

Lund University
Department of Political Science

STVK05
Spring 26
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A Deserted Right

Water Scarcity and Women's Insecurity in Kenya's Arid
and Semi-Arid Lands

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Abstract

Water is essential to human life, health, and livelihoods, and access to safe and clean water is recognised as a fundamental human right. Yet water scarcity remains a pressing global challenge affecting billions of people, with women being disproportionately affected. In Kenya, where around 80 percent of the land is classified as arid and semi-arid (ASAL), water scarcity is a persistent and deeply felt reality. Using a qualitative case study approach, this thesis investigates water scarcity in Kenya's ASALs, examining both its causes and implications for women's human security. The study draws on thirteen interviews with NGO representatives, a local government official, and women affected by water scarcity, complemented by secondary sources. Further, Amartya Sen's entitlement approach, human security and feminist political ecology (FPE) act as theoretical frameworks. The findings show that water scarcity in Kenya's ASALs is severe and multifaceted, shaped not only by limited availability but also by persistent challenges of access, affordability, and quality. Secondly, while environmental and demographic pressures contribute to water scarcity, social, economic, and political factors play a significant role in shaping inadequate access to water. Lastly, patriarchal norms and structures reinforce gender inequalities that cause women to be disproportionately affected by water scarcity, particularly in relation to health, economic, food, and personal security. Together, these findings highlight how water scarcity is produced and experienced in marginalised contexts, and how it is deeply intertwined with gendered and structural inequalities.

Key words: Water scarcity, Kenya, Arid and semi-arid lands (ASALs), Entitlement approach, Women, Human security, Feminist political ecology

Word count: 9982

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1. Introduction

“Water is life, and water will never be enough.”

– Founder of Dress for Change

Water is one of the most essential resources for human life and societal development, yet access to it remains deeply unequal across the globe. The United Nations recognises access to safe drinking water as a human right (United Nations General Assembly 2010). Despite this, over four billion people experience severe water scarcity for at least one month each year, while around half a billion face it year-round (Mulwa et al. 2021:2). Although water scarcity affects entire populations, it is widely recognised that climate change and related environmental challenges affect women disproportionately, threatening their wellbeing and security (UNICEF & WHO 2023). These challenges are particularly severe in developing countries in Sub-Saharan Africa, where water scarcity has intensified due to global warming, water pollution, rapid population growth and poor water management (Mulwa et al. 2021:1-2).

Kenya is one such country, with water scarcity increasingly becoming the norm in its arid and semi-arid lands, hereinafter referred to as the ASALs. Although Article 43(1) of the Kenyan Constitution (2010) guarantees every person the right to clean and safe water, only 68 percent of the population has access to safe drinking water (KNBS 2023:3). This highlights a persistent gap between legal commitments and lived realities. Women are disproportionately affected, as they bear the main responsibility for securing household water while often being least prioritised in accessing it (UNICEF & WHO 2023). Water scarcity therefore constitutes not only an environmental issue, but also a human security challenge affecting women’s health, livelihoods, education, and personal safety. Against this background, this thesis examines water scarcity in Kenya’s ASALs, its underlying causes, and its impacts on women’s human security, drawing on thirteen interviews and secondary sources. The study thereby contributes to a deeper understanding of both the structural causes and human consequences of water scarcity, an increasingly urgent issue as climate change intensifies droughts and water insecurity.

1.1 Purpose and Research Questions

The purpose of this thesis is to investigate water scarcity in Kenya's ASALs, its contributing factors, and specifically how it affects women's security. While water scarcity in Kenya is often associated with climatic conditions and the prevalence of arid and semi-arid regions, this study seeks to highlight structural factors that shape individuals' entitlements to water. Hence, the thesis aims to provide a more comprehensive understanding of the underlying causes of water scarcity. Furthermore, the study aims to emphasise the gendered dimensions of water scarcity in Kenya's ASALs by examining how its impacts on women can be understood through different dimensions of human security.

To achieve this aim, the thesis examines the following three research questions:

1. *What is the current situation regarding water scarcity in Kenya's ASALs?*
2. *What factors contribute to water scarcity in Kenya's ASALs?*
3. *How does water scarcity affect women's human security in Kenya's ASALs?*

1.2 Previous Research

Previous research increasingly argues that water scarcity should not only be understood as a consequence of physical water shortages, but also as shaped by broader economic, social, political, and institutional processes (Anwar et al. 2020; Bhandari 2025; Mehta 2014; Stoler et al. 2017; Wutich et al. 2017). Some studies have applied Amartya Sen's entitlement approach to water scarcity (Anand 2007; Mehta 2014), however this approach is not commonly applied in the Kenyan case. Furthermore, previous research argues that entitlement to water is unevenly distributed, as it is shaped by socio-political structures related to class, gender, and other power relations (Savelli et al. 2021; Truelove 2011). Existing research further shows that women are disproportionately affected by water scarcity, as their primary responsibility for collecting water increases the risk to their physical and mental health, as well as their exposure to physical, sexual, and structural violence (Anthonj et al. 2018; Anwar et al. 2020; Cairncross et al. 2010; Kayser et al. 2019; Mushavi et al. 2020; Nunbogu & Elliott 2021, 2022, 2023; Ototo et al. 2024; Pommells et al. 2018; Stevenson et al. 2016; Workman & Ureksoy 2017). However, these experiences are rarely examined through a human security perspective. Thus, this study is of scientific relevance, as it contributes to existing research by combining the entitlement approach, feminist political

ecology (FPE) and a human security perspective in order to analyse water scarcity in Kenya's ASAL regions.

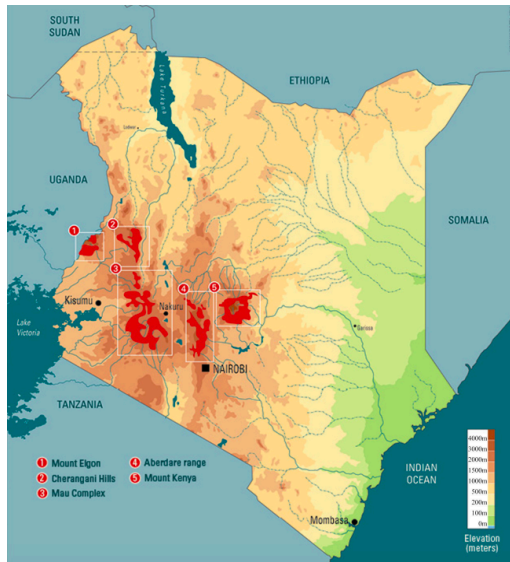
1.3 Background

Kenya is located in East Africa and is characterised by strong regional variation in precipitation, aridity, water yield, and levels of water scarcity (Lam et al. 2023:2916). The country has two main rainy seasons: the long rains (March-May) and the short rains (October-December). However, severe droughts in recent decades have significantly disrupted rainfall patterns (Lam et al. 2023:2916-2917). Kenya's renewable water resources largely depend on its five "water towers" – Mount Elgon, Cherangani Hills, Mau Forest Complex, Aberdare Range, and Mount Kenya – which are highland forest regions that receive relatively high levels of rainfall and play a key role in capturing, storing, and distributing water through river systems (Mulwa et al. 2021:3). These catchments supply major lakes, including Victoria, Nakuru, Naivasha, and Turkana. Thus, the water towers play a crucial role within Kenya's catchments – areas where rainwater is collected and flows into rivers and lakes – which together provide over 75 percent of the country's surface water (ibid.). However, because these water towers are concentrated in the south-western highlands (see Figure 1.1), water availability remains highly uneven across the country.

Arid and semi-arid lands (ASALs) are regions characterised by low and erratic annual rainfall, high temperatures, and high rates of evapotranspiration (IUCN n.d.; KIPPRA 2024). In Kenya, these regions cover more than 80 percent of the land area, comprising 23 of its 47 counties (see Figure 1.2), and are home to around 30 percent of the population (Lam et al. 2023:2926; UNDP 2013:2). Annual rainfall in the ASALs can fall below 250 mm, whereas mountainous areas receive more than 2,000 mm (Lam et al. 2023:2917). At the same time, the ASAL regions remain marginalised, historically underdeveloped and experience higher levels of deprivation (KNBS 2024; World Bank 2023). ASAL counties have an average multidimensional poverty rate of 63 percent and a monetary poverty rate of 44 percent, compared to 52 percent and 35 percent in non-ASAL counties (Baragu & Opana 2024:2). The ASAL population largely depends on pastoralism and small-scale agriculture, both of which are highly dependent on rainfall (IUCN 2023). As droughts have become increasingly frequent, the ASALs now face near-annual drought conditions, contributing to groundwater

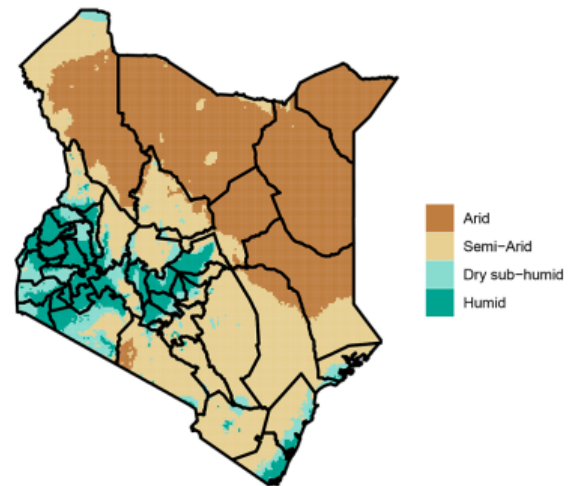
depletion, reduced vegetation cover, livestock losses, and rising food insecurity (IUCN 2023; UNDP 2013:2).

Figure 1.1



Reference: Mulwa et al. 2021

Figure 1.2



Reference: Lam et al. 2023

1.4 Conceptualisation of Water Scarcity

Water scarcity is commonly conceptualised as a condition in which societal and ecological water demands exceed available water supply (Lam et al. 2023:2916). However, understanding water scarcity solely as a question of per capita availability rather than an issue of unequal access, can be misleading (Mehta 2014:62). Therefore, this thesis adopts a broader understanding of water scarcity by conceptualising it as the inverse of water security. Following Bukachi et al. (2021:677), water security refers to conditions in which water of sufficient and reliable quantity and quality is available, accessible, and affordable for all individuals. Availability refers to the existence of sufficient and continuous water supplies needed for personal and domestic use, while accessibility refers to people's ability to physically obtain water within a reasonable and safe distance. Affordability refers to the economic capacity to pay for water without compromising other basic needs, and quality to whether water is safe, clean, and suitable for consumption and everyday use. Accordingly, in this study, water scarcity is understood as a condition in which one or more of these dimensions are insufficient or unfulfilled.

This understanding aligns with how the United Nations examines water access as not only a question of physical water availability, but also as the ability of populations to secure adequate, safe, and reliable water in order to sustain livelihoods and well-being (UN 2015:18). It also reflects the human right to water, which is structured around these four elements: availability, accessibility, affordability and quality (OHCHR, UN-HABITAT & WHO 2010:7-11).

2. Theory

This chapter presents the theoretical frameworks and analytical perspectives used to analyse the empirical findings. The entitlement approach is applied to the second research question to examine structural factors contributing to water scarcity in Kenya's ASALs. Human security addresses the third research question, providing a lens for understanding and categorising the broader impacts of water scarcity on women. Lastly, feminist political ecology (FPE) is also applied to the third question, exploring how patriarchal structures and norms shape women's access to natural resources.

2.1 The Entitlement Approach

The entitlement approach, developed by Amartya Sen, challenges the traditional view that famines are primarily caused by declines in food availability (Sen 1981:434; Sen 1991/1993:154). Rather than viewing deprivation as a result of absolute scarcity, Sen argues that starvation occurs because certain individuals lack the means to acquire sufficient resources, even when these are available (Sen 1991/1993:1). Thus, the entitlement approach shifts the analytical focus from overall resource availability to the economic, social and political conditions that determine individuals' ability to obtain resources (Sen 1991/1993:154).

Central to the approach is the distinction between endowments and entitlements. Endowments refer to the resources a person possesses, such as land, labour, skills, or rights, whereas entitlements refer to the goods and resources individuals are able to obtain through the use or exchange of those endowments within a given institutional context (Sen 1991/1993:45, 162). The connection between endowments and entitlements is shaped through entitlement relations, which determine how resources can be acquired, exchanged, or transferred within a given society (Sen 1991/1993:1-2). Therefore, access to essential resources depends not only on what individuals own, but also on the broader economic, social, and institutional structures shaping exchange possibilities, such as market conditions, employment opportunities, and social security systems (Sen 1991/1993:4, 6, 46). Consequently, changes in prices, income, employment opportunities, or access to state support can significantly affect individuals' entitlements even without changes in overall resource availability (*ibid.*).

Sen also emphasises the importance of political systems in shaping entitlements and preventing famine. According to Sen (2001:16), democratic systems are less prone to famine because political leaders are held accountable to the electorate, creating strong incentives to respond to food crises or resource shortages. Free press and political opposition further function as early-warning systems that draw attention to emerging shortages and insecurity before they escalate into full-scale crises (Sen 2001:180-181; Sen 2019:353). Sen additionally argues that inequality can intensify food insecurity and contribute to famine even without declines in overall food supply (Sen 2001:187). Democratic systems, however, tend to promote more equitable resource distribution, as governments are pressured to respond to the needs of vulnerable groups (ibid.). Democratic institutions therefore play an important role in protecting entitlement relations and facilitating more secure and equitable access to essential resources.

Applying the entitlement approach to water scarcity is useful because water, like food, is a private good whose access is shaped by economic, social, and institutional structures (Anand 2007:154). By framing water scarcity as a failure of entitlement rather than simply a resource shortage, the approach shifts the analytical focus from overall water availability to unequal access to water and the broader structural conditions shaping these inequalities.

2.2 Human Security

Human security is a concept introduced by the United Nations Development Programme (UNDP) in its Human Development Report (1994), representing a broader understanding of security that shifts the focus from the state to the security of individuals. The term defines security as “freedom from fear” and “freedom from want”, thereby emphasising protection from both violence and structural threats such as poverty, disease and environmental degradation (UNDP 1994:24). Unlike the traditional state-centric approach, which primarily focuses on military threats to the state, human security both “widens” and “deepens” the concept of security (Hough 2018:2, 7, 9, 11). It widens security by including issues such as environmental degradation, demographic pressures, resource depletion, and threats to health and education, while simultaneously deepening security by redefining individuals and communities as the primary referent objects of security (Hough 2018:7-9). Human security

therefore recognises that threats may also originate within states, including from the state itself, thereby affecting the security of individuals (Hough 2018:10).

The UNDP identifies seven dimensions of human security: environmental, economic, food, health, personal, community and political security (UNDP 1994:24-25). Environmental security entails access to a healthy physical environment and protection from environmental degradation at both the local and global level (UNDP 1994:28-29). The report for instance identifies water scarcity as one of the greatest environmental threats in developing countries (UNDP 1994:29). Economic security requires an assured basic income, commonly from productive and remunerative work, or as a last resort, from a publicly financed safety net (UNDP 1994:25). In this thesis, basic education is considered part of economic security, as it is essential for securing future income opportunities. Moreover, food security entails that all people at all times have physical and economic access to food, which requires that people have an entitlement to food (UNDP 1994:27).

Furthermore, health security concerns protection from diseases and health issues resulting from poor nutrition or unsafe environmental conditions, such as water pollution (ibid.). According to the UNDP (1994:28), threats to health security are usually greater for the poorest, people in rural areas, and particularly women. Personal security refers to protection from physical violence, originating from the state (torture), other states (war), groups or individuals (UNDP 1994:30). The report further highlights how women face disproportionate threats to personal security “from cradle to grave,” including limited access to essential resources and persistent gender-based violence and discrimination (UNDP 1994:31). Moreover, community security involves the protection of cultural identity, social relationships, and shared values, ensuring social cohesion (UNDP 1994:31-32), while political security concerns people’s right to live in a society that respects basic human rights, free from repression and abuse (UNDP 1994:32). In this thesis, particular attention is given to economic, food, health, and personal security, as water scarcity represents a form of environmental insecurity that profoundly affects these dimensions for women.

2.3 Feminist Political Ecology

Feminist Political Ecology (FPE) provides a critical interdisciplinary framework for analysing human-environment relations through the lenses of gender, identity, and social

inequality (Jarosz 2001:5472). By combining feminist theory with political ecology, FPE examines how interconnected social, ecological, economic, political, and gendered power relations influence access to, control over, and knowledge of natural resources (Jarosz 2001:5472). The framework further emphasises how gender is not an isolated variable, but interacts with factors such as class, race, culture, and political position in shaping people's experiences of environmental change and resource access (Rocheleau et al. 1996:5; Thomas-Slayter et al. 1996:287).

Within FPE, environmental issues such as resource scarcity are understood as deeply gendered. Women often bear the primary responsibility for managing essential resources like water, food, fuel, and healthcare, placing them at the forefront of environmental challenges (Rocheleau et al. 1996:8). Despite this responsibility, women frequently have less control over and more insecure access to resources than men, as broader social and institutional power relations shape how resources are accessed, distributed, and controlled (Rocheleau et al. 1996:10-12; Thomas-Slayter et al. 1996:291). This thereby increases women's vulnerability to crises such as water scarcity, making the FPE framework particularly relevant for analysing water scarcity in Kenya's ASALs. By focusing on gendered responsibilities, unequal resource access, and power relations, the framework provides a useful perspective for understanding why women in the ASAL regions are disproportionately affected by water scarcity.

3. Method

This chapter presents the methodological approach of the study and describes how the empirical material was collected and analysed.

3.1 Research Design

To answer the research questions, this thesis applies a qualitative case study using a deductive approach, where empirical material is analysed through existing theoretical frameworks. A case study enables an in-depth and context-sensitive analysis of a single case, which entails a non-experimental and intensive research design (Teorell & Svensson 2007:74, 82). This approach is particularly suitable for examining the complex environmental, social, and structural dimensions of water scarcity. By focusing on the ASALs in Kenya, the study explores how these factors interact and how water scarcity affects women's human security in practice. This research design thus provides a nuanced understanding of both the causes and consequences of water scarcity that would be difficult to capture through broader quantitative methods.

Nevertheless, qualitative research involves certain limitations, particularly regarding generalisability and subjectivity. As this case study focuses specifically on Kenya's ASALs, taking into account the country's water resources, structural factors, and cultural contexts, the findings are context-specific. However, they may still contribute to analytical generalisation by using theory to understand what the situation is a case of (Esaiasson et al. 2024:58). Since qualitative analysis requires interpretation, the risk of subjectivity is present. Hence, the material was analysed collaboratively through joint discussions and cross-checking between the authors to reduce individual bias and strengthen reliability. Credibility was further enhanced through the use of multiple empirical sources.

3.2 Case Selection

The thesis examines water scarcity due to its profound consequences for the everyday lives of millions of people. Kenya was selected as the empirical case because it is classified as a water-scarce country in Sub-Saharan Africa and is increasingly affected by recurrent and severe droughts (Lam et al. 2023:2917; Mulwa et al. 2021:2). In particular, the country's ASAL regions are highly vulnerable to water scarcity due to sparse vegetation, poor soil

quality, highly variable rainfall, and limited groundwater availability (KIPPRA 2024). These conditions make Kenya's ASALs an important case for analysing water scarcity and its wider societal consequences, as they provide insight into how water scarcity affects livelihoods, health, and human security in practice. The study is therefore externally relevant, since water scarcity constitutes an increasingly urgent social, political, and developmental challenge in many parts of the world (Teorell & Svensson 2007:18).

Furthermore, the case selection was also informed by practical considerations, including access to empirical material. Existing connections to actors in Laikipia County and Isiolo County – both part of Kenya's ASALs – enabled the conduct of interviews and facilitated access to relevant participants. These counties were not only accessible but also analytically appropriate, as they reflect key characteristics of ASAL regions. As such, the interview sample from Laikipia and Isiolo constitutes a relevant and well-motivated basis for capturing both expert perspectives and lived experiences, thereby supporting the study's ability to address the research questions.

3.3 Material

3.3.1 Primary Sources

As part of the empirical material, this study draws on thirteen interviews conducted between 14 April and 1 May 2026 to gain deeper insights into water scarcity and its impacts. Two different types of interviews were used: informant interviews and respondent interviews. Informant interviews collect factual information from individuals with specialised knowledge, while respondent interviews focus on individuals' own experiences and perceptions (Esaiasson et al. 2024:344-345, 360). The interviewees were selected through strategic sampling to identify individuals with relevant knowledge and experience of water scarcity in the study areas. For the informant interviews, the selection was guided by centrality, meaning that individuals with relevant expertise or key roles were included (Esaiasson et al. 2024:344). The sample was initially based on existing contacts in the field and was then expanded through snowball sampling, where participants referred additional relevant interviewees (*ibid.*). This approach was also used when recruiting women affected by water scarcity for the respondent interviews.

The informant interviews were semi-structured and conducted digitally via Google Meet. In total, eight interviews were carried out: seven with representatives from non-governmental organisations (NGOs) and one with a local government official in Laikipia County. The government informant, an environmental official within the Department of Water, Environment, Natural Resources and Climate Change, provided insights into local responses to water scarcity and related challenges. The NGO participants included representatives from the organisations Fauna & Flora and Laikipia Wildlife Forum (LWF), both of which focus on conservation and ecosystem restoration related to water catchments and river systems. One interviewee represented Impact Kenya, an organisation working specifically with water scarcity issues, including support for indigenous groups and women in rural areas. Another one was from the Leo Project, which designs and implements healthcare and education programs. The remaining three participants were founders of the community-based NGOs Drawing Dreams Initiative (DDI), Binti Mwangaza and Dress for Change, which focus on women's issues, including menstrual health, education, reproductive health and rights.

Each informant interview lasted approximately 30 to 60 minutes and followed a flexible interview guide, based on pre-defined themes and example questions prepared in advance (Hallin & Helin 2018:43). These themes were used as a framework during the interviews to ensure comparability across participants, while still allowing the conversation to develop more freely and enabling the exploration of relevant issues in greater depth (Teorell & Svensson 2007:89). All interviews were audio-recorded with the consent of the participants to ensure accurate documentation and enable later analysis. The recordings were subsequently transcribed using AI-assisted transcription tools and manually reviewed for accuracy.

Due to practical constraints, including limited internet access and language barriers, the respondent interviews were conducted as written questionnaires instead. In total, five women directly affected by water scarcity participated. The questionnaire, consisting of six main questions with supplementary sub-questions, was designed to capture experiences related to water access and its consequences (see Appendix A). Participants were recruited with the assistance of representatives from the Leo Project and Impact Kenya, who also translated the respondents' answers into English. To ensure anonymity, the participants are referred to as respondents A, B, C, D and E (see Table 3.1).

Table 3.1 Questionnaire respondents

	Age	Origin	Personal status
Respondent A	21	Facebook village, Segera Ward, Laikipia County	Married mother of 3
Respondent B	42	Soit Narok village, Segera Ward, Laikipia County	Married mother of 4
Respondent C	31	Ndigiri village, Segera Ward, Laikipia County	Single mother of 6
Respondent D	54	Munishoi Community, Laikipia County	Single mother of 7
Respondent E	40	Ilpolei Community, Laikipia County	Married mother of 6

The interview formats entail certain limitations. The semi-structured informant interviews may have been affected by language barriers, as variations in English usage across contexts could have influenced both the clarity of responses and the researcher’s interpretations. The digital format and occasional network issues sometimes limited interaction and affected audio quality, making transcription more challenging. Although such conditions may have reduced the richness of communication compared to physical settings (Esaiasson et al. 2024:353), the digital interviews still enabled real-time interaction and observation of respondents’ reactions, making them a viable alternative to face-to-face interviews (Hallin & Helin 2018:64). Furthermore, conducting the respondent interviews through questionnaires meant there was no opportunity to ask follow-up questions or clarify responses in real time, which may have limited the depth and nuance of the data. More interactive methods, such as focus groups, could potentially have generated richer insights by enabling analysis of shared experiences and social dynamics (Esaiasson et al. 2024:406; Teorell & Svensson 2007:90). However, the chosen format was considered the most feasible, given constraints related to time, resources, and language barriers, while still enabling access to experiences relevant to the study.

3.3.2 Secondary Sources

The thesis draws on a range of secondary sources, including academic articles, reports, indices, government documents and newspaper articles. In particular, reports from international organisations such as WHO, UNEP, UNDP, and Freedom House, as well as documents from Kenya’s Ministry of Environment, Water and Resources, were used to provide contextual and empirical information. Newspaper articles from sources such as The

Guardian and The Independent were also used. The selection of sources was made with care, taking into account both the credibility of the authors and the relevance of the publication dates. By combining material from governmental institutions, international organisations, academia, and media, the study aims to capture a broader range of perspectives and reduce the risk of relying on a single narrative.

3.4 Ethical Dimensions

Ethical considerations were carefully addressed throughout the research process in accordance with the guidelines of the Swedish Research Council (Teorell & Svensson 2007:20-21). The study followed the principles of informed consent, confidentiality, and appropriate data use. Interviewees were informed about the purpose of the study and could withdraw at any time, since participation was voluntary. Due to the sensitive nature of the topic, all interviews were conducted anonymously and confidentially. Interview recordings were made with participants' consent and deleted after transcription, and all collected data were used solely for research purposes.

3.5 Operationalisation

To strengthen the validity of the thesis, the study's theoretical framework, concepts, and areas of investigation were operationalised through the interview questions. In this way, the interview questions functioned as empirical indicators, making the theoretical concepts observable and analytically measurable in relation to the empirical material. As the study used two interview formats, the questions below should be understood as guiding themes rather than a fixed interview guide. Although the same overarching themes and research objectives were addressed across interviews, the formulation and order of questions varied depending on the interviewee's experiences and expertise.

Table 3.2: Operationalisation

Analytical concept / theoretical framework	Purpose in the study	Example interview questions
Current situation of water scarcity	Examine the current water scarcity situation in Kenya's ASAL regions.	<i>How would you describe the current water scarcity situation in the ASALs?</i> <i>What does access to water currently look like in the areas where you work?</i> <i>Have you observed changes in water access over time?</i> <i>What are the main challenges related to water access in these regions?</i>
Entitlement approach	Analyse how social, economic, and political factors shape entitlement to water.	<i>How do people access water in your area? (What sources, how far, how much time, how often?)</i> <i>Are there differences in access to water between different groups?</i> <i>What factors contribute to the current situation of water scarcity in the ASALs?</i> <i>Which actors are responsible for managing water resources in your area?</i> <i>What measures are being implemented by government bodies, municipalities, or local organisations to address water scarcity?</i>
Human Security	Examine how water scarcity affects women's everyday lives and well-being across different security dimensions.	<i>How does water scarcity affect women's health in your area?</i> <i>What impact does water scarcity have on economic activities and livelihoods in your community?</i> <i>In what ways does water scarcity affect women's safety and security?</i> <i>How does water scarcity affect access to food in your area?</i>
Feminist Political Ecology	Examine how gendered power relations shape access to and control over water.	<i>Who is responsible for collecting water in the household?</i> <i>How would you say water scarcity specifically affects women in your community? Are women more affected and if so why and how?</i> <i>When water is limited, who is prioritised in the household to receive water?</i>

4. Analysis

This chapter presents and analyses the empirical findings in relation to the study's theoretical framework and is structured around the three research questions.

4.1 What is the current situation regarding water scarcity in Kenya's ASALs?

As previously stated, this thesis conceptualises water scarcity as a condition in which water availability, accessibility, affordability, or quality are insufficient. This section demonstrates that Kenya's ASALs experience severe water scarcity due to limited water availability, while water is often difficult to access, afford, and is mostly unsafe for use.

Firstly, water availability in Kenya's ASAL regions is extremely limited. In 2025, Kenya's annual water availability was estimated at 452 m³ per capita, which constitutes absolute water scarcity according to the Falkenmark indicator (MWSI 2025; Mulwa et al. 2021:4). In the ASALs, availability is even lower, estimated at only 100 to 300 m³ per capita per year (Ethical Business 2026). Following one of the driest rainy seasons on record between October and December 2025, Kenya has experienced prolonged drought conditions, as rainfall reached only 30 to 60 percent of the long-term average in many areas (WHO 2026). Interviewees from DDI and the Leo Project described the ASALs as highly vulnerable to drought due to sparse vegetation, poor soils, and low groundwater levels. At the same time, prolonged dryness hardens soils, increasing the risk of flash floods when rains return. Representatives from LWF, the Leo Project, and Impact Kenya explained that rivers are largely seasonal, remaining dry during droughts and often flooding during rainy periods. Consequently, water availability in the ASALs is highly unreliable.

Furthermore, water quality in the ASALs is often compromised by several factors, thereby contributing to water scarcity. Firstly, representatives from Impact Kenya and Dress for Change explained that water from rivers, lakes, dams, and water pans is frequently shared with wildlife for drinking and bathing, which increases the risk of waterborne diseases. Secondly, agricultural activities, particularly large-scale horticulture, contribute to water pollution through the use of fertilisers and pesticides (Mulwa et al. 2021:9). Four of the NGO representatives explained that these contaminants are transported by rainfall and surface runoff to downstream communities, meaning that the water many households depend on is

often polluted. One of Kenya's major export industries is flower production, which involves intensive pesticide use and contributes to increased concentrations of chemicals and toxins in surrounding ecosystems and communities (Creed et al. 2024:2). Studies on water quality in selected rivers in Laikipia County, which is one of the prime areas in Kenya for export-related flower and vegetable production, showed that rivers near large-scale horticulture farms contain more dissolved substances and pollutants such as cadmium, phosphates and zinc (Zaehring et al. 2018:80). Lastly, inadequate waste management intensifies the problem, as only a small share of total waste is collected in Kenya (CCAC 2020). The local government official and the representative from Fauna & Flora concluded that poor waste management pollutes the rivers which serve as the landscape's natural drainage points.

Additionally, water accessibility and affordability remain major challenges in Kenya's ASALs. Water access is a broader national issue in Kenya, where only 68 percent of the population has access to safe drinking water, and over half of all households must travel to collect water (KNBS 2023:3). Significant disparities also exist between urban and rural areas: while 91 percent of the urban population has access to basic drinking water services, the corresponding figure in rural areas is only 56 percent (KNBS 2023:3). The gap is even larger for piped water access, available to 51 percent of urban households compared to just 21 percent in rural areas (KNBS 2018:43). These inequalities are particularly pronounced in the ASALs, where the majority of the population lives in rural settings (SymbioCity Kenya 2015). As highlighted in the interviews, limited infrastructure forces many households to rely on alternative and unreliable water sources such as boreholes, dams, rivers, and rainwater. Representatives from Binti Mwangaza and DDI explained that accessing these sources often requires long journeys and significant physical effort, while the water itself may be polluted or unsafe for consumption.

Although households in urban areas are more likely to be connected to formal water systems, access remains uneven and far from guaranteed. According to the NGO representative from the Leo Project, an estimated 20 to 30 percent of urban residents in Laikipia still lack reliable access to clean water. The representatives from DDI and Fauna & Flora further explained that access to piped water is also conditional on households' ability to pay water and sanitation fees. Since poverty rates are generally higher in the ASAL counties compared to non-ASAL counties, many households in these areas struggle to afford reliable water (KNBS 2024:35;

World Bank 2023:5-6). Representatives from Impact Kenya and DDI reported that inequalities are particularly visible in urban informal settlements where infrastructure is limited and certain communities are frequently overlooked. Extreme weather conditions further affect water access in both rural and urban areas. As the interviewees from DDI and the Leo Project stated, rural communities are especially vulnerable, as their reliance on rivers, dams, boreholes, and rainwater makes access highly sensitive to droughts, during which sources may become unreliable or dry up entirely. This forces people to travel even longer distances to collect water. The representative from the Leo Project further explained that droughts also affect urban areas, where water rationing often limits access to only a few hours per day.

To conclude, the current situation regarding water scarcity in Kenya's ASALs is severe, as water is often unavailable, inaccessible, unaffordable, and unsafe. As expressed by the founder of DDI: "*Water scarcity in Laikipia County is the norm.*" Its consequences include waterborne diseases, poor sanitation, crop failure, livestock losses, and increasing threats to food security and livelihoods (Mulwa et al. 2021:7; WHO 2026). Since agriculture is the main livelihood for over 75 percent of the Kenyan population and depends heavily on reliable water access (Lam et al. 2023:2917-2918), water scarcity places millions at risk of malnutrition and poverty.

4.2 What factors contribute to water scarcity in Kenya's ASALs?

4.2.1 Environmental and Demographic Factors

Climate change

Firstly, climate change contributes to water scarcity in Kenya's ASALs by increasing evaporation rates, disrupting rainfall patterns and intensifying the frequency and severity of droughts (Bhandari 2025:88). According to the World Bank's climate risk country profile on Kenya, the country's average yearly temperature has risen with approximately 1.0 °C since the 1960s, with the most significant rise in the ASALs (Dove 2021:6). Rising temperatures increase evaporation from lakes, rivers, and reservoirs, while longer dry periods, shorter rainy seasons, and more frequent extreme weather events such as floods, further reduce and disrupt water availability (Bhandari 2025:74, 88). A study conducted by scientists from World Weather Attribution concludes that these climate shifts in East Africa are human-induced and have made droughts up to one hundred times more likely to occur (Kimutai et al. 2025a). The

study found that the combination of low rainfall and high evaporation rates would not have resulted in drought in a 1.2°C cooler world (ibid.).

Climate change as a contributing factor to water scarcity in Kenya's ASALs was strongly confirmed by the primary sources, as all of the informant interviewees identified it either as a direct cause of water scarcity or as a factor that significantly exacerbates existing water challenges. Respondents further indicated that climate-related changes are affecting their ability to attain water, as illustrated by Respondent D's statement when asked whether water accessibility has changed in recent years: *"Yes, access to water has become harder recently because the dry seasons are longer and the sources are drying up"*. Overall, the findings suggest that climate change is contributing to reduced water availability and, consequently, a decline in water supply.

Deforestation

Secondly, findings from informant interviews highlight that deforestation contributes to water scarcity by degrading key water catchment areas. In Kenya, forest cover is only 6.99 percent, well below the constitutional target of 10 percent (Mulwa et al. 2021:10). This is particularly critical as forests support the country's five water towers, which play a central role in capturing, storing, and distributing water (Mulwa et al. 2021:3). Trees and vegetation are essential for regulating the water cycle, reducing soil erosion, and maintaining soil moisture (Bhandari 2025:75). However, widespread deforestation, driven by agricultural expansion and illegal logging, reduces the land's capacity to absorb and store water (ibid.). This leads to increased surface runoff, reduced groundwater recharge, and greater vulnerability of both ecosystems and communities to floods and droughts. As noted by the representative from Fauna & Flora, the loss of trees both intensifies flooding due to reduced water absorption and worsens drought conditions as less water is stored in the soil and replenished in springs.

Population growth

Onwards, a factor which increases water demand and hence contributes to water scarcity is the rapid population growth (Bhandari 2025:88). An increasing population puts pressure on water resources and leads to over-extraction of groundwater (ibid.). According to data from the World Bank Group (2024), Kenya's population reached 56,6 million in 2024, growing at an annual rate of two percent. Even though the population growth rate is declining, the total population continues to grow rapidly each year. As of 2025 Kenya had approximately 57,5

million inhabitants (UNFPA 2025). Representatives from LWF and Binti Mwangaza confirmed that population growth is exacerbating water scarcity in the ASALs, where families often consist of many children.

In conclusion, environmental factors such as climate change and deforestation reduce water availability in Kenya's ASALs, while demographic pressures increase water demand, together contributing to a growing imbalance between water supply and demand. However, within this study, water scarcity is not understood solely as a question of demand exceeding supply, but more broadly as a condition in which availability, accessibility, affordability or quality are not fulfilled. Consequently, it is necessary to further analyse the structural factors that shape individuals' entitlements to water.

4.2.2 Structural Factors

Economic and social factors

In Kenya's ASALs, economic and social conditions shape water affordability and accessibility. Several NGO representatives emphasised that access to reliable and safe water is closely tied to the ability to pay. While piped water requires households to pay regulated tariffs (WASREB 2024), unreliable infrastructure often forces households to rely on expensive private vendors or personal water storage systems (Njoroge et al. 2024:173; Beard & Mitlin 2021:12; Fauna & Flora). The barriers to water access are therefore particularly evident in the ASAL regions, where long standing patterns of marginalisation and underinvestment have left many communities without formal water systems. Combined with high poverty levels, even small water-related expenses become significant barriers. As Respondent C explained: *"sometimes [we are] forced to stay without water because of lacking 5 kes"*, which is equivalent to 0,039 USD. From an entitlement perspective, this can be understood as many households lacking the monetary endowments necessary to secure reliable water access, illustrating how socioeconomic position shapes people's water entitlements. As reflected in both respondent and NGO interviews, households unable to afford piped water or private vendors are instead forced to rely on polluted and unreliable sources such as rivers, dams, and wells. Meanwhile, sufficient state support systems are non-existent, which according to Sen further constrain people's water entitlements.

Accessing these water sources also requires significant time and physical effort, as respondents reported travelling between two to four kilometres to collect water, often two to

three times per day, spending approximately two hours each time. Respondents D and E explained how long hours spent securing water reduce the time available for income-generating activities, thereby creating significant opportunity costs. The time burden associated with securing water therefore lowers household income, further constraining the ability to afford and access water. From Sen's entitlement perspective, this demonstrates how inadequate water provision can undermine individuals' capacity to convert labour and other endowments into effective water entitlements. Water scarcity also directly undermines income-generating opportunities in the ASAL regions, where many households depend on water-intensive livelihoods such as pastoralism and small-scale agriculture (IUCN n.d.). As Respondent A stated: *"nothing can be planted without water"*. In accordance with the entitlement approach, changes in employment and income opportunities directly affect people's access to water. This reflects a cyclical relationship in which limited income restricts water access, while inadequate water access simultaneously undermines economic opportunities.

In addition, indigenous communities are often more vulnerable in their capacity to translate endowments into water entitlements. Although many households possess assets such as labour, land, and livestock, access to water is predominantly mediated through market-based systems that require monetary resources. As highlighted by representatives from Binti Mwangaza and the Leo Project, pastoralist communities, such as the Maasai, Samburu, Turkana, and Rendille operate within economic systems in which livestock, rather than monetary means, functions as the principal currency. These forms of endowments are therefore not readily convertible into water access within prevailing market structures. Consequently, households may appear asset-rich while simultaneously lacking effective means of securing water. From an entitlement perspective, water scarcity thus arises from structural constraints in the conversion of endowments into entitlements.

Political factors

Drawing on Sen's connection between democratic states and the absence of famines, one can analyse Kenya's water scarcity as an effect of weak democratic institutions. According to Varieties of Democracy's (V-Dem) Democracy Report 2026, Kenya is classified as a grey-zone regime, placed in the "lower bound" of electoral democracies (Nord et al 2026:15). Being a grey-zone regime entails that there is uncertainty regarding Kenya's categorisation as the country is close to the threshold between democracy and autocracy (Nord et al. 2026:11).

Kenya holds regular multiparty elections, however weak democratic institutions remain serious problems (Freedom House 2025). Politicians are often not held accountable to the electorate due to factors such as corruption, limited political goodwill, inadequate representation, restricted media freedom, and structural inequalities. In line with Sen's reasoning on the relationship between democracy and access to resources, these conditions contribute to water scarcity by weakening political incentives to address water-related crises effectively.

Freedom House (2025) assigns Kenya relatively low scores for government functioning, arguing that corruption and institutional dysfunction undermine policymaking and implementation. Kenya scores 1/4 for safeguards against official corruption and 2/4 for government transparency and openness. This was reinforced by several NGO representatives who emphasised that although various authorities, policies, and legal frameworks exist to address water-related issues in the country, corruption significantly undermines their implementation and enforcement. The representatives from Fauna & Flora and DDI highlighted that the National Environment Management Authority (NEMA) tends to favour large-scale flower farms and is vulnerable to bribery, despite its responsibility to enforce environmental protection and conservation regulations. Meanwhile, the representative from Fauna & Flora also stated that actors involved in water services, such as drilling companies, may have ties to government officials, weakening accountability and creating conflicts of interest within water management.

Moreover, Kenya also scores relatively low on political pluralism and participation in Freedom House's assessment, which argues that the politicisation of ethnicity undermines effective representation and meaningful policy debate (Freedom House 2025). These dynamics were also reflected in the interviews, where several NGO representatives described the ASALs as politically marginalised and underprioritised, arguing that weak political representation contributes to insufficient investment in water infrastructure. The representative from Impact Kenya noted that voting along tribal lines often leads to the underrepresentation of smaller communities, while elected politicians may neglect local interests once in office since they *"forget where they came from"*. Several NGO representatives and the local government official also argued that political priorities favour large-scale, water-intensive agriculture for economic growth, rather than investments in effective water infrastructure for the population. The government official specifically pointed

to insufficient national funding to the local governments for water and sanitation services, even though they are tasked with these responsibilities. Together, these findings suggest that limited political representation contributes to the continued underprioritisation of implementing water infrastructure in the ASAL regions.

In addition, press freedom in Kenya is restricted through legal constraints as well as harassment of journalists by state authorities and security forces (Freedom House 2025). As Sen argues, this weakens the role of independent media as a mechanism for drawing attention to emerging crises and increasing political pressure to address issues such as water scarcity. Freedom House also concludes that Kenya remains an unequal society, with wealth mainly concentrated in towns and cities while the ASALs have particularly high poverty rates (Freedom House 2025). From Sen's perspective, weak democratic institutions contribute to inequality, since weak political accountability hinders equitable resource distribution and investment in essential infrastructure. Such inequalities therefore intensify water scarcity in extra vulnerable areas.

To conclude, weaknesses in Kenya's democratic institutions limit individuals' ability to convert their endowments into water entitlements, as the resources, infrastructure, and funding necessary to secure reliable water access remain insufficient. Hence, adopting Sen's entitlement approach reveals that water scarcity in Kenya's ASALs is not simply a matter of total water availability, but is also driven by economic, social and political factors. This understanding is shared by Pieter Waalewijn, senior Water Resources Management and Irrigation Specialist at the World Bank, who states that *"Kenya's water scarcity is economic"* since *"[water] is available but not accessible"* (Shah 2024). Some of the respondents reinforced this view, noting that access to water has slightly improved in recent years due to the construction of boreholes and dams. Thus, despite environmental pressures reducing overall water availability, improved infrastructure has increased actual access and strengthened water entitlements. However, such efforts remain insufficient meaning that water scarcity in Kenya's ASALs continues to be shaped by intersecting economic, social and political factors.

4.3 How does water scarcity affect women's human security in Kenya's ASALs?

The gendered context of water

Water scarcity in Kenya's ASALs disproportionately affects women due to patriarchal norms and gendered power relations. Through a feminist political ecology (FPE) perspective, women's primary responsibility for securing household water, while simultaneously being least prioritised in access to resources, reflects broader gendered power dynamics (Bukachi et al. 2021:678; Harvey 2026). All informant interviewees confirmed that women are primarily responsible for fetching water, a domestic duty that often requires long and physically demanding journeys, depending on the household's socioeconomic position. In addition, all respondents described being responsible for household tasks, childcare, and in some cases income generation, while informant interviewees reported that men generally are responsible for economic activities and livestock management. FPE highlights how these gendered divisions of labour in natural resource management place women in a particularly vulnerable position in the context of environmental challenges. Consequently, women are disproportionately affected by water scarcity, as they are expected to secure water despite increasing distances, time burdens, and physical hardship, while continuing to fulfil essential domestic responsibilities.

Despite bearing the primary responsibility for securing water, women are often the last to access it (UNESCO 2026). Five NGO representatives explained that collected water is typically prioritised first to the male head of the household and then to livestock or children. In pastoralist communities such as the Maasai, livestock represents both economic value and social status, making their survival a priority. In other cases, children are prioritised to ensure they can attend school clean and healthy. Consequently, women frequently receive water last, despite having specific needs such as menstrual health management, which require additional water. From an FPE perspective, this illustrates how gendered power relations shape access to natural resources, where in this case resource distribution reflects hierarchical gender structures, where men are positioned at the top and women remain at the bottom.

These responsibilities and priorities are deeply rooted in patriarchal norms which, according to several interviewees, remain highly prominent in Kenya, particularly within traditional communities (Kimeu 2024; Odee 2023). As the NGO representative from the Leo Project

explained: *“Of course most houses in Africa are patriarchal, so the man is the one who (...) has the control. If there are little resources left, they are for the man for sure. It doesn't matter that you're the one who had to walk 20 kilometers to get the water”*. The founder of Dress for Change further noted that responsibility for water collection is often internalised by women as a natural duty, making these roles less likely to be questioned or challenged. This reinforces a self-perpetuating cycle in which gendered responsibilities and water scarcity continue to disproportionately affect women. In line with FPE, such patriarchal power structures are the reason behind unequal resource distribution between the genders and hence explain the gendered impacts of water scarcity. The following section therefore examines how water scarcity particularly affects different dimensions of women's human security.

Health Security

Water scarcity significantly affects women's health security in multiple ways. Seven out of the thirteen interviewees stated that limited clean water causes infections and water borne diseases. Seven of the informant interviewees stated that consuming and using unclean water increases the prevalence of diseases such as cholera, typhoid, HIV and diarrhoea. Insufficient water, poor water quality and water inequality increase the risk of infections for women, such as UTIs, bacterial vaginosis and yeast infections, especially in informal and rural settings (Kimutai et al. 2025b:7). These health risks are exacerbated by poor hygiene resulting from water scarcity, which three out of five respondents identified as a major health consequence.

Maintaining hygiene is particularly important in relation to menstruation. Founders of DDI, Binti Mwangaza, and Dress for Change – organisations working specifically with menstrual health management – emphasised that water scarcity makes it significantly more difficult to manage menstruation safely and adequately. Limited water access restricts women's and girls' ability to maintain hygiene and clean reusable menstrual products, while disposable pads are often unaffordable. The representative from Impact Kenya stated that this results in some resorting to improvised materials such as cloth, tissue, dirt, or sugar leaves, while others remain isolated at home squatting over a hole in the ground during menstruation. This inability to manage menstruation safely and hygienically increases the risk of infections and contributes to shame and anxiety, further intensified by the stigma surrounding menstruation in Kenya.

Furthermore, water fetching negatively affects many women's physical health due to the demanding labour it entails. Water scarcity forces women to travel longer distances to secure water for domestic needs, increasing the risk of dehydration, back pain and heat stroke (Chestit & Rotich 2025). Several respondents described water fetching as physically exhausting, particularly as they often carry 20-litre jerrycans for many kilometres in extreme heat. Respondent E stated that *"the physical demand of carrying water for 8 people is exhausting"*, while Respondent D noted that *"the burden of managing a large household with very little water means I am often tired and have little time for anything other than survival"*. Respondent D further explained that she must fetch water during the hottest parts of the day to avoid elephants, making the task even more physically demanding. The founder of Dress for Change also pointed out that pregnant women are not exempt from the physically demanding labour of water fetching, despite pregnancy making the long and strenuous journeys even more difficult.

Lastly, women's mental health is shown to be immensely affected by water scarcity. Studies have shown that the physical burden of water collection, combined with the emotional strain of managing household water needs under conditions of scarcity, contributes to stress, anxiety and depression among women (Kimutai et al. 2025b:2). This was strongly reflected in the interviews. As Respondent D explained: *"Water scarcity causes me significant physical and mental stress, the long walks to the dam twice a day is exhausting, and I constantly worry about having enough water for my seven children to stay clean and healthy"*. Nine out of the thirteen interviewees described various mental health impacts linked to for instance insecure water access, loss of income, menstrual management difficulties, physical exhaustion, and limited time for rest or social life. Respondents B, C and D also highlighted feelings of shame associated with poor hygiene affecting themselves or their children.

Economic Security

In terms of economic security, women in Kenya's ASALs are particularly vulnerable to water scarcity, as the significant time and labour associated with water collection limits their opportunities for income-generating activities. Women therefore face considerable opportunity costs, as time that could otherwise be devoted to paid work or small-scale businesses is instead spent securing water. Two out of five respondents explained that the long hours spent fetching water limit their ability to maintain their small-scale businesses and generate a stable income. As Respondent E stated: *"If I had reliable water access, I could*

invest the two hours I save every day back into my business”. As a result, women’s opportunities for economic independence and financial stability are significantly constrained. This highlights the close relationship between water access and economic security, which was also emphasised by the representative from the Leo Project, who described water as *“one of the biggest resources when you’re talking about being economically empowered”*.

In addition, water scarcity also challenges girls’ education (Davies 2022). Several NGO representatives noted that girls are often responsible for assisting their mothers in fetching water, which often results in irregular school attendance and missed classes. The local government official further noted that lack of water in schools also may affect attendance. The NGO representatives further described how water collection often takes place both before and after school, requiring girls to wake up early and leaving them with less time for homework and rest. As a result, girls often arrive at school tired, negatively affecting both concentration and academic performance. Together, these dynamics limit girls’ educational attainment and make it significantly more difficult for them to secure stable and formal employment later in life, thereby reinforcing women’s long-term economic insecurity.

Personal Security

Water scarcity also undermines women's personal security in Kenya’s ASAL regions. Several respondents and NGO representatives explained that the long journeys to fetch water often take place during early mornings and late evenings, exposing women to unsafe environments. Ten out of the thirteen interviewees, including all five female respondents, reported risks related to wildlife encounters during water journeys. As Respondent D expressed: *“My personal safety is at risk every day because I must walk long distances to the dam where I am vulnerable to attacks from wildlife, like elephants”*. Furthermore, seven interviewees stated that water scarcity contributes to resource-based and inter-ethnic conflicts over access to water in ASAL areas where water is a limited resource. The NGO representative from Impact Kenya stated that: *“Water can bring peace but it can also bring about so much conflict”*. As women frequently travel long journeys in these areas in order to secure water, they become particularly vulnerable during periods of heightened tension and conflict. Additionally, six NGO representatives explained that women are exposed to physical assault and rape during water collection journeys. Limited water access hence increases the risk of sexual violence, as the NGO representative from Impact Kenya declared: *“[T]here are cases of rape [...] which would not have happened if the girl had water close to her home.”*

Beyond these risks, water scarcity may increase women's vulnerability to sexual exploitation. Three NGO representatives stated that limited access to water can create dependency on men for water or transport needed to collect water. Therefore, they explained that water scarcity may increase the risk of transactional sex, where women exchange sex for water or for resources used to transport water, such as donkeys. Furthermore, water scarcity also affects women's personal security within the household (Kima 2022; Kimutai et al. 2025b). The representatives from Binti Mwangaza and Impact Kenya highlighted that water scarcity creates difficulties in securing sufficient water which can hinder domestic responsibilities and, in some cases, contribute to domestic violence.

Food Security

Water scarcity also contributes to food insecurity among women in Kenya's ASALs. NGO representatives explained that many households rely on livestock, crops, and small kitchen gardens for food provision. However, limited water availability increasingly undermines these livelihoods and households' ability to secure sufficient and nutritious food, which was reinforced by all respondents. These food shortages are particularly severe for women, as NGO representatives emphasised that women are often prioritised last when food is scarce. According to interviewees from Impact Kenya, Binti Mwangaza and Dress for Change, women in pastoralist communities face an additional vulnerability, since droughts may force men to migrate with livestock in search of water and pasture. Women and children are then left behind with reduced access to livestock-based food sources such as milk and meat. Consequently, water scarcity not only undermines household food security overall, but disproportionately affects women's access to food.

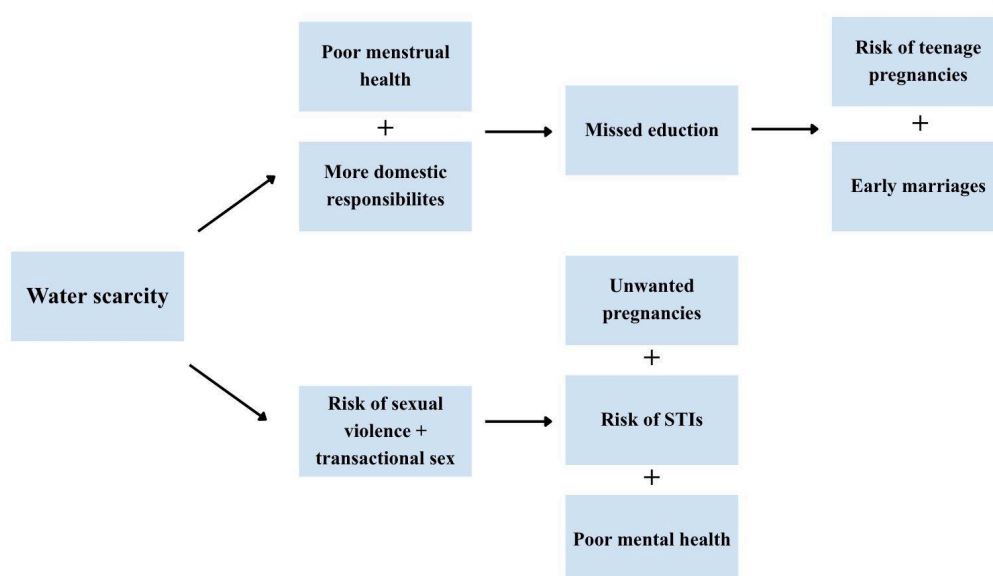
Interconnected issues

Many of these human security dimensions, and the ways in which water scarcity affects them, are deeply interconnected, since impacts often create significant ripple effects across multiple areas of life (see Figure 4.1). For instance, increased threats to women's personal security leads to threats to health security, as sexual violence and transactional sex increase the risk of STIs, unwanted pregnancies and mental health issues. Furthermore, water scarcity complicates safe menstrual management while simultaneously increasing girls' domestic responsibilities through water collection duties. According to NGO representatives, both factors negatively affect girls' school attendance and academic performance. When girls are

unable to attend school, traditional gender expectations often position marriage, motherhood, and domestic responsibilities as their primary roles. Limited access to education therefore increases the risk of teenage pregnancies and early marriages (Chestit & Rotich 2025). Moreover, water scarcity also contributes to livestock losses and economic hardship, further increasing pressure for early marriages as families seek economic support through dowries (Reynés 2026; Davies 2022).

These interconnections illustrate how the different dimensions of human security overlap and reinforce one another, with numerous additional examples beyond those discussed here. As the founder of Dress for Change noted, water scarcity is a multidimensional and interconnected issue in which *“the one person that is normally affected more is the woman”*.

Figure 4.1 Interconnected issues



In line with the FPE framework, the findings demonstrate how patriarchal norms and gendered power relations cause water scarcity to disproportionately threaten multiple dimensions of women’s human security. Women, despite being primarily responsible for securing household water, often have less access to and control over it, which puts their economic and educational opportunities, health, food security, and personal safety at risk. At the same time, several interviews highlighted women’s agency in improving their own situations, despite being structurally marginalised and discriminated against. NGO representatives described how women increasingly engage in self-organised economic

initiatives, such as small-scale pottery and beadwork businesses, to generate independent income. Nonetheless, water scarcity in the ASALs continues to pose a significant threat to women's human security.

Table 4.1 Findings on the human security impacts of water scarcity

Health security	N	Economic security	N	Personal security	N	Food security	N
Mental health issues	9	School absence due to water collection	6	Human-wildlife conflict risks	10	Reduced food supply due to water-dependent livestock and/or crops	6
Infections	7	Reduced school performance due to water collection	4	Tribal conflicts / resource-based conflicts	7	Insufficient water for cooking	3
Poor hygiene	7	Agricultural livelihood challenges	4	Risk of sexual violence (rape)	6	Risk of famines	1
Waterborne diseases	7	Livestock-related livelihood challenges	3	Water-related transactional sex	3		
Unclean water for domestic use	4	Reduced future income opportunities	3	Increased vulnerability of women left behind	2		
Poor menstrual health	4	Reduced time for income-generating activities (because of water collection)	2	Domestic violence linked to water scarcity	2		
Physical strain to collect water	4						

N = number of interviewees reporting each issue

5. Concluding Discussion

The aim of this study has been to examine water scarcity in Kenya's ASALs and raise awareness of the ongoing water crisis. Using the entitlement approach, the study has analysed structural factors behind its persistence. Through feminist political ecology (FPE) and human security perspectives, it has also examined how water scarcity disproportionately affects women. By addressing multiple interconnected dimensions of human security, including health, food, economic, and personal security, the study provides a holistic understanding of women's insecurity rather than focusing on a single aspect.

In doing so, the study has addressed the following three research questions:

1. What is the current situation regarding water scarcity in Kenya's ASALs?
2. What factors contribute to water scarcity in Kenya's ASALs?
3. How does water scarcity affect women's human security in Kenya's ASALs?

By conducting this qualitative case study, the thesis is able to answer the research questions as follows:

1. The water scarcity situation in Kenya's ASALs is severe, since water is often insufficient in terms of availability, accessibility, affordability and quality.
2. Water scarcity in the ASALs is partly driven by environmental and demographic factors, but is also shaped by socioeconomic barriers and weak democratic institutions that limit people's entitlement to water.
3. Water scarcity in the ASALs significantly threatens women's human security, as patriarchal structures and gender norms make women disproportionately exposed to its consequences, undermining their health, economic, food, and personal security.

The study specifically found that poverty, inadequate representation, corruption, competing political priorities, restricted media freedom, weak infrastructure, and limited state support constrain people's ability to convert available endowments into water entitlements. Furthermore, the results show that women face higher risks of infections, disease, mental health problems, and both domestic and water-related sexual and physical violence as a result of water scarcity. At the same time, water scarcity makes it more difficult for women to maintain a stable income, while girls' education is increasingly at risk which diminishes their

future income opportunities. By examining how water scarcity manifests, why it occurs, and what consequences it entails, the study provides a holistic understanding of the situation. Ultimately, it shows that although access to clean and safe water is constitutionally guaranteed in Kenya, it remains a deserted right for many people in the ASAL regions.

The study contributes to existing research by demonstrating how FPE can complement the entitlement approach by showing that water entitlements are deeply gendered. While the entitlement approach highlights how socioeconomic and political inequalities shape access to water, FPE further reveals how patriarchal power relations influence both responsibility for and access to water. Hence, patriarchal structures restrict women's water entitlements, which helps explain why they are disproportionately affected by water scarcity. Finally, as previous research has rarely examined the impacts of water scarcity on women through a human security perspective, the study contributes by demonstrating how water scarcity simultaneously affects multiple interconnected dimensions of women's human security.

This thesis acknowledges certain limitations regarding scope and generalisability. The primary sources were collected from only two counties within Kenya's ASAL regions and therefore do not reflect their full geographical diversity. However, the interviewees provided broader insights into conditions across the ASALs, which were complemented by secondary sources to support a more comprehensive understanding of the situation. Furthermore, as a qualitative case study, the findings cannot automatically be generalised to all water-scarce settings. However, the study aims for analytical generalisation. Many identified mechanisms, such as poverty, corruption, inadequate representation, and restricted media freedom, may also explain water scarcity in other arid and marginalised contexts. Similarly, the ways in which water scarcity affects women's human security, and how patriarchal structures shape women's disproportionate exposure to its consequences, may also be relevant beyond the Kenyan case. Thus, the combined use of the entitlement approach, feminist political ecology, and human security perspectives may be analytically useful in other contexts as well.

As this study primarily focuses on women's shared experiences of water scarcity, future research could examine how water scarcity affects various groups of women differently, for example across age, ethnicity, livelihood, or community contexts. In particular, more research is needed on how girls are affected, especially regarding education, health, and long-term livelihood opportunities. Given the study's qualitative design, quantitative research could help

measure the extent and distribution of the identified impacts. Overall, research in this area is important as water scarcity and inadequate water governance are becoming increasingly pressing challenges, due to climate change and growing pressures on democratic institutions.

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7. Appendices

7.1 Appendix A: Questionnaire for Respondent Interviews

1. Could you briefly tell us about yourself: your age and where you are from?
2. Please describe your household:
 - a. Do you live with kids, a partner, parents, siblings etc? How many people live in your household?
 - b. What is the main income of your household? Who is responsible for that income?
3. Can you describe a typical day:
 - a. What do you do (work, study, take care of household)?
 - b. What are your daily responsibilities?
4. Could you describe how you get water:
 - a. Do you buy, collect or fetch water, or receive it in some other way? From where?
 - b. If you buy water: Do you have enough means (money etc) to buy the necessary amount of water for your household? If not, do you buy water in any other way, in that case how?
 - c. If you collect water:
 - i. How far is the water source from your house?
 - ii. How many water sources are there around your home?
 - iii. How often do you collect water?
 - iv. How much time do you spend on collecting water?
 - v. Do you feel safe during these travels to fetch water? Why or why not?
 - d. Do you feel like access to water has changed recently? Is it easier or harder to get water now than before? Are there particular times when water is more difficult to

access?

- e. When water is limited, who is usually prioritized in your household? Who gets water first? Why is that so?
- f. Do you receive any sort of help within your community to receive water? In that case, by who?

5. In what way is the water scarcity affecting you? Please elaborate on how the water scarcity is affecting you in any way.

- a. How is water scarcity affecting your health? For instance regarding mental, physical, menstrual and sexual health.
- b. How is water scarcity affecting your food availability?
- c. How is water scarcity affecting your personal safety? For instance your safety from experiencing violence.
- d. How is water scarcity affecting your economic income and/or education?
- e. Is there any other way you are affected by water scarcity that you'd like to tell us about?

6. What do you think would improve your situation regarding water scarcity the most?