including destocking at unsuitable times.
4. It is worth exploring whether invasive plant species could be matched with charcoal production (a potential win-win, at least in the short term).

For the sake of the brevity of this report, further insights are not described in depth, ensuring that a focus is kept.

While this provides a good insight into how reactive the food system is and what appears like initial key aspects, it does not analyse the causes in all depth. Therefore, chapter 4.2. will describe the progression of vulnerability in the face of hazards, identifying unsafe conditions, dynamic pressures, and the root causes of vulnerability.

5.2 Food system risks: the pressure and release model

This section aims to deepen the understanding of causal processes by applying a disaster risk management model: the pressure and release (PAR) model. It explores how food system risk is constructed by hazards and communities' exposure to them, by identifying the root causes that fuel dynamic pressures resulting in unsafe conditions.

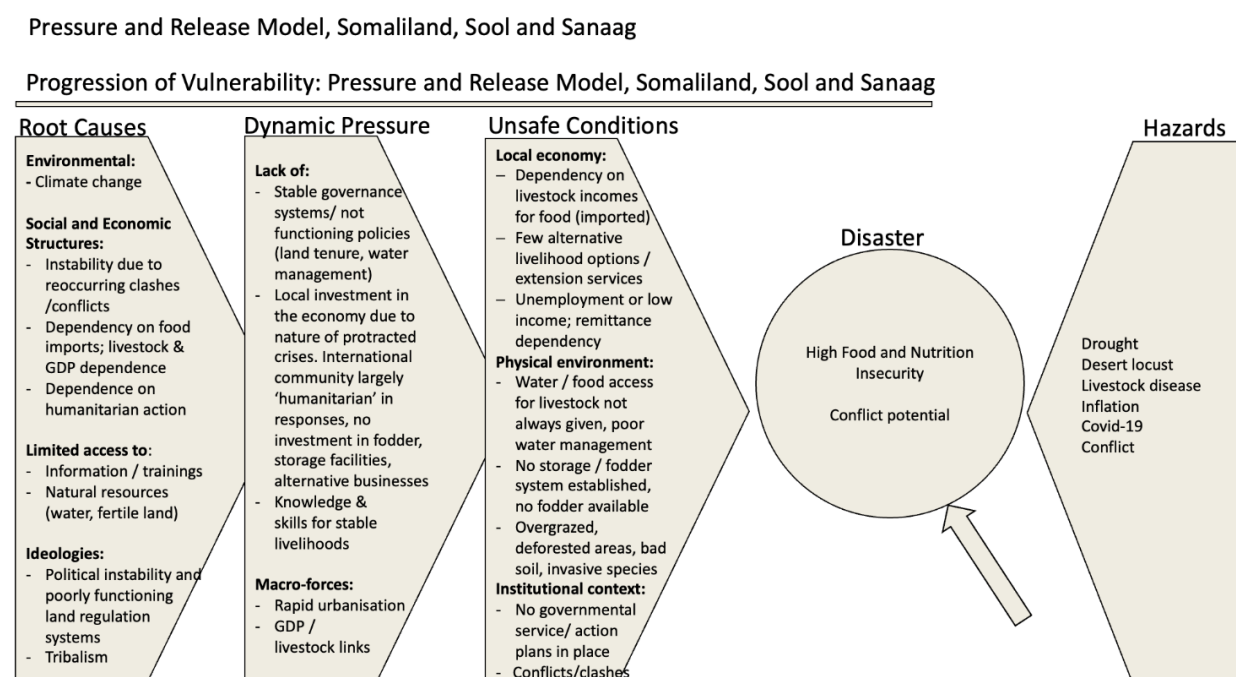


Figure 22 Sool and Sanaag pressure and release model

As Figure 22 shows, the causes for vulnerability are complex and link to political instability and environmental challenges. The natural environment is essential to pastoralist lifestyles, and many conflicts could be reduced by taking these pressures more consciously into account. However, the highly limited presence of rural authorities who could enforce land tenure systems makes it difficult to mitigate such tensions.

These tensions do not only impact peace dynamics, but also the food system since the production of food is compromised. Furthermore, the dependency of the GDP on livestock becomes now interesting to consider, since this brings the dynamic to life that food is mainly purchased from money that was initially earned through exporting livestock.

Lastly, the protracted crisis situation has led to a dependency on humanitarian aid. This needs to be regarded as a capacity too, since it serves as a safety net in severe emergency situations; nevertheless, the provision of free food in camps needs to be considered when taking a systems approach since this directly disadvantages the local food economy.

To further deepen analysis to identify pathways towards resilience, it would be necessary to split the PAR into its separate hazards, which the data does not allow for. Nonetheless, the analysis provides a good starting point to comprehend vulnerabilities' construction.

Most aspects and causal connections made here are similar to the findings for the prior analysis chapter, and thus validate the insights. However, some additional aspects became clearer in the PAR model, which can be summarised as follows.

1. The livestock business is a large GDP contributor which has impacts on FNS since animal food products are an exportable commodity, earning money to buy food at local markets as well as directly serving food consumption. This may carry further risks since market dependency can increase vulnerability (i.e. exports reducing because of COVID-19 restrictions).
2. Insufficient existing storage of food, fodder and water was indicated by the communities and highlights the lack of investments in such infrastructure and alternative livelihood opportunities created around this. Moreover, since fodder is not commercialised, people may not consider this as creating viable alternative livelihood opportunities contributing to a more robust local food system. Commercial production of fodder, and appropriate storage, could also mitigate the continuation of overgrazing on current levels, and hence have some environmental advantages
3. A recurring key issue appears to be instability in governance systems and the lack of rural representation of relevant and locally well-respected authorities to enforce land / water policies. This reinforces shocks and stressors through resulting deforestation, overgrazing, and clashes. Reviving governance structures that originate from the communities, and formalising them as land/ water management committees, could be a feasible alternative that might also reduce local tensions through dialogue creation.

5.3 Pastoralism pathways

This final section takes into account the pastoralism pathway matrix (Figure 24) from the initial REPRO proposal account (Catley, et al., 2013).

"Future pathways are highly contingent and deeply uncertain – pastoralists must live with uncertainty and continuously adapt and innovate" (Catley, et al., 2013, p.14)

The findings of the REPRO assessment confirm that uncertainty in the environmental and socio-political domains determine access to natural resources (in particular, water, browse and grazing areas) and to markets to derive an income from livestock to buy food at local markets. Since local communities are diverse (for example depending on land use type, social/ financial status, and gender), it is likely that several pathways co-exist at the same time and require differential interventions benefitting different community categories.

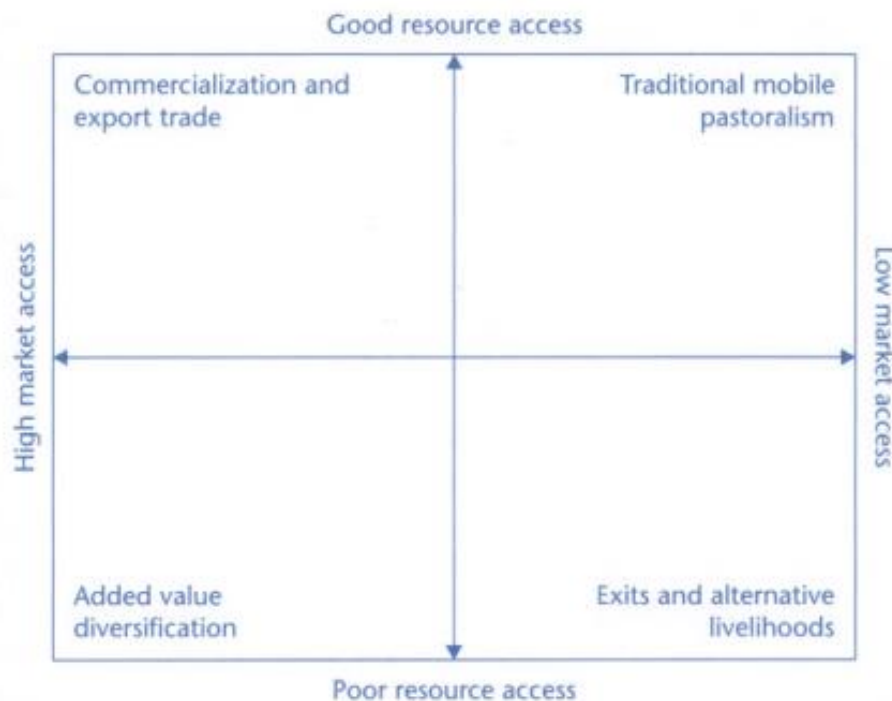


Figure 23 Matrix of pastoralist pathways

Pastoralism is highly dynamic and responds to local context and dynamics. Pure pastoralism has never been stable over time – on the contrary, a livelihood strategy that consisted of “multi-occupational” elements in a household was a standard in the past as well. Therefore, the above-described dynamics of change and uncertainty are not new for the communities; access to resources has changed in the past, cross-boundary trade is not new, and conflicts have occurred in this area for a long time already.

Hence, it is highly important to appreciate that these people’s capacities are already flexible and that much experience is already present (Catley, et al., 2013). Population growth and climate change intensify dynamics in pastoralism further as more people compete over increasingly scarce resources, especially when mobility is restricted because of conflict and insecurity.

While pastoralism appears to be a resilient livelihood strategy in Sool and Sanaag (see chapter 4.1), with many well-developed coping mechanisms and flexible abilities to move the herd, it is furthermore deeply linked to culture, giving it an additional dimension of meaning. Livestock’s impact on the environment, for example through overgrazing, should not be underestimated. A commercial approach towards producing fodder may lift some burdens from the natural environment, whilst keeping the livelihood asset alive, and not forcing pastoralists to destock at unsuitable times. However, the production of fodder may also put additional pressures on land and people, potentially creating further conflicts over resources and perhaps even resulting in having even more animals on the degraded land.

There is an existing clan-based social fabric, including customary safety nets and cooperative herding arrangements, which support the less advantaged in a clan. However, with commercialisation, these capacities are often eroded, since classes form or become manifest. While REPRO plans to take an inclusive approach that aims to provide groups of less advantaged people with land for fodder production, it is still difficult to fully counter such divisions by local elites and others. With commercialisation, morals often fall short since helping others is not profitable, hence, encouraging business thinking can also erode local safety net structures (Catley, et al., 2013).

Therefore, it is important to support all pathways on the matrix in a balanced manner to minimise the potential risks of strengthening elite divisions as much as possible. Despite the long-term risks of commercialisation and increased environmental impacts, intervening in the fodder system has the potential

to solve fodder shortages and hence improve pastoralist livelihood outcomes, while creating a new additional livelihood for people with less market or rangeland access.

Overall, insufficient information is available about the people facing different pathways in the light of market and rangeland access to jump to premature conclusions.

5.4 Step 4 summary of findings

Box 7: Summary of step 4; causal linkages and progression of vulnerability

This section looked at processes within the food system and laid the foundation for leverage point identification (in the next chapter). Key aspects to take away from these analyses are:

Conflict, governance, environment

- Land tenure policies and water management appear central to clashes and conflicts but are also extremely impactful when considering the environmental impacts of, for example, overgrazing. A recurring key issue appears to be instability in governance systems and the lack of rural representation of such authorities to enforce land / water policies. Whilst it is not feasible to fix this problem easily, reviving **governance structures** that originate from the communities and formalising them into types of “**land/ water management committees**” could be a feasible alternative that might also reduce local tensions through dialogue creation.

Diverse livelihoods

- **Livelihood diversification** (also in rural areas, not just in terms of urban jobs) and business investments could improve resilience.
- There are **invasive tree** species that are problematic and environmental destruction through **charcoal production (deforestation)**. Strategically linking the two could lead to a win-win, at least in the short-term.

Fodder and livestock

- **Fodder** appears like a logical entry point to ensure that pastoralists are not forced to commit to irreversible strategies, including destocking at unsuitable times. Insufficient existing **storage for food, fodder and water** could be linked to missing investments for such alternative livelihoods. Moreover, since fodder is not commercialised, people may not consider this as a promising livelihood addition, while recognising a need to address frequent fodder shortages. Fodder could also mitigate the continuation of overgrazing on current levels, and hence have some environmental advantages.
- The livestock business is a large GDP contributor which has impacts on FNS since animal food products are an exportable commodity, not only a basic need. This can be positive since money can be earned and then spend on food, but also creates market dependency. Assessing the traditional fodder production ways could be insightful, to assess whether commercialising fodder is the best approach to make fodder available and accessible, or whether it might erode customary safety nets through class formation.

Overall, pastoralist pathways appear to be relevant and insightful in this context but need further research and data collection to be used strategically.

6 REPRO strategy – towards recommendations

Chapter 1 defined the resilience objective for Sool and Sanaag, followed by Chapter 2 which provided insights into the respective food system dynamics. Chapter 3 detailed the risk landscape and communities' subsequent vulnerabilities, capacities, and risk management / coping strategies, building the foundation for comprehending complexities. Chapter 4 drew up causal linkages and analysed them through disaster management and pastoralism lenses. In this chapter, section 5.1 uses all the previous chapter insights to identify leverage points aligning with absorptive, adaptive, and transformative resilience capacities to strengthen or to build. Section 5.2 briefly assesses the sphere of influence, and 5.3 processes all the results into more concrete recommendations.

6.1 Identification of leverage points

A leverage point is a place/characteristic in a complex system where a small shift in one factor or process can contribute to building food system resilience. In line with the 3D resilience framework (Béné, et al., 2012), leverage points are explored across absorptive, adaptive, and transformative resilience capacities. Since data was mixed and not organised according to hazard, the recorded dynamics of the food system in face of shocks and stressors lacks preciseness. However, this 'light' FoSRA report nonetheless identifies leverage points on a wider level, as the following sections detail.

6.1.1 Absorptive capacity

On the basis of the prior data presentation and analysis, **the storage of food, fodder and water** was indicated as an existing capacity but also as required. The causal connections highlighted how a lack of water or fodder can lead to destocking as a coping mechanism, which provides an immediate solution but also prevents pastoralists from selling cattle for a good price since their condition is often poor by the time they are sold – and once sold, it is difficult to reverse, despite options to restock at a later stage. The logistics of maintaining livestock conditions during a drought, for example, is central.

The documented community perceptions expanded this topic beyond storing fodder and water, to also storing food in general, indicating that FNS outcomes could improve if food would last longer. Additional data would need to be collected to comprehend what exactly community members mean by this, for example detailing when food goes off or what type of food they would like to last longer.

Strengthening the partially existing capacities to store food, fodder and water would help the target group to absorb shocks and stressors more easily, since dependency on rainfall or access to good pasture with water access would then be reduced. Furthermore, the relocation of livestock, which often creates tensions and results in clashes, would be less necessary when fodder could be stored or purchased. Nonetheless, it is important to be aware that commercialising fodder risks commoditising the food system even further even further, rather than refocussing on its social value and FNS outcomes. Commercialisation could also carry the risks of undermining traditional structures of managing livestock fodder or preventing community initiatives to share fodder. On the other hand, an economic interest accelerates innovation and provides additional income sources. Storing water could also be a larger infrastructural problem that might have inherent trade-offs in other areas. Hence, an inclusive approach, sensitive to existing tensions over land and water, is required when attempting to intervene in the fodder system, having the potential to absorb shocks and stressors of pastoralists through reduced dependency on timely precipitation and naturally growing livestock fodder. Overall, Sool and Sanaag's current economy has livestock at its core which is likely to continue in the future; therefore, there is much potential regarding livelihood diversification along the fodder value chain in support of the pastoralist economy. However, an environmental lens needs to be taken, too, to minimise risks of further environmental degradation due to commercialised fodder production; for example, balancing this against advantages such as less overgrazing when producing fodder.

It should be noted that these absorptive leverage points overlap significantly with the adaptive capacities' leverage points, since they are all interlinked; while storing fodder may be of an absorptive nature, the actions required to produce the fodder itself are also adaptive actions.

6.1.2 Adaptive capacity

The community members mentioned the required capacity of **restocking**; but since it was also mentioned as an existing capacity, this means it would be a capacity to strengthen rather than build, in response to their coping strategy of destocking. However, *if fodder were available and accessible* (see section above), then the destocking at bad times could be mitigated, reducing the need to restock. However, it is noteworthy that in some situations, **destocking** (such as for example drought cycle management, as promoted in some areas of Ethiopia's Somali region) at the right moment can also be a good strategy, and should not be entirely undermined as reducing resilience per se.

Furthermore, community members indicated that they require the capacities **to increase agricultural outputs**. They indicated a **lack of trainings on farming techniques** and mentioned that following more agro-pastoralist lifestyles is perceived as a required capacity. This is a leverage point since growing more agricultural products could improve nutrition since the causal linkages showed that **most food products are purchased at markets from livestock-related income, rather than growing local food for consumption**, and that livestock is more traditional for the area but has also more commercial interest. While diversification appears logical, an increased focus on agriculture also depends on water for irrigation during times of shocks and stresses. As the food system analysis showed, people opted in the past for pastoralism for a reason, since one can move animals but not fields full of crops. Hence, each leverage point still needs to be regarded in its system context, since water and crops come hand in hand. Nonetheless, some alternative livelihood projects like kitchen gardens may be beneficial, since agricultural interest exists, and micro-nutritious outcomes could be increased.

6.1.3 Transformative capacity

Picking up on the last aspect of agricultural activities, this also links to the leverage points in the light of transformative resilience capacity. As section 4.3 on pastoralist pathways shows, pastoralists in the region have always been flexible and innovative, which the existing capacities further confirm. The prevalence of **alternative businesses or other types of livelihood diversification** were mentioned; however they were not extensively detailed in the data. Strengthening these already existing alternatives could be a leverage point to reduce dependency on livestock but may also carry its own threats. For example, the alternative livelihood of charcoal production simultaneously impacts the natural environment. It could be explored though, if **producing charcoal from the invasive plant species** is feasible and worth it, since this could potentially reduce an environmental problem instead of contributing to one. Overall, there is insufficient knowledge regarding the dynamics of market access, rangelands, and the precise way in which pastoralists in Sool and Sanaag manoeuvre between different scenarios and add livelihood diversifying elements in the face of specific shocks and stressors; this knowledge would be essential to see where leverage points would be strongest. Hence a **localised learning approach, for example via a local university, could be used to gather data on all pathways** and subsequent dynamics among them, including the dynamics of (different forms of) conflict therein.

Furthermore, strengthening or expanding the existing capacity of having **community committees for risk**, in the light of the described vulnerabilities or 'required capacities', as identified by the community members themselves, appears to come together as a leverage point. **Water management and land regulations** both emerged throughout all chapters of this analysis as topics that have the potential to impact the entire food system; in this respect governance aspects emerged frequently as a problem, coupled with clashes, tribalism, or lacking policies and regulations. Focusing on this dimension of governing natural resources could not only positively impact food and nutrition outcomes, but also social dynamics and environmental outcomes. Moreover, the second most frequently mentioned hazards, deforestation, could be tackled via land management regulations. Obviously, it is not feasible for REPRO to ensure law and order in the entire region and solve these protracted crises including underlying tribal tensions; however, as the following section will

detail, using such local committee structures to govern land and water resources may be more within REPRO's sphere of influence.

6.2 Spheres of influence

No precise stakeholder analysis including power dynamics has been conducted yet, so this section is brief. Overall, it is unrealistic to assume that larger regional governance dynamics can be repaired through REPRO. However, local governance aspects are within reach, as contacts with local communities exist.

It is unknown how good the contact with local leaders or authorities is, further limiting a precise assessment of the sphere of influence. Nonetheless, it is assumed that the community-based approach should allow for close cooperation with people on the ground.

Taking REPRO's commitment to its principles (section 1.1.1) as defining the sphere of influence further:

1. Local and national ownership and leadership: Having this commitment to local ownership and leadership on all levels enables REPRO to build local capacities and as a result, identify ways to harmonise local, *customary* governance systems with formal systems emerging from the state. In particular, REPRO area-based thinking allows for considerations of influences that lie outside Sool and Sanaag (such as formal government authorities) while respecting *customary* structures.
2. Multi-stakeholder approach: This allows REPRO to link with other actors in different silos, for example Interpeace (likely peace partner for Somaliland according to the annual plan). Generally, working with actors across the humanitarian-development-peace nexus is not only possible, but also intended by REPRO, making an integrated, locally based approach feasible, since silos blur naturally in local contexts.
3. Mainstreaming risk-sensitive approaches: This allows REPRO to focus on capacity building and strengthening. These capacities enable local communities to develop integrated risk management strategies that respect the variety of occurring hazards. Also REPRO links with local universities can help mainstreaming risk-sensitive approaches and anchor them in the target area.

6.3 Recommendations: REPRO strategy to build food system resilience

To conclude, the leverage points are now summarised as concrete recommendations for REPRO, supplemented by indications for further research.

General recommendations to REPRO:

- Explore to what extent local risk management committees could be strengthened, expanded, and replicated to cover aspects of water and land management (also see below in the research section). This also aligns with the annual plan which highlighted the intention to establish community grazing systems, for example.
- Fodder appears to be a promising commodity in the food system since it has not yet been commercialised while being in demand - but it carries risks and opportunities and must be handled with caution, especially regarding long-term environmental outcomes, conflict potentials and possible overstepping of local traditional structures due to commercialisation. Storage of fodder was mentioned by the communities in particular, however only on a minimal level; hence, one needs to be aware that the current annual plan may be strategically effective but does not necessarily reflect priorities expressed by the community. It must be ensured that the communities are fully on board in order to be consistent with formulated resilience objectives.
- Hence, additional focus points besides fodder are recommended to be more central - which would also be more aligned with the interests of local communities, as far as the data shows. Interests in alternative businesses, diversification of livelihood activities, farming techniques and agricultural training were mentioned frequently.

- a. There are also potential opportunities to link agricultural activities more directly to nutrition, for example by considering kitchen garden projects to increase vegetable intakes. Overall, it is recommended to strengthen the nutrition component of the programme.
- b. Bee keeping was identified in the annual plan as a diversification in concrete terms; thus, it is recommended to have an increased focus on such activities.
- c. Development of the fodder value chain offers opportunities for livelihood diversification in support of livestock options, and the annual plan indicates plans for agro pastoral field schools which could align with such recommendations.
- An integral part of the FoSRA assessment tool is to facilitate expert consultations to increase understanding how livestock systems work and the role of fodder chains therein. These consultations bring together international and local researchers and representatives of organisations and institutions, working with local communities on food and fodder systems by sharing good practices and identifying key challenges and how best to address them. Such meetings are instrumental to the programme to contextualise and further develop future pathways, with a strong role for developing fodder systems in line with the access matrix.

Recommendations of approaching local knowledge gaps / data clarifications:

- Use local actors strategically to close knowledge gaps on the ground and appreciate the value of their perspectives while strengthening their capacities (as the resilience goals have also highlighted). A strategic connection to the NUFFIC **institutional collaboration project** could be made so that students could research the **dynamics of the pastoralist pathways in the light of the different hazards which occur**, for example. Such a set-up could also be used to fill other data gaps by **documenting narratives or stories** on how people make livelihood decisions when a specific hazard hits or by telling them stories that clarify what is meant with unclear data points. These include:
 - a. What is meant by storing food? Which types of food can / cannot be stored? When, where and how is food currently stored? How important is it to them?
 - b. What is meant by the required capacity of water management? Catching small-scale rainwater? Large canals? Irrigation systems? Drinking? All of them?
- The NUFFIC-funded tailor-made training on fodder and rangeland management, which will be developed by the WUR-VHL NUFFIC consortium and Hargeisa, Burao and the Universities in Sool and Sanaag University, offers opportunities to develop fodder chains in support of the different pastoralist/livestock pathways. The NUFFIC projects will be aligned with the REPRO programme in Sool and Sanaag, which also offers opportunities to exploring how humanitarian, development and peace actors can work together in developing fodder system pathways that address critical access issues (in particular grazing land, browsing land, water and markets) in support of the four pastoralist livestock pathways.

Recommendations regarding further research / data creation:

- Conducting a local in-depth stakeholder analysis, including power dimensions.
- Alternative livelihoods or diversification of livelihood activities need to be further explored. While livestock is culturally and traditionally anchored, pastoralists always innovated in times of stress; so research is recommended into which alternatives are feasible and desired by communities, or how other beneficial outcomes can emerge.
- In this respect we recommend researching the feasibility of charcoal production as a sustainable alternative livelihood addition. Issues to be addressed would include the use of invasive tree species (whether encouraging this could get out of hand and lead to future problems; whether it might be a temporary strategy by which one problem is fixed with another; and how this pathway could be made sustainable).
- Conducting some historical studies on the strategies of pastoralists in the past and their indigenous governance structures could help in identifying ways to handle land tenure, water rights and conflicts. Experiences and memories of stories from ancestors may give more insights on what does and does not work in this context than global analysis papers. Reviving indigenous structures may be more effective than trying to get formal policies established and enforced. However, these should be regarded critically because their functionality is often compromised because the newly emerging local elite does not respect them. It is recommended work to better understand these historical governance systems and explore opportunities to build formal systems on their basis while accommodating persisting local systems.
- Adding some different theoretical lenses of analysis to the programme, for example: assessing the possible reconciliation of framing food as an economic commodity, food as a basic need and food as an ecosystem service.

These recommendations were discussed with relevant stakeholders during a review workshop (see Appendix 6) and possible paths of action were suggested by the participants. At the time of finalising this report, it was not yet decided how the recommendations will materialise through updates in REPRO's annual plan. The insights of this report and notes of the review workshop will be the main inputs for decision-making in the next sense-making event.

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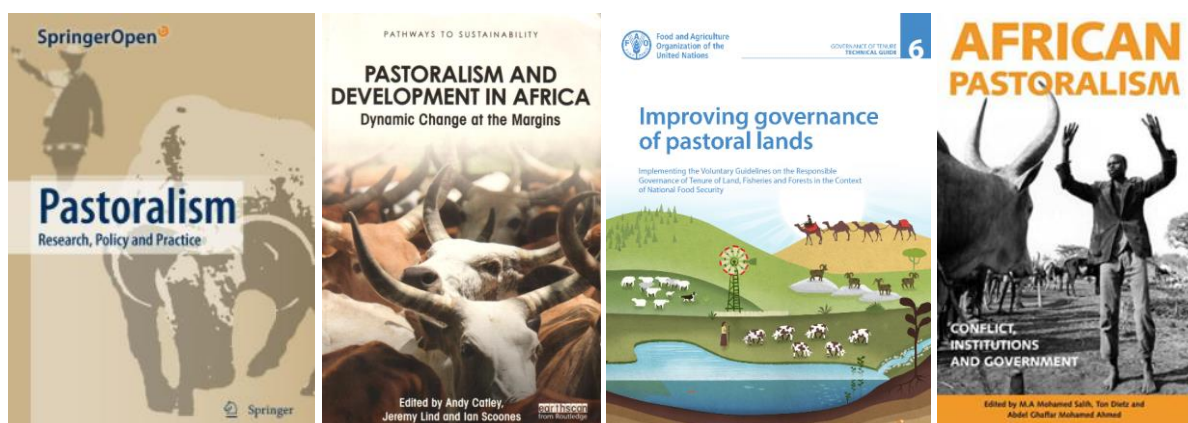
Appendix 1 Resource library for additional reading on pastoralism

To further explore theories related to the **dynamic pastoralism pathway matrix**, read: Catley, A., Lind, J. & Scoones, I., 2013. Development at the Margins, Pastoralism in the Horn of Africa. In: *Pathways to Sustainability: Pastoralism and Development in Africa: Dynamic Change at the Margins*. s.l.:Earthscan Routledge, pp. 1-24.

For a broader collection of global and regional interdisciplinary pastoralism publications on **policy and practice regarding livestock systems** (frequently touching upon range land access/ market contexts similar to the one above): <https://pastoralismjournal.springeropen.com/about>

Resources regarding options of **improving governance of pastoral lands**: <http://www.fao.org/3/a-i5771e.pdf>; and for a more conflict-oriented perspective on this, the book: **African Pastoralism: Conflict, Institutions and the Government** (2001, not publicly accessible but can be requested here: https://www.researchgate.net/publication/254749852_African_pastoralism_Conflict_institutions_and_government)

Further practical information can be found via the **pastoralist knowledge hub** website: <http://www.fao.org/pastoralist-knowledge-hub/en/>



Pastoralist Knowledge Hub

- Background
- Knowledge repository
- Pastoralist networks
- Partners
- Forum
- News and Events

Protecting livestock and pastoral livelihoods in Somalia during COVID-19 amid floods and insecurity

FAO campaign vaccinates 14.5 million goats and treats another 3.5 million animals to safeguard the country's main economic activity

In late January, while FAO was launching its annual livestock...

Pastoralists produce food in the world's harshest environments, and pastoral production supports the livelihoods of rural populations on almost half of the world's land. They have traditionally suffered from poor understanding, marginalization and exclusion from dialogue.

The Pastoralist Knowledge Hub is an initiative bringing together pastoralists and the main actors working with them to join forces and create the synergies for dialogue and pastoralist development.

Our pillars

Knowledge repository. A database that

Pastoralist networks. A forum for pastoralist organizations to share

Partners. A tool for alliance with key players on

Events

14-09-2020 > **From Crisis to Action - Lessons from COVID-19 for Building a Better Future through Sustainable Livestock** ((GASL Online MSP Meeting)

08-10-2020 > Grenoble, France **Euro-apline meeting of Pastoralism**

15-10-2020 > Bonn, Germany

Appendix 2 Selection criteria for repro project areas

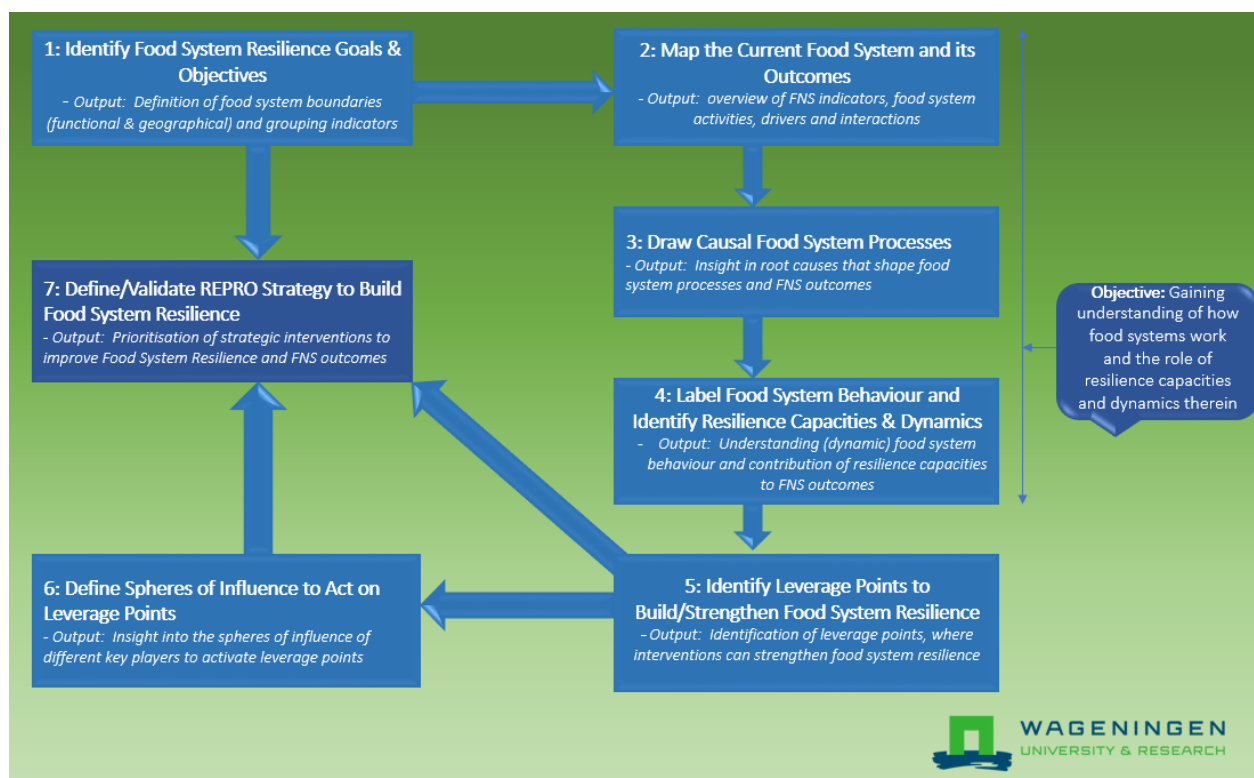
For the identification of REPRO project areas, a number of criteria were set in consultation with the Netherlands Ministry of Foreign Affairs:

- Scope for programming in line with UNSCR-2417 subject matter;
- Enabling the environment and momentum for FNS-REPRO programme initiatives, in particular interest in and constructive engagement of key actors (Government, FAO, INGOs/NGOs, CBOs. and knowledge institutions);
- High percentage of the population in IPC phase 3 or higher;
- Accessibility to project areas in order to carry out the learning agenda which is an integral element of FNS-REPRO;
- Ability to consult and work in a participatory way with local communities and local governance structures;
- Opportunities for capacity development of actors with involvement of local/national knowledge and research institutions including scope for action research;
- Potential to build on (emerging) local good practices and models along the humanitarian-development-peace nexus;
- Priority for an area-based approach for integrated project management with the ability to layer and sequence activities delivered by other programmes and projects.

Concerning conflict aspects, the selection criteria also included:

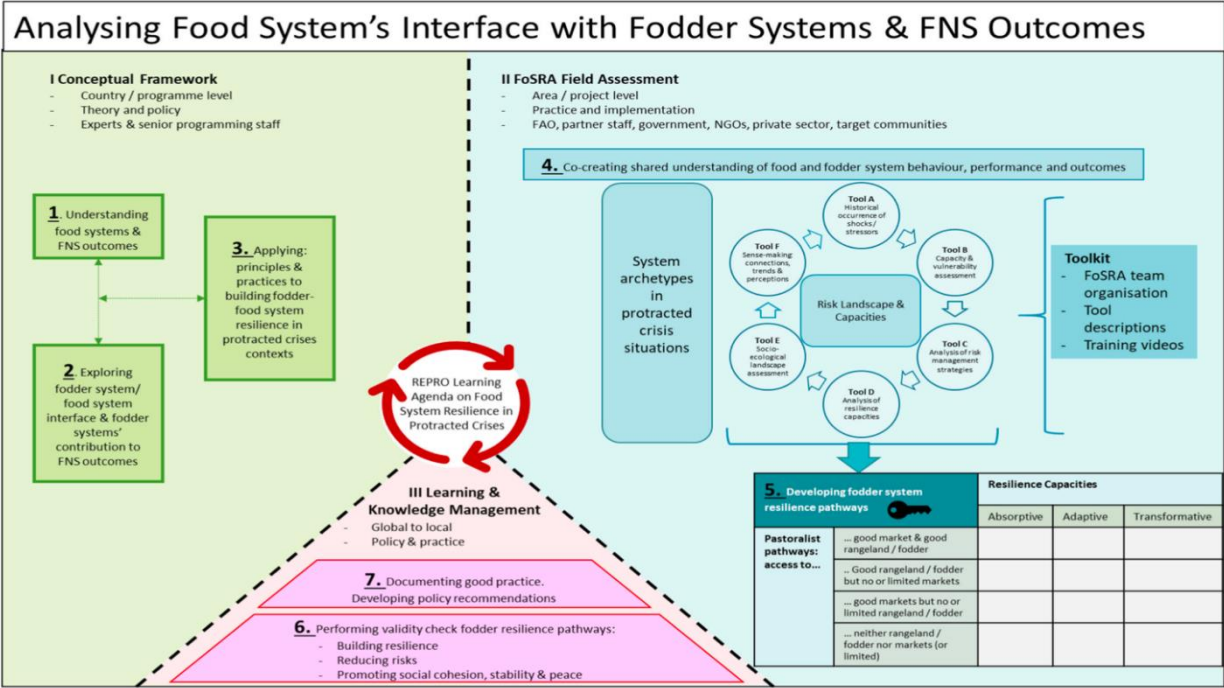
- Area has experienced active conflict impacting on food production and access systems;
- Area is characterised by displacement and return dynamics;
- Area is seeing stabilisation in the context of 'unpredictability' / potential conflict, and;
- Area faces climate change impact, with interrelation between climate change and conflict.

Appendix 3 Initial food system resilience assessment tool



Food system resilience assessment and facilitation tool

Appendix 4 The new fodder-food system resilience assessment tool



The new fodder-food system resilience assessment tool

Appendix 5 Resilience capacities

Absorptive capacity The capacity to withstand threats and minimize exposure to shocks and stressors through preventative measures and appropriate coping strategies to avoid permanent, negative impacts.	Adaptive capacity The capacity to adapt to new options in the face of crisis by making proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions.	Transformative capacity The capacity to transform the set of livelihood choices available through empowerment and growth, including governance mechanisms, policies/regulations, infrastructure, community networks, and formal and informal social protection mechanisms that constitute an enabling environment for systemic change.
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The different resilient capacities according to the 3-D resilience framework (Béné, et al., 2012)

Appendix 6 Notes of review workshop

Food system resilience assessment review workshop for Somaliland

October 12th, 2020

Participants: Jane Ndungu, Idris Mohamed, Kennedy Nyawira, Koen Joosten, Gerrit-Jan van Uffelen, Charleen Malkowsky, Julius Kaut, Eelke Boerema

Comments, responses and feedback on findings by REPRO WUR team

Responses to the presentation by Eelke on the findings of FoSRA Somaliland

- In general, the findings and recommendations are well-received and align with and complement the REPRO strategy for Somaliland.
- Need to investigate generating evidence for proposing of **additional livelihood activities** like charcoal cutting, export of high-quality wood, beekeeping, production of high value fodder (with Prosopis pods) and complementing fodder value chain development components.
- Need to **align REPRO** activities with other **initiatives ongoing** in Sool and Sanaag.
- The teams fully agree with the need for **livelihood diversification**. When the annual plan was submitted, everything that had to do with livelihood diversification was removed from the plan by the donor. The reason for this being that there are (relatively) few resources for Somaliland, which need to be used in a targeted way with maximum impact, and the main focus of the donor is fodder production and fodder value chain development.
 - **Adaptive programming** allows us to propose additional activities next to fodder value chain development activities if evidence can be provided supporting other activities.
 - The donor is part of the **Learning Agenda** and as such it also is informed by it. The Learning Agenda must generate evidence and formulate strong arguments to propose additional activities based on lessons from the field.
- A call by the donor: **look into the importance of fodder systems** and better understand how it works and how it can be strengthened.
 - Data shows that there are **unique opportunities** for strengthening food system resilience through fodder value chain development, through the four pastoralist/livestock pathways, but also a number of **significant risks** attached related to fodder value chain development in the Somaliland food system. High need to **take in account these risks and to manage those properly to prevent any tensions or undesirable effects of the program**.
- Recommendation to look at **other initiatives/ projects** that **build storage facilities** in Sool and Sanaag. Need to understand how that is perceived by communities and role of storage for fodder in building resilience. Data has showed that storage facilities for food, water and fodder are a challenge.
- **Ensure alignment with NUFFIC**. The sooner a call is organised, the better. Good for FAO country offices and staff to understand what NUFFIC will do and how it will be aligned with REPRO in focus countries.
 - In Somaliland, the donor is very involved and wants NUFFIC/REPRO to work with **local universities** (Sanaag University of Science and Technology (USTec), Nugaal University (NU)(Sool Region), and Hargeisa University).
 - NUFFIC can work with and support the set-up of **agro-pastoral field schools**, which is an activity in REPRO.

Brief summary of discussion following presentation:

The donor wants to see a **strong focus on fodder systems** that underpin the food system. Subsequently, **alternative livelihood options are limited to the frame of fodder**. Bee keeping is hence excluded – challenge this decision next year or link strategically with other projects / focus on fodder as a diversified livelihood option. Or link to NRM somehow and make it strategic, not just a separate activity. NUFFIC

opportunities to clarify further, link with local FAO actors soon – plan meeting, also with Van Hall Larenstein University of Applied Sciences (VHL).

Responses to presentation by Jane on the REPRO annual plan for Somaliland

- Importance of **multi-sectoral approach** in program; need to work with other actors in the value chain and knowledge institutions to strengthen fodder value chain and building capacities of local actors (in line with FAO/WUR REPRO principles).
- Draft agreement with **local universities** is done. Hope to have them on board soon.
- **Local NGO contracting is being fast-tracked**. Need to be on board very soon. When so, implementation can take off.
- **Strong links** between the **annual plan and FoSRA findings** are observed, and complementarity is seen.
- Can the intention to work with **universities** under output 1 be extended to output 2 and 3? What is the relationship between the universities and local governance structures? Can the universities play a role informing the other activities? The universities are seen as credible institutions and partners.
- **Need to build in role of local universities and connect them to activities in and outside of REPRO**. Building capacities of local institutions. Make link to NUFFIC and establishment of agro pastoral field schools or fodder cooperatives.
 - Critical importance to work with local knowledge institutions, **through NUFFIC call, linking output 1, 2 and 3**. Looking into elements such as governance structures next to fodder chain development. Investing in these linkages is sustainable and effective on the long run.
- Opportunities for links between **Interpeace**, conflict/peace research and **Centre for Peace and Conflict Studies Hargeisa**. Interpeace already works with them and has strong links and collaboration.
- **Possibility to link with TMT South-Sudan on seed system development**. Possibility to invite a group from Somaliland universities.
- **Need to understand four fodder pathways to propose pathways** for building resilience of food system, linking FoSRA findings with FAO annual plan for REPRO Somaliland.

Brief summary of discussion following the presentation:

- Synergies with other projects, learning agenda seen as important. Links to local universities, concentrated on NRM (output 1) but also touching upon other outputs. Universities as legitimate local partners to help getting acceptance since grazing land can be a touchy issue (maybe they can also use the field schools?). This can also be the bridge to NUFFIC - fodder, stability and peace building, for example, what are insights in this interface, link to TMTs – connect with Interpeace already, Hargeisa University (Centre of Peace and Conflict) could be linked with Ethiopia and South Sudan components of NUFFIC, include Sool & Sanaag institutional actors). Also NUFFIC link from the nutrition perspective possible.

Adaptive programming

- Focus of REPRO in areas where FAO normally only does humanitarian aid.
- Key principle: adaptive and flexible programming informed by an evidence base generated by learning.
- It means that we can purposefully change over time to increase fit with day-to-day and longer-term realities faced by communities. Enabling relevant and adaptive programming.

How?

- Learning and sensemaking events (WUR)
- Annual review and planning meetings (country and regional level)
- National and global programme steering committees
- Project implementation committee meetings (in Somaliland)
- Feeding into an updated annual plan (yearly by end of September)
 - review of theory of change and activities
 - budget
 - risks, assumptions and mitigation actions
- Programming cycles (see page Koen).

All of this enables adaptive programming.

- New approach, trial and errors.
- Requires everyone to be critical and curious, we can always do and deliver better.
- Requires close collaboration between FAO and WUR at all levels.
- Requires good planning.

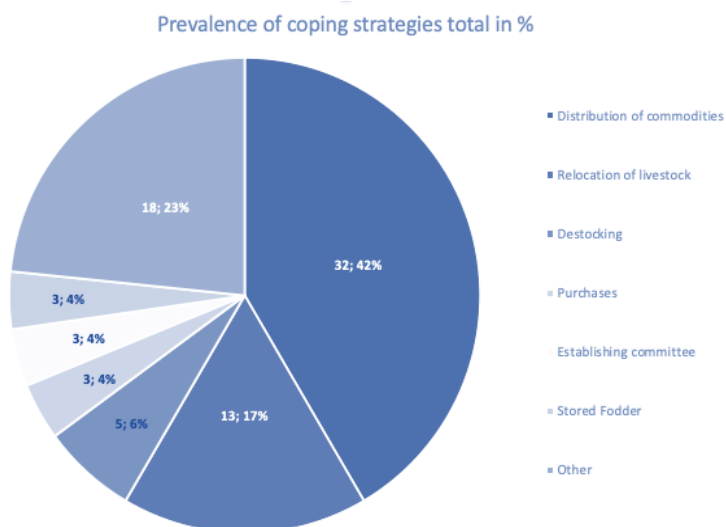
The goal of the learning agenda is to generate evidence for proposing activities and strategic direction for strengthening the food system of Somaliland, through fodder value chain development, and to strengthen the capacities of local actors and institutions to do so.

The learning agenda informs and provides evidence for adaptive programming. The structures are in place.

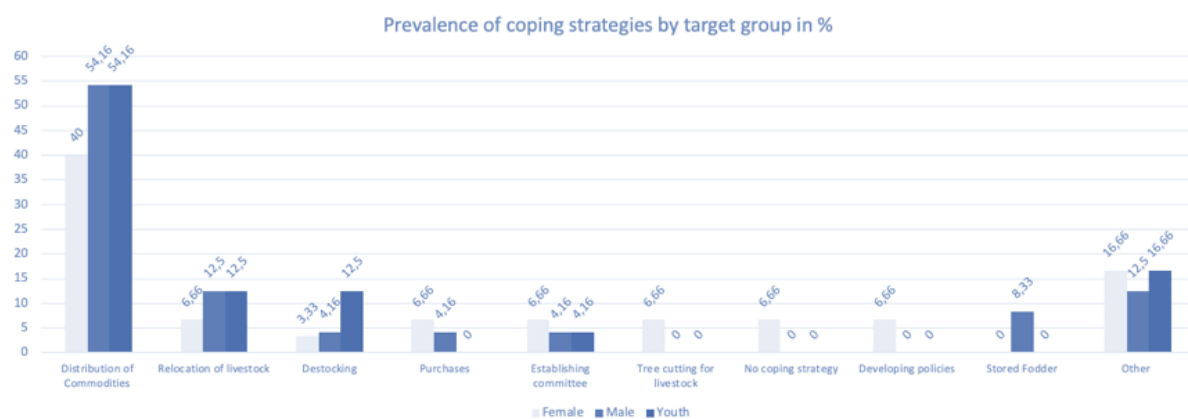
Key recommendation topic based on findings from FoSRA report	Workshop Review Discussion Results: Thoughts on how to address recommendations and integrate key findings into REPRO's annual plan (these notes are based on a participatory process and were not re-formulated in order to maintain ownership feelings. These notes for possible steps forward will be the key input in the next sense-making event to plan actions)
Local committees, explore expansion options for land/ water management	<p>Output 1 includes natural resource management committees. Interpeace will build capacities of local leaders/elders, who take part in NRM committees to be able to deal with conflict (tensions, etc).</p> <p>What is the role of risk management committees? Increasing government policies on land tenure / water management. Does national-level policies collide with local management structures? How to ensure alignment between local-level (traditional) governance structures and national government (and interests of specific groups). Interpeace to play a crucial role.</p> <p>Interaction between pastoralists and agro-pastoralists.</p>
(Fodder) risks to mitigate <ul style="list-style-type: none"> - long-term environmental damages (livestock/climate/land) - Reinforcing / strengthening of global market dependency & related vulnerabilities – how to handle long-term risks? - Renewing (land) conflict potentials 	<p>Long term environmental damages need to be considered. Need to make fodder interventions climate smart (taking in account impacts on natural environment). Mitigating environmental damage also links to being aware how land/fodder capacity relates to max number of livestock that can be sustainably supported by the land – need to ensure that increasing availability of fodder does not lead to unsustainable outcomes. Here is a possible link to do calculations on the basis of the Fodder Balance Sheet to look at different scenarios to estimate how much livestock can be sustained (in the case of grazing vs. several scenarios of fodder production in light of land availability/ how much livestock can these fodder sources/ land sustained?)</p> <p>Storage facilities for fodder as a way to mitigate market dependency and some of the risks involved with environmental damage.</p> <p>Pastoralism pathways > export of livestock product can be achieved through different systems. Need to know of the different strategies. Each demands a particular fodder value chain. Each pathway is context specific.</p> <p>Community-based risk management strategies > how they themselves manage risks and strengthening the capacities of communities and external actors to deal with risks.</p> <p>Reducing loss of livestock during droughts (FAO initiative, how to learn from this?), the fodder balance sheet.</p>
Community preferences divert from project strategies, only minimal mentioning of fodder but of other options: <ul style="list-style-type: none"> - Alternative livelihood options (more focus on this?) - Nutrition / agriculture (kitchen gardens, other ideas?) - How to handle disconnect to expressed community interest? 	<p>Possibilities to emphasising and justifying the need to add additional activities that can diversify livelihood options.</p> <p>Need to be strategic on this. Donor focusses on fodder value chain development. Are there other activities in line with fodder value chain development which can be additional livelihood activities? Beekeeping / deforestation.</p> <p>Nutrition component. Can be aligned with NUFFIC work, but activities like kitchen gardens are interesting to explore. Kitchen gardens also would reduce market dependency.</p> <p>What are community preferences? High demand and potential for bee keeping.</p> <p>Need to include and be aware of local interests and community perspectives. A different question is, how to integrate in REPRO?</p>

Key recommendation topic based on findings from FoSRA report	Workshop Review Discussion Results: Thoughts on how to address recommendations and integrate key findings into REPRO's annual plan (these notes are based on a participatory process and were not re-formulated in order to maintain ownership feelings. These notes for possible steps forward will be the key input in the next sense-making event to plan actions)
Use institutional collaboration project to build local capacities & fill knowledge gaps (traditional systems, pathways etc.) – operationalising link to NUFFIC	<p>Role of local universities as legitimate instruments for developing fodder value chains. REPRO program will contract technical people from four local universities to take part in COPs undertaking learning journeys > local research.</p> <p>Ability to organize workshops, tapping into local knowledge and expertise on issues to do with pastoralism, livestock, governance, etc.</p> <p>Important avenue for development is working with and strengthening of local knowledge institutions through REPRO and NUFFIC and links between them, through i.e. the tailor-made trainings. Fuelled by interactions between FAO, WUR, Interpeace, local institutions. Linking with FAO regional work of the fodder balance sheets.</p> <p>For WUR, knowledge institutions are natural partners. Creating evidence together.</p> <p>FAO knowledge on pastoralism. Pastoralist working group in Rome does work in East Africa. Need to include this work in REPRO and find linkages > multi-stakeholder process.</p> <p>Ensuring to have anchor points through the focal points > linking NUFFIC with REPRO.</p>
Increase logical narratives/stories instead of unconnected data, understand decision-making processes - learn from history (resilient pastoralists), respect customary structure	<p>Traditional governance structures: important lessons to be learned here, need to invest in this. WUR to explore options (i.e. learning journeys, case studies). There is information out there. Livestock/pastoralism/conflict elements are known. How have these systems emerged and how is their role today?</p> <p>Need to better understand these dynamics.</p> <p>Need to understand perceptions from communities and local people how to achieve results together and bring about positive impact through REPRO/NUFFIC on their lives. There are resources to capture these perceptions > giving them a voice.</p> <p>Development of training materials under NUFFIC.</p> <p>Issue how to deal with local governance structures vs national policies and the interests therein. How to deal with these dynamics? Formal policy framework vs indigenous structures. Layers association Somaliland > court cases and dynamics. Taking them on board in program to learn from them.</p> <p>Need to understand historical fodder value chains and structures, not only history of governance and its structures. Why is there not fodder sector anymore?</p>
Explore invasive species / charcoal options	<p>There are existing initiatives looking into charcoaling up prosopis or processed fodder. Need to give initiatives more exposure, link with them and scale them up.</p> <p>What are existing initiatives and how can we link with them? Do value chains exist for exporting of wood? What are best/good practices with prosopis products (fodder, fencing)? Multi-purpose fencing, as an important element for preventing conflicts (demarcation of lands > it's a contentious issue). In peri-urban or urban areas fencing is an important option.</p>

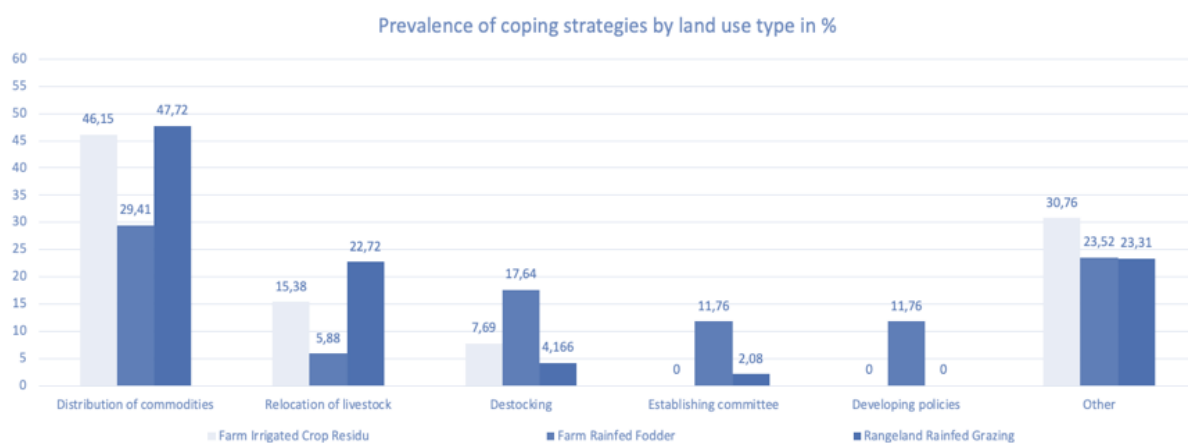
Appendix 7 Results of FOSRA data collection round 1



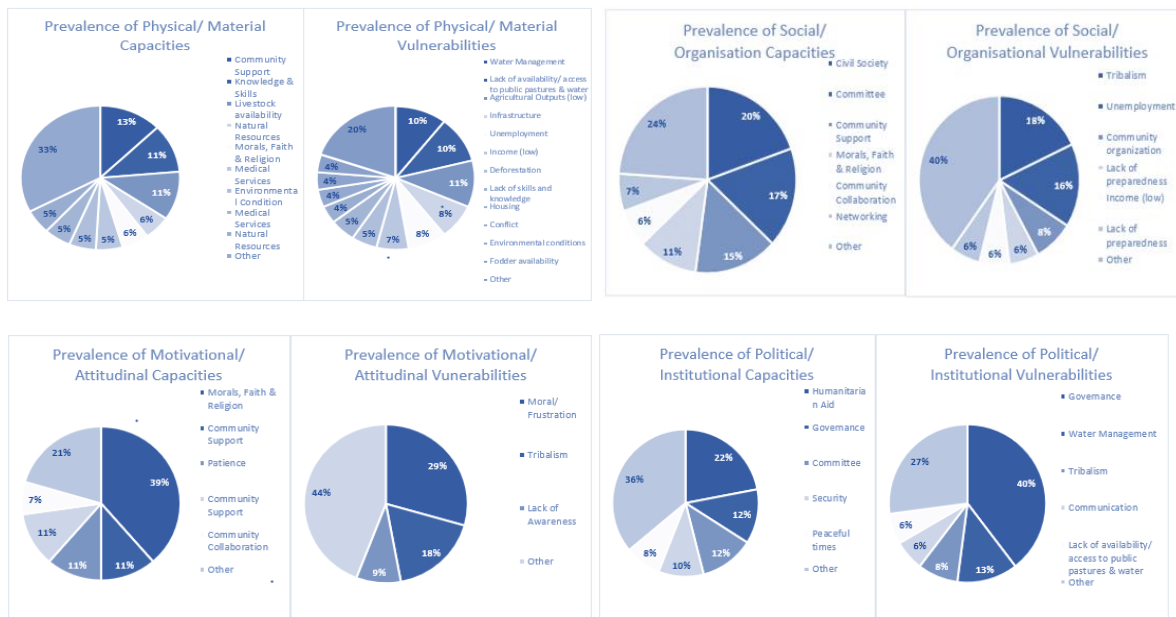
Prevalence of coping strategies (FOSRA)



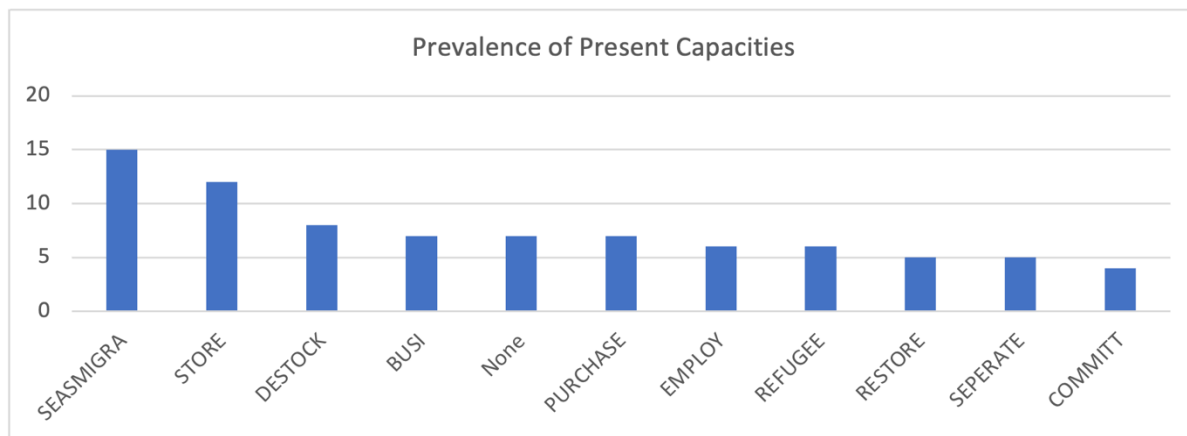
Prevalence of coping strategies by target group (FOSRA 1)



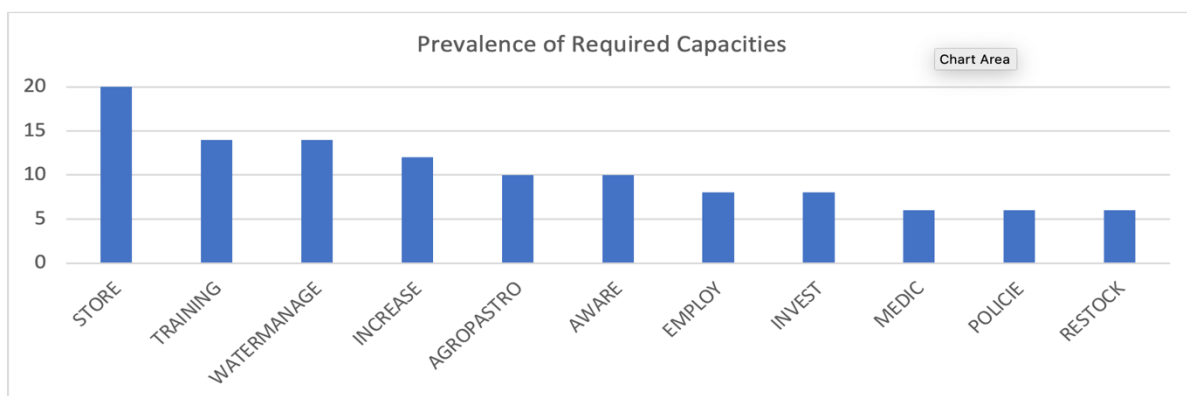
Prevalence of coping strategies by land use type (FOSRA 1)



Prevalence of coping strategies (FOSRA 1)



Prevalence of present resilience capacities (FOSRA 1)



Prevalence of required resilience capacities (FOSRA 1)

Appendix 8 Overview of coping strategies, FOSRA 2

Coping Strategies	# mentioned
Destocking	34
Loans	34
Fodder Storage	27
Migration	15
Restocking	12
Casual Labour	11
Reduce Fodder Use	11
Water Storage	11
Reduce meal frequency	10
External Assistance	9
Livelihood Diversification	9
Livestock Migration	7
Re-cultivation	5
Restore Grazing land	5
Use Stored Fodder	5
Water Infrastructure	5
Borrow Food	4
Food Storage	4
NGO Assistance	4
None	4
Reduce Water Use	4
Saving	4
Sell animal products	4
Charcoal Production	3
Fodder Production	3
Food Distribution	3
petty trade	3
Remittances	3
Reserve Grazing land	3
Setting up Enclosures	3
Urbanization	3
Cash Distribution	2
Cash for work	2
Cheap Food	2
Environmental Restoration	2
Family division	2
Family Help	2
Increase Cultivation	2
Reduce Spending	2
Small Business	2
UNKNOWN	2
Begging	1
Change Fodder	1
Change food source	1
Create flood Barriers	1
Crop Diversification	1
Drought Resistant Varieties	1
Get Investment	1
Housing construction	1
Limit Khat Expense	1
Livestock Vaccination	1

Coping Strategies	# mentioned
Locust scaring techniques	1
Plan Migration	1
Savings Groups	1
Separate Livestock	1
Support Fodder Production	1
Use Stored Water	1
Water Distribution	1

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Report WCDI-22-197



Wageningen Centre for Development Innovation supports value creation by strengthening capacities for sustainable development. As the international expertise and capacity building institute of Wageningen University & Research we bring knowledge into action, with the aim to explore the potential of nature to improve the quality of life. With approximately 30 locations, 6,800 members (6,000 fte) of staff and 12,900 students, Wageningen University & Research is a world leader in its domain. An integral way of working, and cooperation between the exact sciences and the technological and social disciplines are key to its approach.

To explore
the potential
of nature to
improve the
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