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Topic

Motivations of pastoralists and agro-pastoralists towards acquiring livestock feed to reduce the probability of resource conflicts in the Kerio Valley, Kenya

submitted by:

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Abstract

Communal conflicts constitute a great part of the conflict problem in Kenya, contributing to insecurity and violence in the country. A notorious case is the clash between the pastoral Pokot and agro-pastoral Marakwet in the Kerio Valley. This conflict dates back to the 1970s and has passed through the cycle of peace and violence many times since then. The conflict as well as its drivers have repeatedly been the subject of scientific work. However, the transformation of conflict has so far been little discussed scientifically. This is where the present thesis comes in.

The present thesis focuses on the natural resource dimension of the conflict, specifically on the access to pasture and availability thereof. The study aims to examine the possible influence the acquisition of animal feed by the Kerio Valley population can have on the conflict transformation. Three possible means of acquiring animal feed were suggested: the *Purchase of Animal Feed*, the *Cultivation and Conservation of Pasture* and the *Pre-Agreed Sharing of Grazing Grounds*. On the one hand, the motivation of the population towards the three predefined options as well as the influence of external factors on their motivations were determined. On the other hand, the potential of these predefined options to mitigate the resource-related conflict in the Kerio Valley was examined. An explorative, quantitative approach was used with a total sample size of n=180 participants, all of them residents of the East Pokot part of the Kerio Valley. The subsequent data analysis, following data collection, revealed that the participants showed high motivation towards the predefined option of *Cultivation and Conservation of Pasture* as a strategy for acquiring animal feed. Furthermore, age, gender, income, livelihood, and conflict exposure were determined as factors that significantly influence the motivations of the participants. The accessibility of options for acquiring animal feed was shown to mitigate the conflict potential of the participants significantly.

The present thesis gives an understanding of the possibilities for a resource-related conflict transformation in the Kerio Valley and should support future resource-related conflict transformation projects in the area. Additionally, the findings of the study function as a starting point for future research, whereby the specific focus should lie on generating a framework for the implementation of the suggested options for acquiring animal feed in the Kerio Valley.

Kurzfassung

Lokale ethnische Konflikte tragen maßgeblich zur Unsicherheit und Gewalt in Kenia bei. Ein berüchtigtes Beispiel ist dabei der Kerio-Valley-Konflikt. Die Auseinandersetzung zwischen den pastoralen Pokot und den agro-pastoralen Marakwet besteht seit den 1970er Jahren und durchlief schon etliche Male den Zyklus von Friedenspausen hin zu erneuten gewaltsamen Ausbrüchen. Der Kerio-Valley-Konflikt an sich sowie seine komplexen Faktoren und Ursachen sind immer wieder Gegenstand wissenschaftlicher Arbeiten. Jedoch wurde die Konfliktttransformation bisher kaum wissenschaftlich behandelt. Hier setzt die vorliegende Arbeit an.

In der Masterarbeit wird der Fokus auf die natürliche Ressourcendimension des Konfliktes, speziell auf den Zugang zu und die Verfügbarkeit von Weideland, gelegt. Ziel ist es zu untersuchen, welchen Einfluss die Beschaffung von Futtermitteln innerhalb der Kerio-Valley-Bevölkerung auf die Konfliktttransformation haben kann. Als mögliche Optionen zur Futtermittelbeschaffung wurden der *Zukauf von Futtermitteln*, die *Kultivierung und Konservierung von Weideland* und die *vereinbarte, kommunale Nutzung von Weideland* festgelegt. Zum einen wird die Motivation der Bevölkerung gegenüber diesen drei vordefinierten Optionen betrachtet sowie der Einfluss von externen Faktoren auf deren Motivation ermittelt. Zum anderen wird untersucht, wie die Verfügbarkeit der Optionen das Potential für Ressourcenkonflikte verändert. Die Methodik bedient sich eines explorativen, quantitativen Forschungsansatzes mit einem Stichprobenumfang von n=180 Teilnehmer_innen aus dem East-Pokot-Teil der Kerio-Valley. Die nach der Erfassung erfolgte Datenauswertung zeigte, dass die Befragten eine hohe Motivation zur *Kultivierung und Konservierung von Weideland* als Option zur Futtermittelbeschaffung aufweisen. Zudem konnte für die Faktoren Alter, Geschlecht, Einkommen, Existenzgrundlage, Marktverhalten und Konfliktbetroffenheit ein signifikanter Einfluss auf die Motivation der Befragten ermittelt werden. Die potenzielle Verfügbarkeit der Optionen zur Futtermittelgewinnung reduziert das Konfliktpotenzial der Befragten signifikant.

Die Arbeit dient dazu, ein Verständnis für die Möglichkeiten einer ressourcenbezogenen Konfliktttransformation im Kerio-Valley-Konflikt zu schaffen. So können zukünftige Konfliktttransformationsprojekte unterstützt werden. Des Weiteren stellen die Ergebnisse dieser Arbeit einen möglichen Ausgangspunkt für die weitere Forschung dar, wobei besonders die Rahmenbedingungen für die Umsetzung der hier behandelten Optionen zur Futtermittelgewinnung im Fokus stehen sollten.

Abbreviations

ASAL	Arid to semi-arid land
FBOs	Faith-based organisations
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
NGOs	Non-governmental organisations
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Science
SALWs	Small arms and light weapons
KES	Kenya Shillings

1 Introduction

1.1 Conflicts in Kenya

Kenya has a long history of persistent conflicts, which have led to a high degree of insecurity in many areas of the country. Especially the Rift Valley, Nairobi, pastoralist drylands, and the coast are among the areas most affected (Rohwerder, 2015). There is a great number of stakeholders involved in the conflict: from the national government over politicians and elites to pastoral groups and the Al-Shabaab, to name only a few. However, Kenya has not experienced civil wars or rebellions since it became independent in 1963. Most of the conflicts derive from localised ethnic battles or Islamic terror attacks (Elfversson, 2019a; Rohwerder, 2015). Especially communal conflicts constitute a great part of the conflict problem in Kenya, rendering Kenya the country with the highest level of inter-communal conflicts in all of Africa (Rohwerder, 2015). Figure 1 gives an overview of violent conflicts in Kenya between 2010 and 2020.

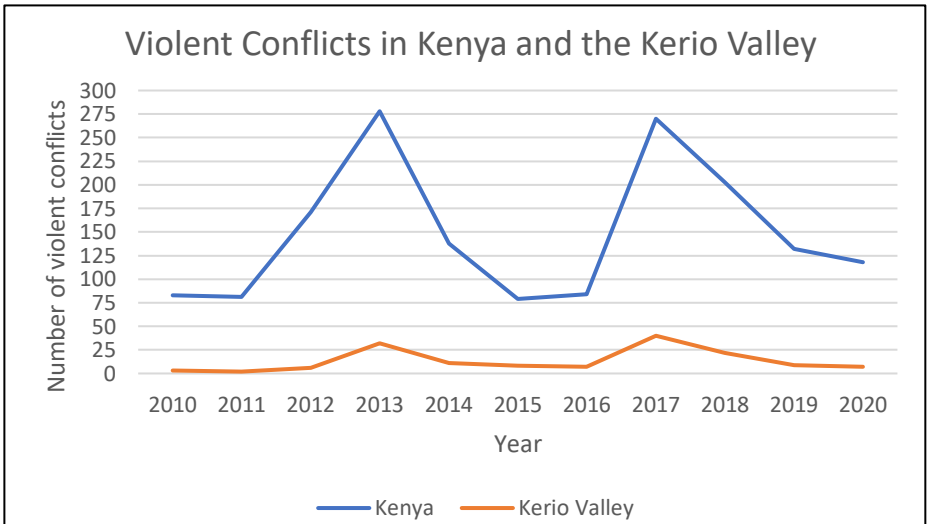

Figure 1: Records of violent conflicts in Kenya and the sub-counties where the Kerio Valley is located. The 'Armed Conflict Location and Event Data' were used to visualise the total amount of battles and violence against civilians from 2010 to 2020 in Kenya (blue line) and in the sub-counties East Pokot, Marakwet East and West Pokot (orange line), where the Kerio Valley is located. (ACLED, n.d.)

The frequent occurrence of communal conflicts can be explained by the country's ethnical diversity, with over 40 different ethnical groups living in Kenya (Rohwerder, 2015). A number of noteworthy characteristics shape communal conflicts: There is no direct governmental involvement in conflict activities and the contradicting parties identify with different ethnic or communal groups. Mostly, the conflicting parties are defined by a common history, culture, or other similar values (Elfversson, 2019a). The reasons for communal conflicts are manifold. In a great number of cases, political elections correlate with communal conflicts due to the politicised nature of ethnicities. In other cases,

land claims or the neglect of land ownership lead to conflicts. Also, a power vacuum, created by the absence of state governance and security, can promote the outbreak of such conflicts (Elfversson, 2019a; Rohwerder, 2015). One highly relevant example of a communal conflict is the dispute between pastoralists and crop farming communities in the pastoral drylands of Kenya (Juma, 2000; Rohwerder, 2015).

An infamous case is the long-lasting conflict between the Pokot and Marakwet in the Kerio Valley. The conflict dates back to the 1970s and is notorious for its violence, to the degree that the media dubbed the Kerio Valley 'the Valley of Death'. The conflict is characterised by spiralling violence, manifested in organised attacks on villages, causing a high number of casualties. In the years 1998 and 1999 alone, the conflict caused more than 4000 victims (Juma, 2000). The number of recorded attacks and violent actions between 2010 and 2020 is visualised in Figure 1, although the real numbers are probably much higher than the ones presented (Rohwerder, 2015). Numerous peace interventions, initiated by non-governmental organisations (NGOs), faith-based organisations (FBOs), or the government, were unsuccessful in their attempts to establish lasting peace. The present research will focus on the communal conflict in the Kerio Valley and will try to understand how conflict transformation can be conducted.

1.2 The Kerio Valley

The Kerio Valley is located in the West of Kenya and forms part of the Great Rift Valley. The valley is demarcated by the Elgeyo Escarpment to the West and the Tugen Hills on the East and further north by the Tiati Hills (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018; Elfversson, 2016). It has a width of about 10 km and reaches from the border region of West Pokot and Baringo to Lake Baringo (Heisch, 1950; Thom & Marten, 1983). It takes its name from the Kerio River that flows through the valley. The area, which is mostly affected by communal conflicts can be restricted to the border triangle between West Pokot, Elgeyo Marakwet, and Baringo (Elfversson, 2016). According to the 2019 census, the three counties are populated by 1,142,484 inhabitants, of which 621,241 live in West Pokot, 666,763 in Baringo, and 621,241 in Elgeyo Marakwet (KNBS, 2019a). The border region between the three counties is subdivided into three districts: West Pokot (194,446 inhabitants), East Pokot (79,923 inhabitants), and Marakwet East (96,897 inhabitants).

The Kerio Valley is an arid to semi-arid land (ASAL). High temperatures, high evaporation rates, and small amounts of variable precipitation make the lowlands only adequate for grazing animals (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018; Thom & Marten, 1983). The three conflict-affected districts show similarities as well as differences in their ecological conditions. All three areas have a bimodal type of rainfall, whereby the rainfall patterns and intensity

differ. West Pokot and Marakwet East experience long rains from March to April and short rains from July to September. The annual precipitation ranges from 850 to 1,000 mm/a while mean temperatures range from 25 to 28°C (County Government of Elgeyo Marakwet, 2018; County Government of West Pokot, 2018). East Pokot experiences low and unreliable rains with about 350 to 600 mm/a, with short rains from August to November and long rains from March to May (County Government of Baringo, 2018). All three districts have a dry season that lasts from January to March (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018; County Government of West Pokot, 2018). The surface water resources are an important ecological factor that differentiates the three locations. Marakwet East and West Pokot show a sufficient availability of surface water resources due to a perennial tributary of the Kerio River and their location within the mountains' catchment (County Government of Elgeyo Marakwet, 2018; County Government of West Pokot, 2018). East Pokot does not have sufficient surface water resources because of the seasonality of its rivers and the low precipitation, leading to seasonal differences in the water supply (County Government of Baringo, 2018).

Picture 1: The ecological differences in the Kerio Valley. The picture on the left was taken in the East Pokot section, while the picture on the right was taken close to the escarpments in the West Pokot part of the Kerio Valley. The different climatic conditions and the availability of surface water shows itself in different types of vegetation. (Own pictures)

1.3 Kerio Valley Inhabitants

The Kerio Valley is inhabited by two ethnicities, the Marakwet and the Pokot. The Marakwet live in the Marakwet East part of the Kerio Valley, while the Pokot reside in West Pokot and East Pokot. Both ethnicities are sub-groups of the Kalenjin with similar customs and a similar social structure. The two ethnicities are subdivided into clans, which are structured into different age grades – from the youth to the elders (B. Kipkorir & Welbourn, 2008). The internal authority is traditionally held

by the male elders. In addition to this clan-internal authority, there is a statutory law, represented by the chiefs' office on the local level.

Alongside these similarities, a number of differences between the two communities need pointing out. The most significant difference can be found in the communities' means of securing their livelihoods. The Marakwet pursue a sedentary agro-pastoral mix of farming and holding of livestock, while most of the Pokot practice a traditional form of nomadic pastoralism, with their income and food provision largely depending on livestock, especially cattle, sheep, goats, and camels (Czuba et al., 2017; Elfversson, 2016; Greiner, 2013; B. Kipkorir & Welbourn, 2008; Mutsotso et al., 2014). While over 60 % of the inhabitants in East Pokot and West Pokot engage in livestock farming, only half of the inhabitants in Marakwet East do so. A significant difference between the two ethfnicities' means of livelihood is the markedly lower engagement in crop production among the East Pokot. Only 25 % of the East Pokot grow crops, while 70 % of the Marakwet population engage in crop farming (KNBS, 2019c). The arid climate, especially in the East Pokot part of the Kerio Valley, limits crop cultivation and compels the Pokot to livestock farming, based on the communal use of pasture, as a strategy to survive the harsh conditions. Overgrazing and droughts lead to depletion of pastures and force the region's pastoralists to migrate into fertile areas, often located outside the Pokot territories (Czuba et al., 2017; Mutsotso, 2013). The most common breeds used in the Pokots' herds are the Zebu, the Small East African Goats, the Red Maasai and the Black Head Persian Sheep (Kimani et al., 2014). Most of the households in East Pokot own more than thirty Tropical Livestock Units (TLU) (Österle, 2008). Pastoralism is common in Kenya's culture and is practised by about a quarter of the population living in arid climatic conditions, while the Pokot and Turkana are known to hold the highest livestock populations in Kenya (Muricho et al., 2017; Schilling et al., 2012). Furthermore, pastoralism is not only a coping strategy, it also forms part of cultural identity. Livestock is deeply rooted within the Pokot culture. The Pokot define their identity through pastoralism, naming agro-pastoralists and farmers 'the men of the seed' (Mutsotso, 2013). Livestock, especially cattle, is a symbol of wealth and social status and is furthermore used in various cultural practices (Schilling et al., 2012). Dowry is paid in the form of cattle and livestock is used in the negotiations for the communal use of pastures (Mutsotso et al., 2014; Thom & Marten, 1983). Additionally, cattle rustling is a practice used among the Pokot for practical as well as cultural functions, often conducted after times of drought or the outbreak of diseases to restock the herds but also to gain control over large herds in a small amount of time (Elfversson, 2016; Juma, 2000; Schilling et al., 2012). Cattle rustling is connected with the introduction of the youth to adulthood and is part of the circumcision ritual.

The sedentary agro-pastoral lifestyle practised by the Marakwet and to an extent also by the West-Pokot stands in contrast to the East Pokots' traditional nomadic pastoralism (Mutsotso, 2013). The milder climate, in combination with good soil quality and the availability of perennial surface water, allows the Marakwet and the West-Pokot to cultivate crops to meet their own food needs and to trade.

Typical crops used for cultivation are millet, sorghum, maize, groundnut, green crumbs, cassava, sweet potatoes, pigeon peas, and mangoes (B. Kipkorir & Welbourn, 2008). Their ability to grow crops enables the Marakwet and West Pokot to lower their herd size and lead a sedentary lifestyle (Kidake et al., 2016). The Pokot and Marakwet differ in a second noteworthy characteristic: They speak distinct languages. Both languages are derived from the same language group, but over time different dialects developed to an extent that, nowadays, mutual understanding is no longer possible (Elfversson, 2016). Additionally, the educational levels of the two ethnicities differ greatly. A large number of Pokot, especially in East Pokot, have received either no or only very little education. The Marakwet, in contrast, show a significantly higher level of education (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018; County Government of West Pokot, 2018). A major reason for the lack of education within the Pokot community can be found in their strong bond to socio-cultural practices connected to pastoralism. Constantly having to migrate to better pastures bars the Pokot from access to educational services. Additionally, elderly authorities pressure the youth into the traditional pastoral lifestyle (County Government of Baringo, 2018).

1.4 History of Conflict in the Kerio Valley

The Kerio Valley has a long history of conflict, dating back to the 1970s (Juma, 2000). During the multi-party elections in 1991, the conflict spiralled into deadly communal violence between the Pokot and the Marakwet (Elfversson, 2016, 2017; Greiner, 2013; Juma, 2000). Governmental response to the violence was limited, which aggravated the situation (Elfversson, 2016). In 1992, NGOs, FBOs, as well as the state started to conduct peace meetings to find a solution for the ongoing conflict. The meetings resulted in a new approach to enhance development in order to decrease the potential for conflict in the Kerio Valley. However, the meetings failed to establish peace and were even abused by cattle raiders as an opportunity to prepare and attack (Elfversson, 2016). In the following decade, the conflict decreased in its intensity, only to spark up again in 1999 (Juma, 2000). In October 1999, a large-scale attack took place in Tot, Marakwet. During the attack, eleven people were killed, including two children and three women (Juma, 2000). This event marked a new level of violence, led to renewed hostility between the two communities and peaked into a spiral of violence. This newly sparked violence displaced many of the Kerio Valley's inhabitants. The Marakwet fled to the escarpments, while the Pokot moved further into Baringo (Greiner, 2013). In 2001, a severe drought forced Pokot pastoralists to drive their cattle on Marakwet-owned pastures, which re-intensified the conflict (Elfversson, 2016). Attacks and counter-attacks peaked into a massive raid, executed by Marakwet raiders. All the animals captured in the raid were either sold or killed.

This behaviour neglected the traditional rules for cattle rustling, hindering the Pokot to recapture the livestock. The violation of customs then triggered the Pokot to attack Murkutwo, a Marakwet village

close to Chesongoch, and to kill over 40 people (Elfversson, 2019b; Greiner, 2013). The immense violence used during the Murkutwo attack was followed by government interventions, involving the military to intervene in the conflict. However, the government failed to hold the attackers responsible for their actions as well as to reduce the tension between the two communities (Elfversson, 2016). Furthermore, the government tried to calm down the situation by holding meetings, even in the presence of President Moi, agreeing that security measures would be raised, and all illegal weapons should be confiscated. However, disarmament failed as well. Both communities feared becoming too vulnerable without their weapons. The measures taken by the government could not bring peace to the area. The unsuccessful governmental peace effort was followed by a local engagement in dialogues. Elders from both sides mobilised support for peace meetings and involved FBOs, e.g. the *Catholic Justice and Peace Commission*, to facilitate negotiations between the two conflict parties (Elfversson, 2016). The peace negotiation started at an ideal moment in time. On the one hand, the degree of violence in the region had reached an unbearable level. On the other hand, national governmental efforts took place to integrate local customary conflict regulation mechanisms in their approach to mitigate the conflict in the Kerio Valley. The efforts led to the *Modogashe Declaration* from 2001 and the establishment of the *National Steering Committee on Peace Building and Conflict Management* (Elfversson, 2016). Local peace committees arose from this new approach bringing together the elders under local governmental supervision. The *Modogashe Declaration* was further developed into the *Kolowa Declaration* from October 2002, which established local district peace committees to deal with minor disputes. The declaration defined the framework for accessing land and water and introduced compensation payments between the communities. This new agreement, combined with the district peace committees, succeeded in bringing peace to the Kerio Valley (Elfversson, 2019b).

However, despite the district peace committees' positive influence on the conflict, disarmament was not successful. In 2016, after roughly 14 years of peace, the conflict lighted up again. A series of clashes and raids caused 30 deaths and lead to years of instability and violence (Elfversson, 2019b). New governmental interventions and efforts to re-establish peace in the Kerio Valley resulted in a new peace agreement in July 2019. The *Chesengo Peace Accord* was signed between the communities of Elgeyo Marakwet, Baringo, and West-Pokot. This peace agreement was intended to secure peace development in the area (Wanja, 2019). A coordination centre for sustaining the peace was set up in Baringo (Kibo, 2019).

1.5 Drivers of the Kerio Valley Conflict

The drivers of communal conflict in the Kerio Valley are just as complex as the conflict history itself. The conflict cannot be reduced to one specific source, but it rather erupts and re-erupts due to a complex combination of different factors. The following chapter establishes an overview of these main factors involved in fuelling the conflict. The most crucial drivers of the Kerio Valley conflict are visualised in Figure 2.

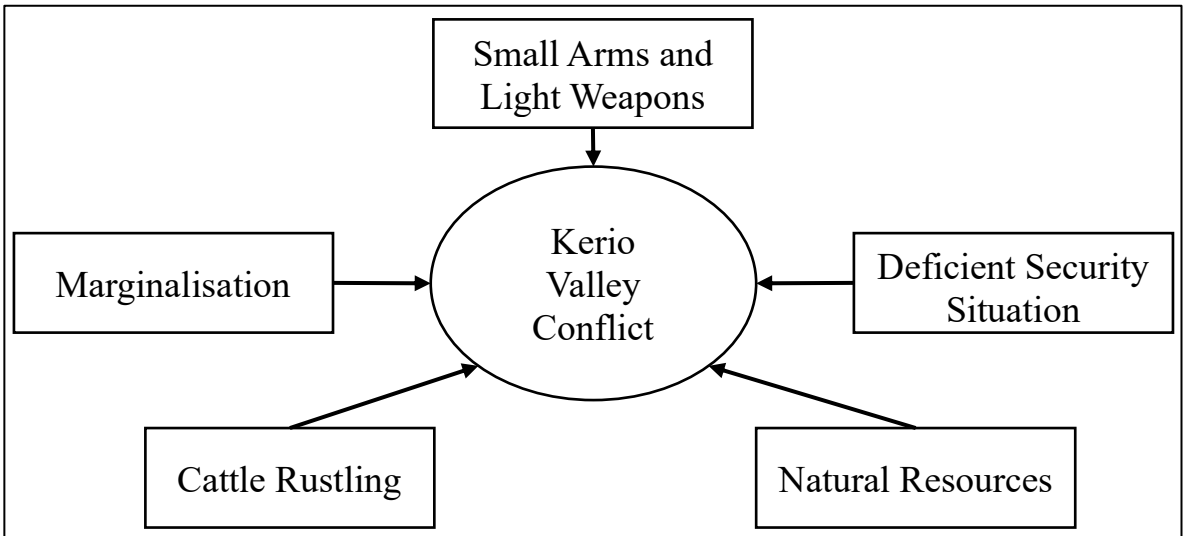

Figure 2: Important drivers of conflict in the Kerio Valley. (Own illustration)

Cattle Rustling

Cattle rustling is a major driver of the Kerio Valley conflict (Greiner, 2013; Huho, 2012). It is important to differentiate between cattle rustling in its traditional sense and the evolved cattle rustling practices. The traditional form of cattle rustling has been practised long before the conflicts began and is mostly accepted within the communities. It serves cultural functions and is used to cope with considerable losses of livestock. Traditional cattle rustling is not connected to a high degree of violence because compensation mechanisms help to overcome the livestock losses (Elfversson, 2016; Greiner, 2013; Juma, 2000; Schilling et al., 2012). Stolen livestock does not leave the area, which allows the raided herders to obtain the stolen livestock back, through counterraids or negotiations (Elfversson, 2016; Juma, 2000).

However, two aspects classify cattle rustling as a driver of the Kerio Valley conflict. First, the raids have been commercialised over the years. Risen meat exports and increased prices for livestock have made cattle rustling an appealing income opportunity. The selling of raided livestock brings the cattle

out of the region, interfering with the traditional compensation mechanism (Juma, 2000). The commercialisation of cattle rustling correlates with increased violence. A lack of traditional compensation mechanisms forces pastoralists to guard their animals, leading to more violent fights during raids (Elfversson, 2019a; Juma, 2000). Raiders began to attack women and children, who guard the livestock, which created a spiral of violence (Elfversson, 2016; Juma, 2000).

Availability of small arms and light weapons

Closely related to the new dimensions of violence in the Kerio Valley conflict is the high availability of small arms and light weapons (SALWs) (Elfversson, 2016; Huho, 2012; Mutsotso, 2013). The bordering conflict regions, especially Sudan and Uganda, created a high influx of weapons to Kenya, decreasing the price of weapons immensely (Elfversson, 2016; Greiner, 2013; Juma, 2000). A gun can be purchased for around six heads of cattle (about 416 USD), while bullets are even cheaper (roughly 10 cents) (Juma, 2000). The high availability of SALWs intensifies the conflict by enabling large scale raids as well as provoking counter-attacks, thus contributing to a spiral of violence in the conflict.

Lack of security

The region lacks a stable, government-backed security situation (Elfversson, 2016). The high availability of weapons in combination with the absence of supervising governmental authorities and inadequate actions taken during the conflict have aggravated hostility in the Kerio Valley. Governmental interventions were only provided after large attacks, forcing the communities to protect themselves by relying on the youth to establish security in the region (Elfversson, 2016; Pilly, 2012). Additionally, peace efforts were often only conducted by FBOs and NGOs as well as by elders with very little to no support by the government (Elfversson, 2016; Greiner, 2013; Juma, 2000). Governmental interventions did not succeed to capture the main actors in violent raids (Elfversson, 2016; Greiner, 2013). In addition, the government further enhanced the conflict by setting up the so-called *Kenya Police Reservists Program* that installed armed guards in the region, most of which were, however, Pokot.

Politics

The political orientations of the two communities have been instrumentalised by political parties and thus also play a major role in the Kerio Valley conflict. Both communities generally support the *Kenya African National Union* (KANU), which ruled the country from 1963 to 2002. From 1983

onwards, Kenya was declared a one-party state and ruled solely by the KANU until the multiple-party elections in 1991.

The Marakwet favoured the transition to a multiparty state and were, in consequence, regarded as the opposition by the Pokot (Elfversson, 2019b). The political rivalry between the two communities was instrumentalised by the KANU government to repress the opposition (Elfversson, 2019b; Greiner, 2013). Several factors provide key evidence for this political instrumentalisation: correlations between the dates of conflict outbreaks and government elections, the governmental reactions to the conflict situation, and the peace agreement in 2002. The escalation of the conflict can be dated back to the year of the multiparty election in 1991, whereby outbreaks of violence happen to correlate with times of elections up to the year 2002 (Elfversson, 2016, 2019b; Greiner, 2013; Juma, 2000). Second, the governmental reactions to the conflict were biased towards the Marakwet. Moi, president of Kenya from 1978 to 2002, was born in East Pokot and favoured the Pokot. This bias was manifested in the unbalanced composition of the cabinet and the security forces, which were dominated by Pokot, while Marakwet were not represented (Elfversson, 2016, 2019b). Also, the lack of governmental interventions during the Kerio Valley conflict helped Pokot raiders to escape prosecution and to create apparent immunity for the Pokot (Elfversson, 2016, 2019b; Greiner, 2013). Another evidence for President Moi's influence on the conflict was the promotion of Francis Lotodo to Cabinet Minister as well as to the role of close advisor for Moi in the early 1990s (Juma, 2000). Lotodo named himself the 'King of the Pokot' and declared the Marakwet as the main enemies of the Pokot (Elfversson, 2019b). He actively contributed to the conflict by pressuring the Marakwet to leave West-Pokot land, threatening them with death in case they did not heed to this instruction (Elfversson, 2016). Local politicians were also accused of triggering the 2016 conflicts by funding and inciting attacks (Elfversson, 2019b).

Yet another political dimension of the Kerio Valley conflict becomes visible in the peace process of 2002. The elections that took place in 2002, at the end of Moi's mandate, changed the political environment in Kenya. The KANU party, which had ruled Kenya for 23 years, lost to Mwai Kibaki's *National Rainbow Coalition*. In the following reorganisation of national as well as local political structures, the composition of local parliaments was changed, new district commissioners were appointed and the Marakwet Linah Kilimo became a minister in Kibaki's cabinet. This change in the political environment made an end to the Kerio Valley conflict seem within reach. The new political actors promoted peace in the area and pressured the Pokot leaders to actively engage in peace negotiations. The efforts that were taken under the new government ultimately led to the *Kolowa Peace Agreement* (Elfversson, 2019b; Fratkin, 2006; Greiner, 2013).

Finally, the erosion of customary leaders' authority and, in consequence, the failure of traditional peace systems contribute to the Kerio Valley conflict (Elfversson, 2016). Elders used to play a crucial

role in the Marakwet as well as the Pokot social hierarchy. They were consulted in decision-making processes, negotiated access to resources, and regulated the relations with other communities, especially in times of conflict. However, the formerly highly respected elders are losing their standing within the communities, especially among the youth, who tend to neglect the decisions and agreements made by their elders.

Marginalisation

The marginalisation of the Pokot in Kenyan society is a key factor conducive to the repeated outbreak of conflict in the Kerio Valley. The Pokots' traditional pastoral livelihood is considered backward by the Kenyan government because it is not regarded as economically beneficial and as a high ecological burden (Muricho et al., 2017). Development efforts tend to neglect traditional pastoralism and mainly foster sedentary agriculture. For example, the *Big Four* plan for Kenya as well as the *Food and Agriculture Organisation's* program, focus mainly on the development of crop production and the enhancement of irrigation systems. The development plans for the livestock sector tend to reduce nomadic pastoralism and foster sedentary livestock husbandry (Government of Kenya, 2018; Omolo, 2019). This trend can also be observed within the districts of Elgeyo Marakwet and Baringo, where the Pokot and Marakwet are located. Both district governments do not address pastoralism in their development strategies. Their main focus lies instead on enhancing crop-based agriculture (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018). This marginalisation of the Pokot through lacking government investment in the pastoral livelihood has led to limited market integration and lowered livestock off-take rates. Poverty, idleness, and unemployment within the Pokot community are the result of marginalisation and contribute to the conflict potential between the communities (Elfversson, 2016; Muricho et al., 2017). But not only a lack of investment and development efforts increase the pressure on the Pokot, active governmental interferences with the pastoral livelihood play a role as well. The land adjudication process, which dates back to colonial times, has ignored ethnically determined borders and has transformed communal land into private land. This interferes with the Pokots' pastoral practices of commonly used pastures and the migration to fertile areas (Campbell et al., 2000; Cousins, 1996; Fratkin, 2006). Pastoralists often deal with their marginalisation by ignoring land tenures and invading private land to feed their livestock during times of resource scarcity. The trespassing into formerly communally-owned areas is a key driver of conflict in the Kerio Valley (Elfversson, 2016). Furthermore, the two ethnicities differ considerably in their educational levels. The Pokot face an educational deficit compared to the Marakwet. This difference can be related to the retrogressive socio-cultural practices and preoccupations, pressuring the youth into a traditional pastoral lifestyle at a young age, neglecting their education (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018).

Natural Resources

One omnipresent factor in the Kerio Valley conflict is the lack of natural resources, especially the lack of sufficient pasture. Many authors who have examined the conflict dynamics acknowledge the important role of pasture in the conflict (Elfversson, 2016; Huho, 2012; Juma, 2000; Mutsotso, 2013; Rohwerder, 2015; Schilling et al., 2012). Huho (2012), for example, concludes that the shortage of pasture is the major conflict driver in pastoral communities because it leads to livelihood insecurity and increases the overall poverty rate. The availability of animal feed is the most important issue in livestock production, which the Pokot pastoralist depend on. Thus a clear correlation between the outbreak of conflict and pasture scarcity can be observed (Kidake et al., 2016; Muricho et al., 2017).

The available pasture in the lowlands of the Kerio Valley is frequently reduced due to droughts. The frequency of droughts increased tremendously within the last years (Kidake et al., 2016). Severe droughts, which used to occur every ten to five years, are now regular events, occurring almost every year (Huho, 2012). Additionally, the rise in the Kerio Valley population and the resulting larger numbers of livestock lead to overgrazing and thus intensify the resource pressure (Fratkin, 2006). Most vulnerable to the pasture scarcity are the Pokot living in East Pokot, Baringo. Unfavourable climatic conditions on the East Pokot side of the Kerio Valley, compared to the milder climate in Marakwet East, create substantially different pasture qualities within the two areas, during the dry spells (Kidake et al., 2016). Furthermore, the Pokot have very low resilience to major livestock losses, which occur during droughts, because they rely on their livestock as a means of subsistence (Muricho et al., 2017). Recovering from livestock losses takes long periods of time, in which the pastoralists struggle for their basic needs. Losing one-third of their cattle herd takes them about four years to recover (Huho, 2012). The agro-pastoral Marakwet have higher resilience to droughts, through their livelihood diversification into crop production and livestock (D. Kipkorir & Kareithi, 2013). The Pokots' vulnerability to resource pressure forces them to migrate into areas with fertile pastures. One of the areas with adequate pasture during dry spells can be found along the Kerio River, which is the natural and legal border between Marakwet East and East Pokot. The Pokot use the fertile pasture on the Kerio River riverbanks as feeding grounds and even migrate further into Marakwet East during times of resource scarcity (Elfversson, 2016; Kidake et al., 2016; Muricho et al., 2017). The fact that the Marakwet communities regard the Pokots' migration into their territory as an intrusion and encroachment on their resources has repeatedly sparked conflict between the two communities.

2 Conceptual Framework

2.1 Problem Statement

The 2019 *Chesengo Peace Accord* brought an end to the violent conflict between the Pokot and Marakwet in the Kerio Valley. The government, NGOs, FBOs, and the communities themselves conducted a peace agreement which should help reduce and address the conflict drivers through mutual collaboration. The peace committees are working on communication and disarmament within the communities, while efforts have begun to develop the area. However, the last peace agreement, the *Kolowa Declaration* from October 2002, revealed how fragile peace in the Kerio Valley is. The *Chesengo Peace Accord* gives new hope to finally settle the conflict in the area. The key to sustainable conflict mitigation is to address the major conflict drivers. Among these triggers, pasture scarcity is still hanging like a sword of Damocles over the fragile peace in the valley. Droughts might pressure the Pokot to migrate into the fertile areas in Marakwet East again, leading to a renewed outbreak of violence and a fallback in the Kerio Valley peace process. Previous peace efforts had tried to counteract a possible resource-related conflict by granting both communities access to pastures. Resource allocation can be one part of the solution; however, it does not solve the issue of pasture scarcity during droughts. Addressing the lack of animal feed, especially within the Pokot community, through different approaches is essential to mitigate conflict in the Kerio Valley. The present study defines scarcity of pasture as a significant issue within the complex net of conflict drivers in the Kerio Valley's post-conflict setting and as a crucial element of conflict transformation. Furthermore, the lack of alternatives to tackle resource scarcity and improve livestock nutrition must be addressed to create a sustainable peace process.

2.2 Literature Review

This literature review gives an overview of the present state of research regarding methods of acquiring animal feed in times of resource scarcity and the potential of these methods to mitigate conflicts. The following overview contributes to the process of finding suitable options to tackle the problem of pasture scarcity and of mitigating the resource-related conflicts in the Kerio Valley. Different methods of acquiring animal feed are explored and evaluated in terms of their suitability for conflict transformation. All sources were selected based on their significance and their comparability to the circumstances in the Kerio Valley.

Supplementary feeding to overcome feed scarcity

A prominent option to overcome animal feed scarcity in Kenya and other areas of Africa is the supplementary feeding of livestock during times of feed scarcity. The provision of animal feed to pastoral communities as drought relief has, for example, been a measure applied in Kenya. Aklilu and Wekesa (2002) and Morton et al. (2005) evaluate the use of supplementary feeds during the drought in 1999/2000 in Northern Kenya. The supplementary feeds were provided by the government as well as NGOs and distributed to the communities in need via local markets. Both authors state that investments in supplementary feeding were rather small compared to other interventions, such as destocking. However, according to Morton et al. (2005), supplementary feeding has the second-highest cost-benefits ratio among all drought relief interventions. Both, Morton et al. (2005) as well as Aklilu and Wekesa (2002) see vital benefits in the supply of animal feed to pastoral communities in times of scarcity. Supplemental feeding helps the pastoralists to maintain adequate herd sizes and enables them to utilise fertile pasture after times of drought, without any delay. However, Morton et al. (2005) mention a major drawback of supplementary feeding: Livestock numbers are kept up artificially, increasing the resource pressure and natural degradation.

Besides these concerns, Taye and Jensen (2019) as well as Pantuliano and Wekesa (2008) suggest that the purchase of animal feed can be an adequate option to tackle natural resource scarcity and is also widely accepted within the pastoral communities. Taye and Jensen (2019) examined the coping strategies of pastoral communities in Kenya and Ethiopia during the drought in 2016/2017. Their results indicate that over half of the participants purchased animal feed and other livestock inputs to reduce livestock mortality and cope with resource scarcity. Only the purchase of food and the relief selling of livestock were even more frequent. Pantuliano and Wekesa (2008) share similar findings with Taye and Jensen (2019), whose study focuses on drought response improvement in pastoral communities in Ethiopia. The authors point out a number of different risk management strategies within pastoral communities. Their study shows that supplementary feeding was the pastoralists' second most preferred strategy for dealing with feed scarcity. Only the availability of cereal banks was more prominent. The pastoralists even stated that they were willing to buy animal feed without subsidies if they were available during times of drought.

Besides the use of supplementary feed inputs to overcome resource scarcity, it is further important how the acquiring of animal feed performs in the context of conflict mitigation. An answer is given by Nyong's (2006) publication. Nyong (2006) discusses cases of resource conflicts and approaches for conflict resolution in Nigeria, Kenya, and Ethiopia with a specific focus on the Hadejia-Nguru Wetlands in Nigeria. The Hadejia-Nguru case study shows noteworthy similarities to the Kerio Valley conflict and gives valuable insight into resource-related conflict mitigation. The conflicting parties in Hadejia-Nguru are pastoral and agro-pastoral communities that fight over fertile pastures during times

of drought. The agro-pastoral community inhabits the wetlands, which allows them to cultivate crops and feed their livestock all year long. In contrast, the pastoral community inhabits arid areas and suffers pasture scarcity during dry spells, forcing the pastoralists to migrate into the wetlands to feed their livestock. Increasing livestock numbers within the pastoral community has led to the degradation of the fertile pastures and the invasion of farmland, sparking conflicts between the two communities. Governmental security-related interventions could not settle the issue. However, the collaboration of NGOs, government agencies, and traditional institutions was able to start a dialogue between the parties and establish consultative forums. These forums identified feed resource scarcity as the main driver of the conflict. To tackle pasture scarcity, the forum proposed the purchase of animal feed within the pastoral community during times of drought. As a result, the agro-pastoralist community started to cultivate pasture to sell it to the pastoralists during times of scarcity for a subsidised price. The strategy of supplying supplementary feed inputs settled the resource-related conflict in the Hadejia-Nguru Wetlands. A similar animal feed system has been established in parts of the Kerio Valley and the surrounding areas. Lugusa et al. (2016) examine animal feed production in the Njemps Flats of Baringo as well in Turkana and West Pokot. The pastoral and agro-pastoral communities in this area use enclosures to overcome the resource scarcity and sell the surpluses as a business venture. However, Lugusa et al. (2016) do not mention the trading of animal feed within the Pokot of East Pokot.

As the studies cited in this section show, supplementary feeding of animals through the purchase of animal feed can be a solution to resource scarcity within pastoral communities. This strategy carries the potential to mitigate resource-related conflicts in Kenya and other African countries. The use of purchased feed in the East Pokot ward, combined with feed production in the sedimentary Marakwet community could lower the resource pressure for the Pokot pastoralists, resulting in the mitigation of the resource-related conflict.

Cultivation and conservation of pasture

A second promising approach to overcome pasture scarcity within pastoral and agro-pastoral communities is animal feed production. Multiple publications suggest the cultivation and conservation of animal feed as a key element in mitigating animal feed resource scarcity (Fratkin, 2006; Kidake et al., 2016; Lugusa et al., 2016; Wasonga et al., 2016).

According to Wasonga et al. (2016), fodder production has a high potential for enhancing drought resilience within pastoral communities as well as for improving pastoralists' livelihood while mitigating the conflict over resources. The authors examined a reduction in resource-related conflicts through fodder production within pastoral communities in Baringo. Other examples of the use of fodder production in the arid ASALs of Kenya are stated in the publications of Mureithi et al. (2016)

and Lugusa et al. (2016). These publications name the Lake Baringo Basin as well as the Njemps Flats in Baringo and West Pokot as areas where communities have previously practised animal feed production. The most common method of fodder production is the cultivation of pasture through the use of enclosures, so-called feed banks, which creates reserves for dry season grazing. The enclosures are successfully used by pastoral communities to overcome the lack of animal feed resources during dry spells in the Baringo area (Lugusa et al., 2016). Fratkin (2006) identifies a trend towards animal feed production for pastoral communities all over East Africa. He states that East Africa pastoralists are in a transitional phase, from the traditional livestock and migration-based livelihood to a sedimentary and more diverse one. Fratkin (2006) uses three different Kenyan communities as examples for this transition – the Maasai, Boran, and Rendille – and states the changing climatic conditions, the growing population as well as the marginalisation of the pastoral lifestyle as reasons for the pastoralists to engage in the transition. One way for the pastoral communities to adapt to the external pressure is to engage in agricultural production, to ensure their subsistence but also as a form of income diversification. According to Fratkin (2006), pastoral communities who are not part of the transition will have to deal with increased conflict potential because of higher resource pressure.

Kidake et al. (2016) agree with the previous statements when they highlight animal feed production as an important strategy in the pastoral areas of Kenya. However, Kidake et al. (2016) stress the difficulties to implement animal feed production in arid areas because of climatic factors, soil types, and vegetation. To use animal feed production as a reasonable solution to overcome pasture scarcity in the ASALs, specifically in the Kerio Valley, it is necessary to consider important factors in the implementation. First, the climatic conditions with long rains in March to May, short rains from August to November, and a dry season from January to March suggest a strategy of pasture cultivation and improvement combined with the conservation and preservation of feed. A suitable technique for the cultivation and improvement of pastures is over-sowing, whereby natural pasture is overgrown by more resistant breeds. This technique is easy and cost-efficient, especially in the scarcely populated Kerio Valley lowlands (Kidake et al., 2016; Manyeki et al., 2013). Additionally, reseeding can be used in areas with a high ratio of weeds, shrubs, and bushes or in highly degraded areas (Manyeki et al., 2013). For both techniques, improved pasture species are needed. A species already used in the neighbouring sub-county of Pokot East is the *Cenchrus Ciliaris* (*African Foxtail Grass*) (Lugusa et al., 2016; Mureithi et al., 2016; Wasonga et al., 2016). The *Cenchrus Ciliaris* is a highly nutritional, drought-resistant grass species, which is easy to cultivate and harvest and is viable in seed production (Kidake et al., 2016; Lugusa et al., 2016). Two techniques can be used to conserve pasture for times of resource scarcity. One is the establishment of fodder reserves, which hinder animals from grazing on the pasture until the grass is needed (Lugusa et al., 2016). This technique has been approved in a similar area of Baringo and West Pokot. Thereby, agro-pastoral communities cultivate *Cenchrus Ciliaris* in enclosures to produce fodder banks for times of scarcity (Lugusa et al., 2016; Mureithi et

al., 2016; Muricho et al., 2017; Wasonga et al., 2016). Another technique is the manual harvesting of pasture and the production of hay bales (Kidake et al., 2016). Traditional storages as well as barns provided by the government or NGOs are used to store the hay (Lugusa et al., 2016). Broad knowledge, as of yet lacking in pastoral communities, is needed to enable the cultivation of pasture. Therefore, it is necessary to introduce crucial knowledge and techniques for growing and conserving animal feed resources through training (Kidake et al., 2016). A prominent method of training is the use of demonstration farms, realised through the cooperation of the private-public sector (Kidake et al., 2016).

Summarising the literature on feed production suggests cultivation and conservation of pasture as an adequate option for mitigating animal feed scarcity in the Kerio Valley drylands. Furthermore, sources show underdevelopment in the animal feed production within the ASALs of Northern Kenya, including the areas inhabited by the Pokot. Pastoral communities would profit from the cultivation and conservation of animal feed, which could increase their resilience to pasture scarcity but also help them diversify their livelihood by selling surpluses (Wasonga et al., 2016).

Communal pasture use

The final concept for overcoming feed scarcity in the Kerio Valley proposed in the present study is based on cooperation and the common use of resources. Ide (2017) sees an important connection between natural disasters and cooperation. Resource scarcity can act as leverage in conflict situations, as it may have a positive effect on the behaviour of social groups. He views environmental problems as a promising situation and as a possibility to start cooperation between hostile parties and decrease their conflict potential. Especially the enhancement in economic integration is named as a factor in promoting cooperation in times of environmental crises. Ide (2017) suggests a three-step process to settle conflicts in times of environmental scarcity. First, cooperation must be established between the two parties, followed by the development of trust, and completed by a phase of forming solid positive relations and a mutual identity among the two parties. Cooperation, in the form of communal pasture use, was the traditional approach for acquiring animal feed within the pastoral communities in Africa. Bollig and Lesorogol (2016) state that pastoralists in Eastern and Southern Africa perceive pastures as communal good. However, the authors see a shift in the communal use of natural resources within the pastoral communities. The encroachment and privatisation of land interfere with the pastoral approach of pasture use, leading to the exclusion of pastoral communities from their traditional feed resources. Pastoralists have often reacted with violation of land ownership rights, leading to conflicts. Bollig and Lesorogol (2016) suggest the use of *new commons* to overcome this dilemma. The *new commons* are described as co-managed natural resources, which are used by an identifiable user group and are newly asserted. The communal use of pasture as a system of resource allocation and conflict

mitigation is a rather old concept. Hardin (1968) already talked about communal pasture use in his famous T*ragedy of the Commons*. He concluded that a communal use of natural resources leads to resource depletion. However, recent approaches to the concept of communal resource use show more optimistic findings. Ostrom (2015) sees the communal use of natural resources as an effective strategy, provided there is sufficient regulation. She sees the implementation of different principles as the key to the successful use of commons. The most important are: the definition of clear group boundaries, the implementation of rules, and a monitoring and information system. Ostrom (2015) states that commons, governed in the right way, are an alternative to privatisation.

Ostrom's (2015) and Bollig's and Lesorogol's (2016) form of *new commons* has been employed in different parts of Africa and has helped to mitigate resource scarcity within the pastoral communities. One example of the successful implementation of new commons is given by Tah (2014). His publication examines the area around Wum in the North-West of Cameroon. The area is a hotspot for farmer-herder conflicts over scarce natural resources, triggered by land tenures. The conflict has been successfully reduced by 65% through communal land use, created by farmer-herder alliances. These alliances were formed by institutions on the community level. Pilly (2012) examined a similar case of communal land use among the Pokomo and Orma/Wardei communities of Tana River district, Kenya. These communities similarly have a long history of violent conflicts provoked by environmental pressure on natural resources and the consequent competition over these scarce resources. Land tenures hinder the pastoral Orma and Wardei from accessing grazing land and water resources, which were used communally in the past, leading them to invade Pokomo farming areas in their search for resources. Pilly (2012) states that the traditional form of communal pasture use was based on the farmers' goodwill towards pastoralists. The pastoralists had to ask for permission to use the farmers' land. Not all pastoralists saw the need to ask for permission because they either perceived the farmers' land as communal, were not used to the tradition, or simply didn't want to obey the traditional rules. To find a solution to the conflict, members of the pastoral and agro-pastoral communities participated in workshops. There, it was revealed that strengthening the traditional practices of pasture use through the establishment of a platform for dialogue is necessary to overcome the conflicts and implement a new framework for communal pasture use. Other authors support the findings from the previous examples. Cousins (1996), for example, sees the communal use of resources through the establishment of institutional arrangements as a key strategy in the conflict management for pastoral and agro-pastoral communities. Pantuliano and Wekesa (2008) add that access to animal feed resources is crucial for the pastoralists' ability to respond to droughts, whereby NGOs should work together with traditional institutions to grant that access.

The previous examples define communal pasture use as an adequate strategy to mitigate farmer-herder conflicts. Therefore, a communally based pasture use also seems promising to mitigate resource scarcity and promote peace in the Kerio Valley. When considering the pre-agreed sharing of

communal pasture as a strategy in the resource-related conflict transformation, it is important to look at the distinct situation in the Kerio Valley. The East Pokot part of the Kerio Valley suffers high pasture degradation due to droughts and high variability in rainfall, while the Marakwet East part records higher amounts of rainfall, leading to sufficient pasture growth. Additionally, Marakwet East has lower livestock pressure because of the agro-pastoral lifestyle of its inhabitants (Kidake et al., 2016). This unbalanced resource distribution renders communal pasture use a potential strategy for overcoming periods of animal feed scarcity. Communal grazing has been used as a coping strategy by the Marakwet and Pokot for many years (Elfversson, 2016; Muricho et al., 2017; Mutsotso, 2013). Pokot pastoralists were able to get permission to use pastures on the Marakwet side of the valley through customary practice. Pastoralists had to seek the agreement of the elders and the chief for communal pasture use. As a formal sign of payment, a bull used to be slaughtered and gifted to the Marakwet. However, during times of resource scarcity, Pokot pastoralists have often used Marakwet pastures without seeking permission, thus provoking tensions between the two communities (Elfversson, 2016). Additionally, during times of instability, negotiations for communal pasture use were not possible because of the hostility already existing between the two communities (Mutsotso, 2013). Elfversson (2019b) regards the newly formed peace in 2019 as an important step for finding solutions to the ongoing conflict. One of these solutions can be communal pasture use. Elfversson states, in her 2019(b) and 2017 publications, that two important steps have already been taken to establish a system for communal pasture use within the Pokot and Marakwet communities: the *Kolowa Peace Declaration* and the establishment of peace committees. The *Kolowa Peace Declaration* contains regulations concerning grazing rights, whereby Pokot livestock has been granted access to the pastures on the Marakwet side of the Kerio Valley during times of scarce feed resource (Elfversson, 2016). In order to receive permission to access Marakwet pasture, the elders and the chief must approach the local leadership to make arrangements (Elfversson, 2017). This shows how important communal pasture use is, not only for the mitigation of animal feed scarcity in the Kerio Valley but also for peacebuilding. However, a working framework must be established in which the sharing of grazing grounds is regulated. A contractual grazing arrangement, which clearly defines the grazing rights as well as the compensation for the owner of the pasture, is necessary to regulate the communal use (Elfversson, 2016).

2.3 Theoretical Framework

The topic of conflict transformation can be approached from multiple angles: from a materialistic approach, a stakeholder approach, or even from a historical approach. However, the present research accesses the field of conflict transformation through an approach developed by Galtung and Fischer (2013), who deliver a conflict theory based on the *transcend method*. They presume that sustainable

conflict transformation can only be accomplished by peaceful means. The present research uses Galtung's and Fischer's (2013) thoughts as a foundation to understand the conflict in the Kerio Valley and develop a starting point for a sustainable conflict transformation. Galtung's and Fischer's (2013) ideas will be supplemented by the approaches of Elfversson (2017a) and Schilling et al. (2012) to form the theoretical framework.

Galtung and Fischer (2013) provide a useful overview of the nature of conflicts. They state that conflicts arise out of contradicting goals between different parties. These contradicting goals can lead to aggression, a change in attitude, and express themselves as violent behaviour, leading to spiralling violence and the creation of a meta-conflict. The Kerio Valley conflict relates well to Galtung's and Fischer's (2013) definition of a meta-conflict. It is a complex conflict with many different stakeholders and fuelled by a great number of drivers that have already been briefly summarised in Chapter 1.5. Galtung's and Fischer's (2013) thoughts help to understand the Kerio Valley conflict as a meta-conflict, composed out of multiple root conflicts, with violent outbreaks as a result of spiralling violence.

The publication of Galtung and Fischer (2013) propose another important point of view regarding the structure of conflicts. They separate conflicts into three different phases: before violence, during violence, and after violence. The first phase, also called the prevention phase, is the period in the conflict where sustainable peace initiatives must be established to avoid a violent outbreak. The outbreak of violence marks the beginning of the second phase, during which only short-term peacekeeping methods are suitable to mitigate the conflict. The third phase, violence cessation, is characterised by resolution, reconstruction, and reconciliation. Galtung and Fischer (2013) point out that phase one is the critical phase in the conflict transformation because no violence has yet occurred, but people are still suffering from the conflict. The urgency of intervention is not as high as in the other conflict phases, leading to a false perception of safety. However, sustainable conflict transformation is only possible in this phase, because otherwise the conflict will drift into violence. Understanding these three different phases is vital for the conflict transformation in the Kerio Valley. Here, the conflict has transitioned from phase two, new violent outbreaks in 2016, to phase three, the governmental intervention in 2019, and back to phase one, the establishing of the *Chesengo Peace Accord* as well as the formation of peace committees. If we follow Galtung's and Fischer's (2013) thoughts, it can be assumed that the Kerio Valley conflict will eventually shift to phase two again, if there is no sustainable solution to the roots of the conflict. Phase one is seen by Galtung and Fischer (2013) as deceptive because the established peace seems to have solved the conflict, while it is only violence that has been suppressed by governmental interventions. The Kerio Valley's history shows that the three phases have been passed through multiple times, which stresses the need to engage in a sustainable conflict transformation as soon as possible. Figure 3 visualises the three phases in detail.

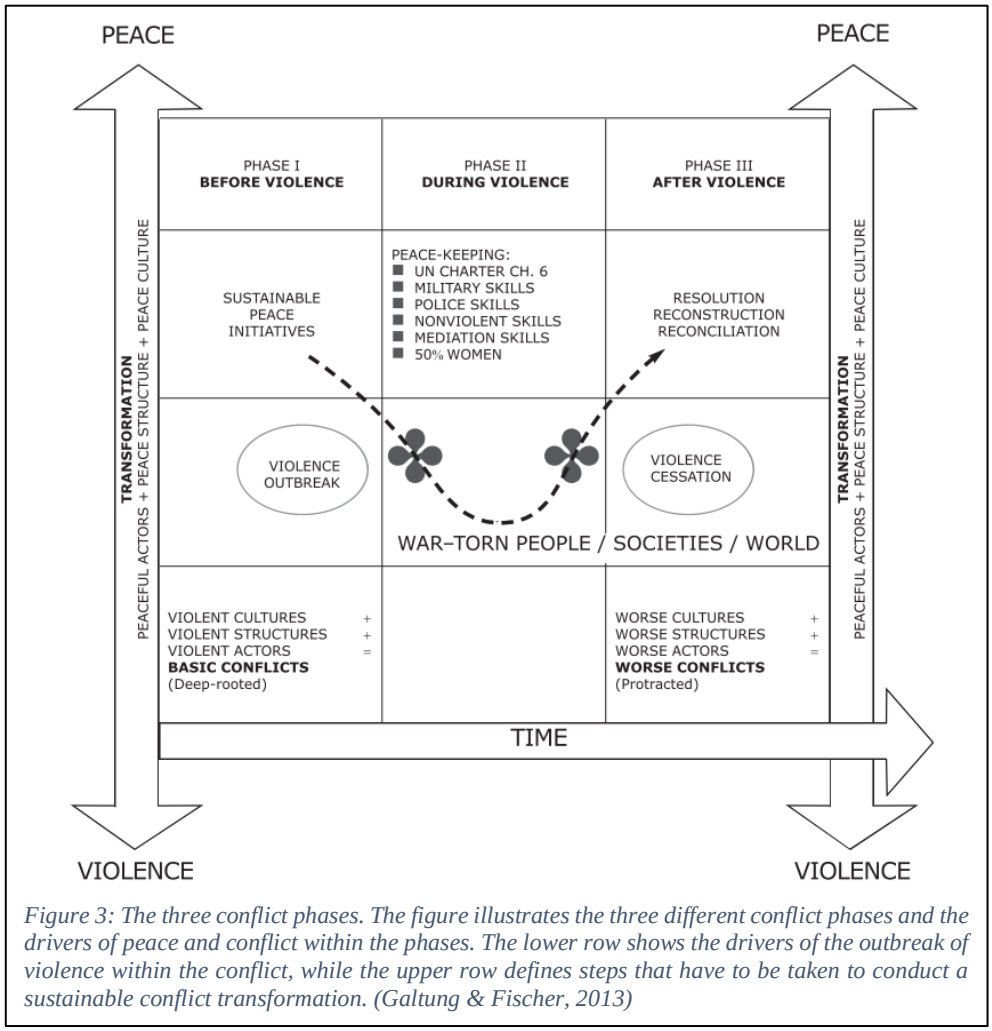

Figure 3: The three conflict phases. The figure illustrates the three different conflict phases and the drivers of peace and conflict within the phases. The lower row shows the drivers of the outbreak of violence within the conflict, while the upper row defines steps that have to be taken to conduct a sustainable conflict transformation. (Galtung & Fischer, 2013)

Galtung and Fischer (2013) suggest a framework for sustainable conflict transformation. They propose that the essence of conflict transformation lies in changing the conflict parties' goals from contradicting to positive. Therefore, it is necessary to acknowledge the complexity of a meta-conflict and narrow it down to the existing root conflicts. This step makes it possible to identify the different parties and goals involved in different root conflicts and start the transformation processes (Galtung and Fischer, 2013). The Kerio Valley conflict shows a complex net of drivers, from politics, small arms, marginalisation, climatic influences, to animal feed scarcity and many more. Discussing all these root conflicts would exceed the extent of my thesis, which forces me to isolate one. Because of its high potential to spark the conflict anew, I chose to focus on the conflicts sparked by animal feed scarcity. Galtung and Fischer (2013) stress the importance of narrowing down the meta-conflict and transforming the root conflicts into a new reality by finding creative solutions to the conflict parties' contradicting goals. The conflict transformation is not completed by stopping the violence, it is rather necessary to mitigate the underlying structural and cultural violence. Transferring Galtung's and Fischer's (2013) concept to the resource-related conflict in the Kerio Valley suggests creating a new

reality, in which feed resources are not a limiting factor anymore. Therefore, my thesis will focus on conflict transformation through the development of options for acquiring animal feed resources to lower resource scarcity. Another important factor in Galtung's and Fischer's (2013) conflict theory is the sustainability and acceptance of the conflict transformation. They see the need for the transformation process to be supported by the people concerned and not take the form of a top-down approach governed by politicians and elites. Furthermore, the sustainable solution to the root conflict cannot be a short-term avoidance of violence but long-term conflict mitigation, which is accepted by the conflicting parties themselves. The present research will fulfil Galtung's and Fischer's (2013) demands for a sustainable conflict transformation by defining adequate options for acquiring animal feed and by examining the conflict parties' perception of those options.

Elfversson (2017), who produced multiple publications on the Kerio Valley peace process, adds an important nuance to Galtung's and Fischer's (2013) conflict theory by highlighting the conflict parties' dynamics. She states that an important factor for the Kerio Valley conflict is the unequal treatment that the two parties face and that, hence, must be considered in the conflict transformation process. This aspect is crucial for the present research because it helps to narrow down the study population. As already mentioned in Chapters 1.4 and 1.5, the Pokots' traditional pastoral livelihood leads to marginalisation, creates a high vulnerability to harsh climatic conditions as well as cultural and social restraints. The inequality is pronounced during times of animal feed scarcity. Taking Elfversson's (2017) suggestion into account, my study will focus on the Pokot community in order to get information from the conflict party which seems to be disadvantaged in the Kerio Valley resource-related conflict. Additionally, Elfversson (2017) suggests that the complexity within the conflict parties should be acknowledged. She assumes in her publication, based on the conflict theory of Kleibore (1994), that conflict parties are unitary, meaning that the communities follow their leaders' decisions in their conflict behaviour. However, she states that this assumption does not represent empirical reality and fails to highlight intra-party dynamics in explaining the potential and the circumstances of conflict mitigation. The present research adopts Elfversson's (2017) theoretical considerations when focusing on the Pokot community as a whole whilst also trying to identify specific groups within the population, who can have a significant influence on the conflict transformation or who show specific behaviour towards the conflict mitigation. This will help to acknowledge the complexity within the conflicting parties, and to isolate important groups that have a potential leverage effect to influence the conflict situation.

Elfversson's (2017) and Galtung's and Fischer's (2013) thoughts lay the basis for my approach to the resource-related Kerio Valley conflict mitigation. However, the structure for my theoretical framework derives from Schilling et al. (2012), who used an agent-based approach to explore the motives for raiding and the effects thereof among the Pokot and Turkana communities in the North-West of Kenya. The agent-based approach understands communal behaviour and decisions as

directed by different groups of agents. Schilling et al. (2012) chose the Pokot and Turkana raiders as agents because they actively decide to engage in conflict over pasture, water, and livestock, thus influencing the relationship between the two communities. Figure 4 shows the theoretical framework used by Schilling et al. (2012).

Figure 4: Theoretical framework used by Schilling et al. (2012) in their study of cattle raids between the Turkana and Pokot. It shows the conflict and cooperation pathways between the two communities. Motivation and capability are crucial factors that define whether the two communities decide to engage in either conflict or cooperation. (Schilling et al., 2012)

The relationship between the two communities is described either as conflict or cooperation, depending on two major factors: the raiders' motivations and their capabilities. Schilling et al. (2012) define motivation as the expected gains and losses resulting from a specific action. Only raiders who value the gains of raiding over the losses, for example when increasing their herd size outweighs being physically harmed, will choose to engage in conflict rather than in cooperation. Capability is defined as the ability to act in a certain way, based on external limitations, such as resources, skills, information, climatic conditions, etc. The agents decide for conflict or cooperation based on their motivations and capabilities and direct the communities' behaviour through their choice. The decision forces the conflicting community to react in the same way. If the Pokot community decides to engage in conflict, this would force the Turkana to do the same. The theoretical model of Schilling et al. (2012) relates well to the resource-related conflict between the Pokot and Marakwet and I will therefore use it in my research project.

However, a number of elements in the framework of Schilling et al. (2012) cannot be transferred to the present study. Firstly, I used the definitions of conflict and cooperation employed by Schilling et al. (2012) as a guideline to specify these terms for the present study. According to Schilling et al., "conflict […] refers to violent conflict which is understood as forceful interaction as a result of opposing views about pasture, water and livestock. […]. Cooperation on the other hand relates to the peaceful sharing of resources and a state in which differences are reconciled peacefully" (2012, p. 5). The present research project uses the definition of conflict also used by Schilling et al. (2012) but focuses on the dimension of animal feed and neglects other resources such as water and livestock. Furthermore, the concept of cooperation employed by Schilling et al. (2012) is extended from the sharing of resources to peaceful alternatives for acquiring animal feed. A crucial difference between

Schilling et al.'s (2012) approach and my own theoretical framework is that we do not use the same definition of root conflict. While Schilling et al. (2012) examine cattle rustling as a conflict driver between the Pokot and Turkana, I focus on animal feed scarcity as one of the root conflicts between the Pokot and Marakwet. This different focus requires a selection of the conflict agents based on different preconditions. Schilling et al. (2012) state that the "raiders of each group are used as agents because […] the raiders are the ones essentially deciding on whether to conduct a raid or not" (2012, p. 5). In the case examined by Schilling et al. (2012), raiders of both parties decide to conduct raids and therefore members from both parties act as agents in the conflict. This is not the case in the resource-related Kerio Valley conflict. The two conflicting parties, the Pokot and the Marakwet, do not equally contribute to the resource-related conflict. Elfversson (2016) states that the Pokots' high vulnerability to animal feed scarcity pressures the pastoralists to enter pastures on Marakwet land. On the other hand, the sedentary lifestyle of the Marakwet combined with a milder climate and better ecological conditions for pasture growth on the Marakwet East side of the Kerio Valley protects the Marakwet from animal feed scarcity and therefore lowers their need for migration (Kidake et al., 2016; Mutsotso, 2013). Due to the resource pressure, the Pokot pastoralists are pushed to use pastures outside of their lands, for example in Marakwet East (Elfversson, 2016; Kidake et al., 2016; Muricho et al., 2017). The use of pastures on Marakwet land can lead to conflicts, depending on how this use is conducted. Thus, the Pokot become potential initiators of conflict over animal feed resources. Schilling et al. (2012) point out, that the decision of a rather small part of the community members can influence the prosperity of the whole community. In my theoretical framework, I assume that in the case of the resource-related conflict in the Kerio Valley single individuals within the Pokot community can shift the relationship between the two communities from peace to conflict through their decisions in times of animal feed scarcity. I assume that single individuals from the Pokot community who migrate into Marakwet land in search of pasture can thus spark differences that plunge the whole Pokot community into a conflict with the Marakwet. Therefore, my research will focus on the Pokot as agents in the conflict, neglecting the Marakwets' contribution to the resource-related conflict.

Additionally, the present research project does not examine the Pokots' motives to engage in cooperation or conflict, but it will examine the potential for conflict mitigation through their access to a number of previously specified methods of acquiring animal feed. While Schilling et al. (2012) suggest that the choice of conflict or cooperation arises out of the agents' motivations and capabilities, the present thesis regards the Pokots' choice to engage in conflict versus cooperation as only indirectly related to the factors of motivation and capability. Instead, I examine the Pokots' motivations and capabilities to engage in specifically defined alternatives for acquiring animal feed. It is only then that it becomes possible to assess the potential of these possible alternatives for acquiring animal feed on the Pokots' choice to engage in conflict or cooperation. For the present study, it is, therefore,

necessary to adjust the model of Schilling et al. (2012) by introducing alternatives for acquiring animal feed as an intermediary factor between motivation and capability and the decision for conflict or cooperation (Figure 5).

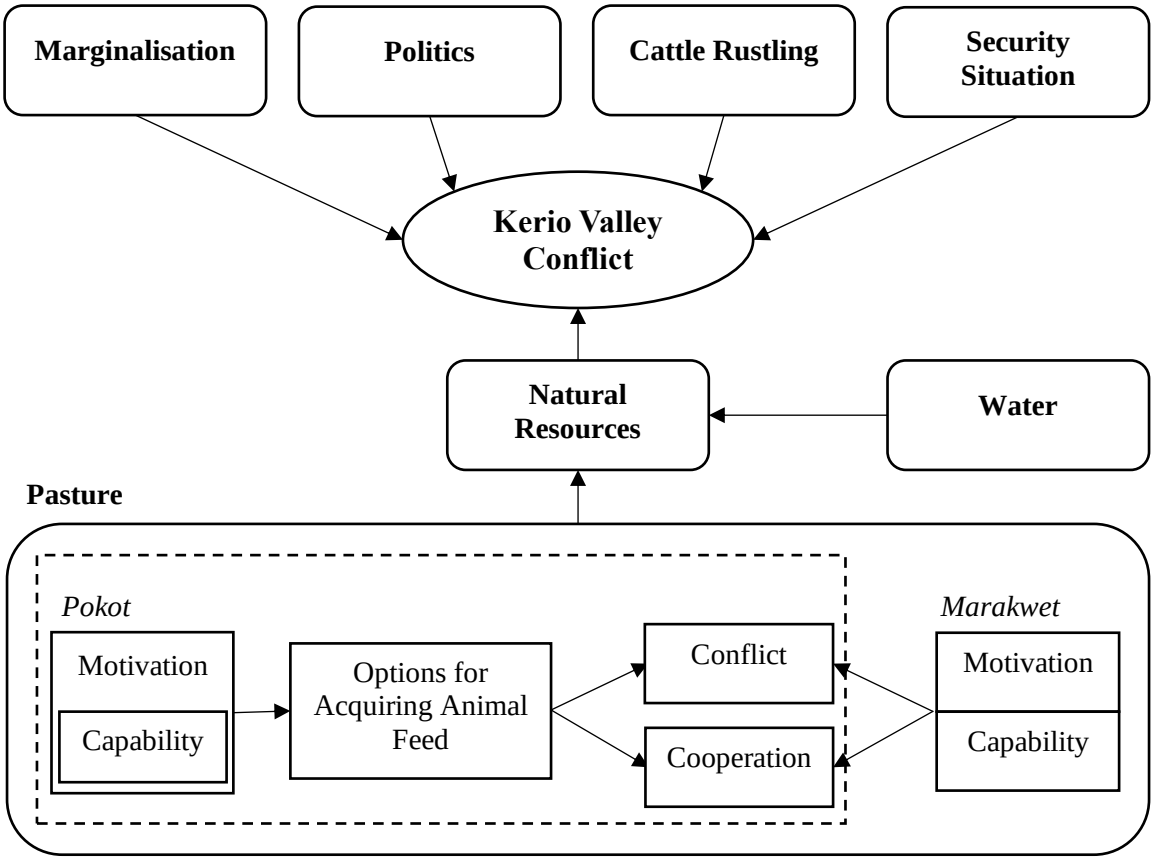

Figure 5: Theoretical framework for the animal feed related conflict transformation in the Kerio Valley. The ellipse in the middle of the figure symbolises the meta-conflict in the Kerio Valley. The rounded boxes visualise the root conflicts contributing to the meta-conflict. The rounded box in the lower half visualises the animal feed related root conflict. It contains the path of conflict or cooperation of the two conflicting parties, Pokot and Marakwet. The present research project only focuses on the Pokots' decision for conflict or cooperation, as visualised by the dotted square. The Pokots' paths towards conflict or cooperation contain an intermediary step: different options for acquiring animal feed as an approach to conflict transformation. Additionally, capability is interpreted as an influencing factor on the Pokots' motivations to engage in one of the three methods of animal feed acquisition. (Adapted figure by Schilling et al. (2012))

Schilling et al. (2012) interpret motivation and capability as equally influential factors in determining the choice of conflict or cooperation. In my thesis, however, I argue that the Pokots' motivations to choose one of the methods for acquiring animal feed are influenced by their capabilities Their motivations will thus be directed towards solving the issue of resource scarcity instead of directly to conflict or cooperation. Identifying which benefits and losses the Pokot perceives in the different predefined options for acquiring animal feed is a central aim of this study. Relating the Pokots' capabilities to their motivations rather than relating both capabilities and motivations directly to their

decision for a certain predefined strategy for acquiring animal feed makes possible a deeper understanding of external factors influencing the Pokot in their motivations.

Additionally, specific groups within the Pokot community can be determined based on similarities in their motivations, capabilities, and choices for engaging in conflict or cooperation. This stands in line with Galtung's and Fischer's (2013) idea of conflict transformation, where it is crucial to narrow down the meta conflict to the root conflict of the conflicting parties and address the groups with specific solutions. Identifying different groups within the Pokot community, based on similar motivations and capabilities, will reveal leverage points for a sustainable conflict transformation. Figure 5 shows the extended model for my theoretical framework, where additional conflict drivers have been added to acknowledge the complexity of the Kerio Valley conflict. Due to the limited extent of my study, it was not possible to examine all conflict drivers. The dashed lines in Figure 5 contain the part of the Kerio Valley conflict which is subject to the present research.

2.4 Objectives

The overall objective of the present thesis is to understand, how resource scarcity can be addressed to mitigate the conflict potential in the Kerio Valley. Options for acquiring animal feed to overcome resource scarcity will be defined out of the three strategies examined in the literature review (see Chapter 2.2) and tested for their potential with regard to sustainable conflict transformation. The three options are the *Purchase of Animal Feed*, the *Cultivation and Conservation of Pasture* and the *Pre-Agreed Sharing of Grazing Grounds*. The motivations of pastoralists and agro-pastoralists towards the predefined options for acquiring animal feed as well as factors influencing their motivations will be examined. Out of this approach, I have developed the following research questions:

Research Question 1: What are the pastoralists' and agro-pastoralists' motivations towards the predefined options for acquiring animal feed resources?

This research question aims to identify the Pokots' perception of the different strategies for tackling animal feed resource scarcity. It builds on the theoretical framework of Schilling et al. (2012), where the term motivation is used as an indicator for the gains and losses that pastoralists see in engaging in different methods of acquiring animal feed. Answering this question will help to understand how well the methods for acquiring animal feed are accepted among the Pokot. Thus, it becomes possible to estimate the potential of certain predefined alternatives in overcoming the resource scarcity in the Kerio Valley.

Research Question 2: How do the pastoralists' and agro-pastoralists' capabilities influence their motivations towards the predefined options for acquiring animal feed resources?

It is not only their perception but external factors as well that influence the Pokots' motivations to engage in one of the options for acquiring animal feed. Schilling et al. (2012) use the concept of the capability to describe the influence of external factors on conflicting parties' abilities to act in a certain way. Answering this research question will give an understanding of external factors which are crucial for the engagement in specific predefined options for acquiring animal feed, thus opening up the possibility to define groups within the Pokot marked by specific patterns of behaviour.

Research Question 3: How do the predefined options for acquiring animal feed resources influence the pastoralists' and agro-pastoralists' conflict behaviour and their livelihoods?

Defining which motivations and capabilities influence the decision-making of the Pokot regarding the specific predefined options for tackling resource scarcity does not allow conclusions about the Pokots' potential for conflict transformation in the Kerio Valley. Answering the third research question will specify if the specific strategies used for acquiring animal feed contribute to conflict mitigation by examining whether the Pokot see a change in their conflict behaviour. It will be shown how the access to specific pre-determined strategies of animal feed acquisition would influence their herd management.

2.5 Significance and Justification

Answering the research questions above will generate an understanding of the direction that future resource-related conflict transformation projects can take. The collected data will give first-hand information on the Pokots' perception of different approaches to acquire animal feed in order to transform the conflict. Findings from the present thesis will help to understand the suitability of different approaches for the transformation of the animal feed related conflict in the Kerio Valley. Based on my review of existing literature, I have identified three different potential strategies as possible solutions to the animal feed scarcity in the Kerio Valley: *The Purchase of Animal Feed*, the *Cultivation and Conservation of Pasture* and the *Pre-Agreed Sharing of Grazing Grounds*. These strategies were chosen based on empirical findings, on their effectivities, as well as on their potential to mitigate resource-related conflict in other, comparable cases.

However, only little is known about how the Kerio Valley communities would accept the strategies. To overcome this knowledge gap, it is necessary to identify how the communities perceive the different methods for acquiring animal feed. Additionally, this thesis sets out to provide previously missing information on the potential of the strategies for acquiring animal feed when it comes to the

mitigation of conflict behaviour in the Kerio Valley. The present research will be a contribution to the conflict transformation literature in the Kerio Valley as well as a recommendation for future research and decision-making regarding the conflict transformation in the communal conflict between the Marakwet and the Pokot.

My thesis attempts to support the achievement of the *Sustainable Development Goals* (SDGs) contributing to the SDG 2 – *Zero Hunger* – and SDG 16 – *Peace, Justice and Strong Institutions* (UN, 2016). Overcoming animal feed scarcity within the Kerio Valley can significantly reduce undernourishment, especially within the pastoral communities. My research findings should support the implementation of options to overcome resource scarcity and therefore help to create food security within the Kerio Valley. Furthermore, the present research will generate findings that support the resource-related conflict transformation in the Kerio Valley. The Kerio Valley conflict has taken many lives and displaced large numbers of people since its outbreak in the 1970s. Mitigating the conflict potential in the Kerio Valley will help to reduce conflict-related deaths and thereby directly contribute to SDG 16.1.

The thesis will not define realistic options for acquiring animal feed resources. The lack of time, data and the extent of the thesis limit the outcome to an explorational overview on how the different strategies for acquiring animal feed can contribute to a resource-related conflict transformation in the Kerio Valley.

3 Research Design and Methodology

3.1 Research Design

The present study is a combination of explorative and quantitative research. Sandhusen (2000) sees explorative research as a search for causes and solutions for a certain problem, paving the way for future research. I adopted Sandhusen's (2000) definition by broadening my research towards examining trends and correlations for the mitigation effect of the predefined option within the resource-related Kerio Valley conflict. Thus, findings should help to support future research by deducing theories and hypotheses and narrowing down the broad topic to specific areas of interest. Theory and hypothesis are therefore not the starting point for the present research but rather the result (Fredebeul-Krein, 2012). Explorative research seemed fitting in the Kerio Valley resource-related conflict because the scientific coverage of a resource-related conflict transformation is very scarce to non-existing. Exploring the possibilities for sustainable conflict mitigation is the logical first step in approaching the Kerio Valley conflict transformation on a scientific basis.

Furthermore, the explorative approach was based on a quantitative method. Quantitative empirical research helps to generate first-hand information on the pastoralists' and agro-pastoralists' motivations to accept different options for acquiring animal feed, on external factors that influence their motivations towards these options and on the potential for conflict mitigation. Data on motivations and external factors make it possible to better understand why some methods for acquiring animal feed are preferred over others. Additionally, quantitative data on the predefined options' potential for conflict mitigation will enable me to evaluate the feasibility of a resource-related conflict transformation through the acquirement of animal feed in the Kerio Valley. Atteslander (2010) states that the standardised and methodical nature of quantitative research can contribute to explorative research by creating a data basis for identifying trends and correlations, which is crucial for my research on the pastoralists' and agro-pastoralists' motivations and capabilities regarding alternative strategies for acquiring animal feed as well as the potential for conflict mitigation.

Key informant interviews

Key informant interviews were used to add to the otherwise quantitative research design. According to Elmendorf and Luloff (2006), key informant interviews provide localised, in-depth information on specific subjects. The publication highlights the use of key informant interviews especially in the context of processes of change because it takes local knowledge and issues into account. I conducted the interviews as loosely structured conversations in order to gather first-hand information on the research topic. The content of the interviews was protocolled and noted in a field book. Key informant interviews were used at different stages of my research. Firstly, I used them to frame my research and

gather preliminary information to get an understanding of the current situation in the Kerio Valley. It was important to identify whether the current conflict situation would allow research in the area, as the conflict ended only two weeks before the first field visit. Furthermore, key informant interviews helped to countercheck the findings in previous literature and confirm the role of pasture as a conflict driver. In my first visit to the Kerio Valley, I took part in group discussions with agro-pastoralists, pastoralists, chiefs and government officials from the Marawket and Pokot communities in two villages, Chesongoch and Chesengon. The group discussions enabled me to assess the present situation in the Kerio Valley and set critical cornerstones for my research. Secondly, key informant interviews were used to support the development of my methodology, helping me to determine the study area, the research population, the sample and the variables. To that end, interviews were conducted with partners from the *Tot British Research Institute*, *Pastoralists Development Network of Kenya*, *Kenya Agricultural and Livestock Research Organization* and partners from the community, ward officers and chiefs. Lastly, the key informant interviews were used to interpret the quantitative data: Information gathered from key informants is valuable to gain a deeper understanding of the group under study and therefore supports the explanation of correlations and trends occurring in the data (Elmendorf & Luloff, 2006).

3.2 Research Area

The study focuses on the East Pokot sub-county situated in Baringo County. East Pokot is located in the Baringo East constituency composed out of the four wards Tirioko, Kolowa Akoret and Ribkwo/Kositei. Figure 6 gives an overview of the constituencies and electoral wards of Baringo County. East Pokot is bordered by Elgeyo Marakwet and West Pokot in the West, Turkana in the North, Tiaty East to the East and Baringo North to the South. It is home to 79,923 inhabitants, who mostly belong to the Pokot ethnicity and therefore engage in traditional pastoral livelihood practices (Greiner, 2013; KNBS, 2019a).

Table 1: Characteristics of the research area (County Government of Baringo, 2018; KNBS, 2019b)

Specifications	East Pokot
Location	350 30’ N and 360 30’ E
Inhabitants	133,189
Households	14,498
Landmass [km²]	2,500
Population density [inhabitants/km²]	29
Villages	568

The reasons why I chose the research area of East Pokot are its location and the specific climatic conditions. The sub-county is located on the border triangle between Marakwet East, West Pokot and Baringo, the area most affected by the Kerio Valley conflict (Mutsotso, 2013). Furthermore, East Pokot shows inferior climatic conditions compared to Marakwet East and West Pokot, resulting in a higher resource pressure in this part of the Kerio Valley. However, it is important to state that East Pokot differs in its environmental and climatic specifications from the Kerio Valley lowlands in the West as well as from the escapades and the highlands further East. The lowlands have an arid climate with 600 mm rainfall per annum while the escarpment and the highlands record higher amounts of precipitation from 1000 mm to 15000 mm annually (County Government of Baringo, 2018).

Within East Pokot, three sub-locations were chosen for data collection: Kolowa (4,123 inhabitants), Chepkarerat (2,269 inhabitants) and Mirkissi (4,575 inhabitants) (KNBS, 2019b). Kolowa is a key connection point between East Pokot and Marakwet East because of its proximity to a bridge crossing the Kerio River. Mirkissi and Chepkarerat lie approximately 15 kilometres from Kolowa, the former north of it and the latter to the south (see Figure 7). All three sub-locations are located within the electoral wards of Kolowa and Tirioko (see Figure 6).

Figure 6: Map of Baringo County. The map shows the constituencies and ward boundaries. (Adapted figure by County Government of Baringo, 2018)

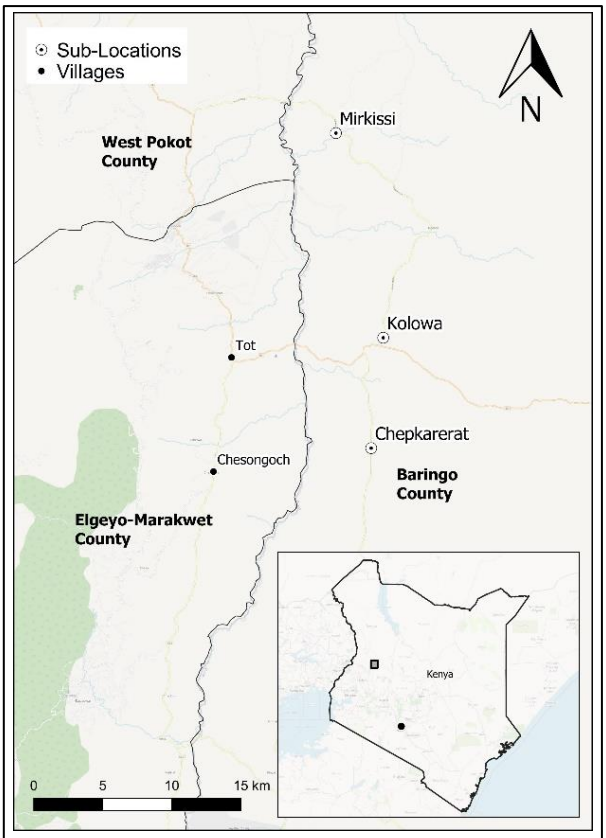

Figure 7: Map of the sub-locations. The map shows the three sub-locations chosen within the study area. (Own illustration)

The three sub-locations were chosen based on specific characteristics. Firstly, they all show a number of noteworthy similarities. The sub-locations are in proximity to the Kerio Valley conflict hotspot, the border triangle between Elgeyo Marakwet, West Pokot and Baringo (Mutsotso, 2013). Especially the area between Marakwet East and East Pokot, along the Kerio River, was highly exposed to violence (Elfversson, 2016; Juma, 2000). Secondly, all three sub-locations are affected by pasture scarcity, which fuels the Kerio Valley conflict. The three sub-locations are situated in ASALs, predominated by grazing and not suitable for cultivation, with extreme erosion, droughts and variable rainfall, shortening the duration of pasture availability (NDMA, 2015; Thom & Marten, 1983). The inhabitants cope with pasture scarcity by migrating into more fertile regions along the Kerio River or even to lands further away. During the relocation of the herds, Pokot tend to cross the Kerio-River to reach the more fertile Marakwet East side (Elfversson, 2016; Juma, 2000). Be it deliberate or not, this invasion is a major driver of the Kerio Valley conflict. The two discussed factors, proximity to the conflict hotspot as well as the tendency for pasture scarcity due to climatic conditions, distinguish the three sub-locations as promising for generating first-hand data for the resource-related conflict transformation in the Kerio Valley.

Secondly, the three sub-locations were also chosen because of crucial differences in their economic development, access to irrigation and conflict exposure. Preparatory visits to the three sub-locations showed that Kolowa has a higher degree of economic development compared to the other two sub-locations. Kolowa hosts a weekly market for livestock, food, clothes and other goods and has a commercial centre with multiple shops, guesthouses and a hospital, while the other two sub-locations are lacking such structures. The population in Chepkarerat and Mirkissi depend on the use of markets in other villages. The difference in economic development is visualised in Picture 2 and Picture 3.

Picture 2: Pictures of Chepkarerat and Mirkissi sub-locations. The picture on the left shows the centre of Mirkissi, while the picture on the right shows the centre of Chepkarerat. (Own pictures)

Picture 3: Pictures of Kolowa sub-location. The picture on the left shows the Kolowa market, while the picture on the right shows the Kolowa commercial centre. (Own pictures)

Choosing sub-locations with different levels of economic development helps to enrich the data. Economic development is an important factor when it comes to the acceptance of alternative agricultural practices within pastoral and agro-pastoral communities. In their study on decisive factors for small-holder farming communities' willingness to pay for irrigation water in the Kerio Valley, Kiprop et al. (2017) identify the participants' occupational status as a significant factor in their decisions. In my study, choosing three locations with different economic development levels and therefore different degrees of livelihood diversification thus takes the findings of Kiprop et al. (2017) into account. I assume that the Kolowa sub-location will produce a sample that is more diverse in occupational status and shows a higher income among participants because of the higher economic development within this region. Fratkin (2006) supports my assumption when he states that the proximity to a market changes the pastoralists' production from self-supply to commercial production. Chepkarerat and Mirkissi, both regions with a lower degree of economic development, are assumed to produce a sample dominated by traditional pastoralists. Choosing three research locations with different levels of economic development will help to identify whether livelihood diversification and a difference in income have a significant effect on the participants' motivations for accepting or rejecting the proposed strategies for acquiring animal feed resources.

Another important difference between the research locations is the availability of irrigation. The first explorative visit to the research area showed that an irrigation scheme had been in use until 2016. The irrigation scheme was constructed and operated by the *Kenya Red Cross Society* to allow subsistence farming (D. Kipkorir & Kareithi, 2013). The scheme itself irrigated about 500 hectares and is close to the Kolowa sub-location. Fratkin (2006) suggests that pastoralists, especially under the social and environmental pressure on their pastoral livelihood, tend to adopt farming practices. I assume that the proximity of the Kolowa irrigation scheme, in addition to the difficult environmental conditions and lack of security in the Kerio Valley, boosted the number of pastoralists engaged in farming in Kolowa,

compared to the other two sub-locations. Being familiar with agricultural practices was described by Kiprop et al. (2017) as a significant influence on the willingness of communities in the Kerio Valley to spend money on coping strategies that would help them to overcome times of resource scarcity. Therefore, comparing sub-locations where it is possible to engage in the cultivation of crops to locations where such an adaption to the pastoral livelihood is not possible enables me to identify whether the familiarity with farming influences the motivation towards the suggested options for acquiring animal feed. Finally, the three sub-locations were chosen because of their different exposure to the Kerio Valley conflict. High conflict exposure can negatively influence the Pokots' ability to engage in their traditional coping strategy, the communal use of pastures, by decreasing the trust and cooperation between the conflicting communities (Mutsotso, 2013). Furthermore, conversations with key informants showed that the Kerio Valley conflict has had a significant influence on market use[1]. Highly affected areas were cut off from market access and markets were closed because of high conflict exposure. Therefore, conflict exposure can be an important factor influencing the pastoralists' and agro-pastoralists' motivations to engage in different options for acquiring animal feed resources. Conversations with key informants, especially with the chiefs of Kolowa, Mirkissi and Chepkarerat, further highlighted that Kolowa was the conflict hotspot during the last violent period of the Kerio Valley conflict. On the one hand, the area is the key connection point between the two conflicting communities. On the other hand, Kolowa is home to a large number of pastoralists who let their livestock graze along the riverbanks and sometimes even cross the river in their search for pasture. Chepkarerat was estimated to have a lower conflict exposure then Kolowa because of its lack of connection points to Marakwet East. However, the key informants stated that the youth in the Chepkarerat sub-location was highly involved in the conflict because they were taking part in raids. Additionally, Chepkarerat was cut off from Kolowa and other villages as well as markets during the times of conflict. The only water source during this time, besides a small water pan, is the Kerio River, which is highly insecure during the conflicts. Therefore, the inhabitants of Chepkarerat could be highly affected by the conflict because of their isolation and the lack of water. Mirkissi is assumed to show the lowest exposure to the conflict. The sub-location borders Marakwet East and West Pokot, but the pastoralists can evade the conflict by bringing their livestock onto grazing grounds located in West Pokot and by using the markets within West Pokot, as the Pokot populations of West Pokot and East Pokot are allied through their ethnical affiliations.

[1] The procedure for the key informant interviews is explained in Chapter 3.1.

Table 2: Characteristics of the three sub-locations. (County Government of Baringo, 2018; County Government of Elgeyo Marakwet, 2018; County Government of West Pokot, 2018; B. Kipkorir & Welbourn, 2008; Thom & Marten, 1983)

Characteristics	Kolowa	Chepkarerat	Mirkissi
Land Area [km²]	53.4	64.1	100.4
Population	4,123	2,269	4,575
Population Density	77 [inhabitants / m²]	35 [inhabitants / m²]	46 [inhabitants / m²]
Location	1°12'41.0"N 35°44'49.9"E	1°08'38.6"N 35°44'51.2"E	1°21'06.4"N 35°43'28.5"E
Ecological Zone	Ecozone V	Ecozone V	Ecozone V
Bordering Counties	Marakwet East	Marakwet East	Marakwet East / West Pokot
Markets	Kolowa Market	Small Local Market	Small Local Market
Conflict Vulnerability	High	Medium	Low
Former Access to Irrigation	Yes	No	No
Commercial Centre	Big	Small	Small

3.3 Research Population

The research population is limited to the Pokot population because of three crucial factors: Firstly, the research area is mostly populated by the Pokot ethnicity (Greiner, 2013). Secondly, the East Pokot population shows a high vulnerability to pasture scarcity. The Pokot who live in East Pokot are mostly traditional pastoralists who depend on livestock to cover their subsistence (Czuba et al., 2017; Greiner, 2013; Mutsotso et al., 2014). Because of their lack of livelihood diversification, pastoralists show a low resilience to animal feed scarcity as compared to agro-pastoralists (D. Kipkorir & Kareithi, 2013; Muricho et al., 2017). The two other ethnicities populating the Kerio Valley, the Marakwet and the Pokot in West Pokot, mostly engage in a sedentary, agro-pastoral livelihood. Close to 70 % of the Marakwet East population and 61 % of the West Pokot population engage in farming compared to roughly 30 % of the East Pokot population (KNBS, 2019c). Therefore, the group within the Kerio Valley most affected by resource scarcity is the East Pokot population. Thirdly, the East Pokots' predominant coping strategy for pasture scarcity is the migration to fertile pastures. The search for animal feed can drive the pastoralists into areas inhabited by Marakwet or even as far as Turkana. Especially in times of drought, the possibility of conflict is high because the East Pokot are pressured to enter no-go areas, e.g. the counties border regions (Mutsotso, 2013). Accessing the pastures on the border or even venturing into areas inhabited by other ethnicities, especially in Marakwet East, is one major driver in the Kerio Valley conflict that has triggered violent outbreaks between the Pokot and Marakwet in the past (Elfversson, 2016; Mutsotso, 2013). In the Kerio Valley post-conflict setting, resource scarcity can become a critical factor for the newly settled peace. For the present study's efforts, to find animal feed-related approaches to mitigate the conflict potential between the Pokot and Marakwet communities, it is essential to focus on the community most affected

by scarce animal feed resources. Therefore, limiting the research population to the Pokot population living in the three sub-locations enables me to gather first-hand information from participants highly affected by resource scarcity.

Furthermore, I intended to even further limit the research population, based on two demographic characteristics, namely age and educational level. However, the situation in the field forced me to neglect these additional limitations (see Chapter 3.4). Nonetheless, my motives for a further limitation of the research population will be explained in this paragraph to provide a complete overview of the research process. Choosing the research population based on their age was supposed to enable me to address the main actors in the conflict. The key literature and conversations with key informants defined two groups as main actors in the conflict, namely the youth and the elders[2]. As warriors, the youth are actively involved in the fighting (Elfversson, 2016; Kimani et al., 2014; Schilling et al., 2012). Additionally, driven by their culture and tradition, the Pokot youth engage in cattle rustling. Livestock is required as payment of dowry in the Pokot culture, where a pastoralist typically marries between the age of 18 and 35 multiple women (Mutsotso et al., 2014; Thom & Marten, 1983). Not simply their cultural heritage, but the high demand for cattle is what drives the Pokot youth to carry out livestock raids (Kimayo, 2016). The elders have the authority to make decisions about resource use as well as conflict engagement (Elfversson, 2016). However, this authority is getting weaker nowadays and affects the youth less than it used to (Elfversson, 2016). The elders' shrinking influence on the youth brought me to the decision to neglect the elders in my intended research population because they do not seem to play a crucial role in the resource-related conflict anymore. It is the youth who are the main group involved in livestock management and in the conflict itself. Additionally, the educational level was intended as the second factor to narrow down the research population. There is a large number of residents in East Pokot who have never received formal education (County Government of Baringo, 2018). Literature sees a correlation between lack of education and pastoralists' lower likelihood to engage in alternatives for acquiring animal feed or in livelihood diversification (Kiprop et al., 2017; Omollo et al., 2018; State, 2013). To acknowledge and examine the potential influence of the different educational levels among the Pokot on their motivations to engage in a set of options for acquiring animal feed would have required a further differentiation of the research population into groups based on their educational level.

[2] The procedure for the key informant interviews is explained in Chapter 3.1.

3.4 Sampling

In the sampling process, participants are selected to represent the research population so that valuable answers to the research questions can be retrieved while also mitigating possible bias (Atteslander, 2010). The sampling method was initially planned as purely purposive sampling to include only participants that fit the specific attributes determined for the research area and research population. Details on the criteria can be found in Chapter 3.2 and Chapter 3.3. However, the second field visit showed that the sample selection based purely on purposive sampling was likely to be biased because selecting participants with adequate characteristics could only be done via the assistance of the chief. Factors such as relationship, convenience and intention were seen as likely to influence the selection process if relying on the chief's assistance. The impossibility to produce the sample without bias forced me to neglect this approach.

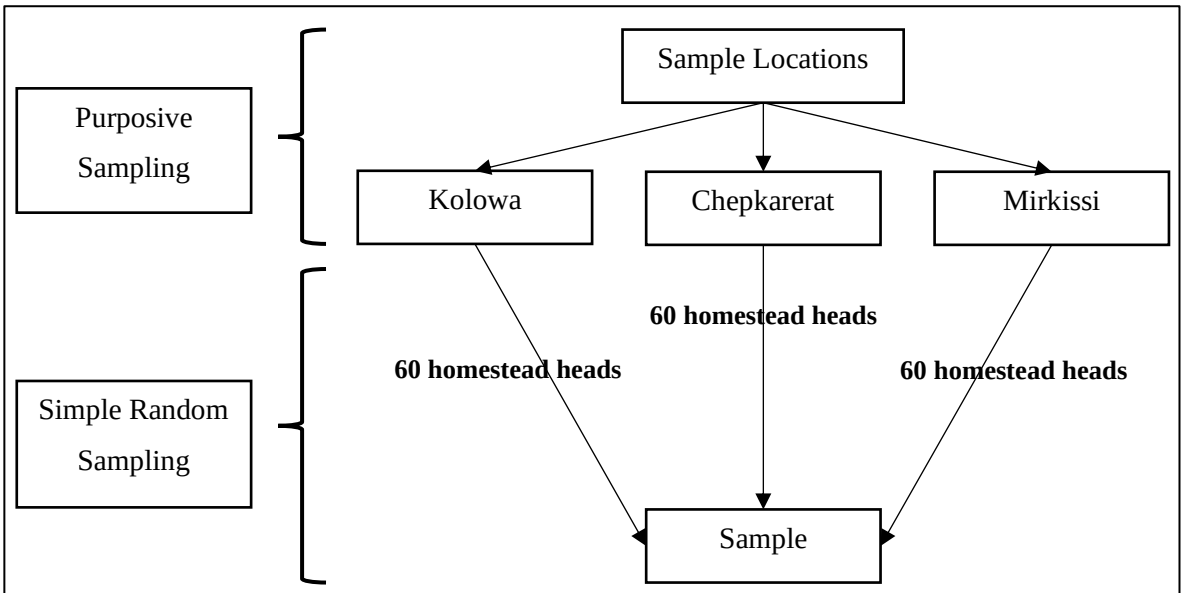

Figure 8: Sample procedure used in my research project. The boxes on the left of the brackets show the sample method used, while the right side pictures the sampling procedure itself. The sample locations Kolowa, Chepkarerat and Mirkissi were selected by purposive sampling, while the 60 homestead heads per sample location were chosen through simple random sampling. (Own illustration)

To prevent major bias, I used a combination of purposive sampling and simple random sampling. Figure 8 illustrates the sampling procedure. The specific sample locations were chosen based on the pre-limitations set for the study area and therefore by purposive sampling (see Chapter 3.1). It was possible to use the three sub-locations as sample locations that were previously defined as the most suitable locations for research in the study area. Furthermore, logistic feasibility also influenced my choice to collect data within these three specific sub-locations. Limited infrastructure and safety issues in the Kerio Valley restricted my research to a radius of 30 kilometres surrounding Kolowa. A bridge close to Kolowa was the only suitable entry point into the study area as I resided in

Chesongoch, Marakwet East for the period of data collection. The security situation and limited availability of accommodations made it impossible to stay closer to East Pokot. However, the sub-locations chosen within the study areas do not exceed the logistic limit. Therefore, the sample locations were not only chosen through purposive selection but influenced by cluster sampling too. Atteslander (2010) describes cluster sampling as an adequate method to reduce inconveniences during the data collection process, a view that supports my decision to use cluster sampling in my project.

Random sampling was conducted to select the participants in the sample location. The sampling procedure was based on the census lists created for the 2018 census. Participants were chosen randomly from the homestead heads listed in the documents. The KNBS (2009) describes a homestead as follows: "It is an isolated compound with one or more structures and may be inhabited by one or more households" (KNBS, 2009, p. 6). Homesteads are a popular form of housing within the Pokot community because of their polygamist culture that allows one man to marry multiple women (Kimayo, 2016). The random sampling itself was computed in *Microsoft-Excel*. The homestead heads within each sample location were consecutively numbered and listed. Each homestead heads' number was then assigned to a randomly generated number between 0 and 1 via the function *RAND*. In the next step, the list of homestead heads was ranked based on their assigned number, from lowest to highest. The sample for each sub-location was chosen out of the first 60 homestead heads. Participants, out of the 60 first names, who were not able to take part in the data collection were replaced by the next consecutive homestead head. However, participants were only exchanged in serious health-related cases or when participants had moved to other locations since the census.

The sample size of 180 participants is representative of the population in East Pokot, with its 79,923 inhabitants, assuming a confidence level of 95% and a precision level of 10% (Naing, 2003).

3.5 Data Requirements

The data to answer my research questions can be grouped into three thematic fields. Firstly, there is data regarding the participants' motivations to engage in a set of proposed options for acquiring animal feed. Secondly, there is data on factors influencing the participants' motivations towards the three predefined options. The third group of data was used for examining the influence of the participants' choice of alternative options for feed acquisition on their livelihoods and conflict behaviour. Table 3 gives an overview of the variables used during data collection.

Table 3: Summary of the variables used in the data collection.

Categories	Variables
Predefined Option for Acquiring Animal Feed	• Option 1: Purchase of Animal Feed • Option 2: Cultivation and Conservation of Pasture • Option 3: Pre-Agreed Sharing of Grazing Grounds
Motivation	• Frequency • Preference • Advantages and Disadvantages • Feasibility
Capability	• Sociodemographic Factors • Local Livestock Markets • Conflict Exposure
Conflict Potential	• Conflict Potential without Access to the Predefined Options • Conflict Potential with Access to the Predefined Options
Livelihood Changes	• Herd Quality Changes • Herd Quantity Changes

Variables regarding the participants' motivations

The variables used to gather data to examine the participants' motivations derives from the theoretical framework covered in Chapter 2.3, especially from Schilling et al. (2012). Thereby, motivation is used to determine the Pokots' or Turkanas' choice of conflict or cooperation. The present research differs from the theoretical framework of Schilling et al. (2012) by adding the predefined options for acquiring animal feed as an extra step between the East Pokots' motivations and their choice to engage in conflict or cooperation. Schilling et al. (2012) describe the participants' motivations as the weighing of benefits and losses of conflict or cooperation. This concept is related to the present research by choosing four different variables, which measure the participant's benefits and loses through the engagement in the predefined options. The first variable is the **frequency of use**, measured in the months in which the participants experienced animal feed scarcity in the years of 2018 and 2019. This variable estimates how often the participants would need the support of the predefined options to overcome resource scarcity. The second variable is the participants' **preferences** of the predefined options. It represents the participants' acceptance of each of the predefined options, based on a preference ranking from the most beneficial to the least beneficial option. Third, the **advantages** and **disadvantages** of each of the predefined options are measured. Both variables examine the participants personal perceptions of the benefits and losses that accompany each of the predefined options. These variables are measured through multiple choice questions. Fourth, the variable for the predefined options **feasibility**. It was measured through a

dichotomous question, asking the participants for their assessment on the practical implementation of their most preferred option for acquiring animal feed.

The variable **predefined options for acquiring animal feed** consists of three values derived from previous literature on the topic (see Chapter 2.2). The reviewed literature suggested three different approaches for acquiring animal feed and mitigate resource-related conflicts in similar conditions as in the Kerio Valley. These three approaches were used to define three specific options potentially suitable to overcome pasture scarcity and to mitigate the resource-related conflict in the Kerio Valley. The three suggested options for acquiring animal feed are:

1 **Purchase of Animal Feed:** Animal feed will be sold on the local market by salesmen, the government or farmers from different regions.
2 **Cultivation and Conservation of Pasture:** The distribution of resistant seeds will enable the cultivation of pasture. The pastures can be used as a feed reservoir or to produce hay for times of scarcity.
3 **Pre-Agreed Sharing of Grazing Grounds:** A formalised approach for agreements over the communal use of pastures between different communities will be established.

The variables described in the previous paragraph allow a more detailed specification of the first research question. Defining the participants' motivations towards the predefined options for acquiring animal feed by means of four different variables – frequency, preference, advantages, and disadvantages as well as feasibility – enables me to break down the first research question into four specific questions:

Research Question 1: What are the pastoralists' and agro-pastoralists' motivations towards the predefined options for acquiring animal feed resources?

i. What are the pastoralists' and agro-pastoralists' preferences of the predefined options for acquiring animal feed resources?
ii. What are the pastoralists' and agro-pastoralists' frequencies of use for the predefined options for acquiring animal feed resources?
iii. Which advantages and disadvantages do the pastoralists and agro-pastoralists expect from the predefined options for acquiring animal feed resources?
iv. How do the pastoralists and agro-pastoralists estimate the feasibility of the predefined options for acquiring animal feed resources?

Variables regarding the influence of the participants' capabilities on their motivations towards the predefined options for acquiring animal feed

The theoretical framework used for the present study finds the participants' capabilities to have an influence on their motivations for engaging in one of the pre-determined options for acquiring animal feed. Schilling et al. (2012) state that "capability is usually defined as the ability to execute a certain course of action" (Schilling et al., 2012, p. 6). However, when using the concept of capability in the context of cattle rustling, Schilling et al. (2012) describe it as the "[…] availability of resources, men, weapons, ammunition, skills and information about the target such as the location of herds, types of livestock and level of protection" (Schilling et al., 2012, p. 6). This latter definition of capability was adapted to fit the purpose of the present research. When speaking of capability, I refer to external factors influencing the participants' motivations towards the alternative options for acquiring animal feed.

To measure capability, different variables were defined based on previously published, relevant literature. The first group of factors potentially influencing the motivations of the participants is **socio-demographic factors.** Omollo et al. (2018), Manyeki et al. (2013), State (2013) and Kiprop et al. (2017) determine socio-demographic factors as crucial for adopting alternative practices in the pastoral and agro-pastoral sector. Two specific factors are highlighted in all four publications - herd size and educational level – as decisive factors for pastoralists and agro-pastoralists to engage in alternative agricultural practices. The publications of Kiprop et al. (2017) and State (2013) offer additional insights. Kiprop et al. (2017) examined the willingness of small-holder farmers to pay for irrigation water in the Kerio Valley. The study examines multiple socio-demographic variables and identifies, among others, the age, occupational status and the educational level of its participants, as a significant influence on the decision of farmers to pay for irrigation water. State's (2013) publication on the willingness of farmers to take agricultural insurance in Nigeria determines the farmers' income as a significant influence on their decisions. Therefore, multiple socio-demographic variables, especially educational level, herd size, income and occupation, are potentially decisive factors in the participants' choice-making processes when it comes to the proposed alternative options for acquiring animal feed. Table 4 lists the variables that are used to measure the socio-demographic dimension of the participants' capabilities.

Table 4: List of variables and values defining the socio-demographic information of the participants.

Variable for the socio-demographic factors	Value
Age	Year
Marital Status	Married / Single
Household Size	Number of People in the Household
Level of Education	Highest Level of Finished Education
Income	Monthly Spending [KES/month]
Livelihood	Main Source of Income
Ethnicity	Open Answer
Herd Size Cattle	Number of Cattle
Herd Size Goat	Number of Goats
Herd Size Sheep	Number of Sheep
Herd Size Camel	Number of Camels

Another set of variables is concerned with the **local livestock markets**. These variables were also chosen to determine the influence of participants' capabilities on their motivations towards the suggested alternative options for acquiring animal feed. On the one hand, pastoral communities often suffer from limited market integration and lower livestock off-take rates (Muricho et al., 2017; Mutsotso, 2013). On the other hand, the literature suggests that low prices on livestock markets can harm the acceptance and ability to engage in new options to enhance the pastoral livelihood (Hjort, 1981; Iiyama, 2006). The East Pokot suffer from the lacking access to markets as well as from low livestock prices which arise out of high demands and the exploitation of middlemen. The local markets in West Pokot and East Pokot, which are used by the Pokot community to sell livestock, have a large supply of low-quality livestock. The pastoralists tend to sell off sick and old animals rather than high-quality animals. Even during times of scarcity, their market behaviour does not change (Muricho et al., 2017). These conditions increase the pastoralists' poverty and vulnerability while preventing them from reducing their herd size and engaging in alternative livelihoods (Mutsotso et al., 2014). Three different variables were developed to measure the local markets' characteristics. The first variable measures the participants' market use frequency counting the number of days on which the participants sold livestock on the market in the year 2018. Furthermore, it was important to identify the local markets used by the participants. Lastly, the participants' perceptions of the local markets' livestock prices were measured through a ranking, from low to moderate or high. All three variables contributed to measure the influence of the local market on the participants' motivations.

The final aspect of capability vital in this research project is the **conflict exposure** of the participants. Previous literature suggests that, by possibly limiting access to natural resources, the degree of conflict influences the pastoral and agro-pastoral communities' ability to acquire animal feed. During times of violent conflicts, the arising hostility and insecurity restrained pastoralists from engaging in their traditional method of communal pasture use to feed their livestock. High conflict exposure made the sharing of pasture between communities impossible because of missing cooperation and lack of trust (Mutsotso, 2013). Conversations with key informants showed that the East Pokot markets could

not operate during times of conflict due to the lack of trust and the hostile atmosphere between the communities[3]. Therefore, a high degree of conflict exposure has a potentially negative effect on the participants' motivations towards the predefined options for acquiring animal feed, which require a high degree of interaction, e.g. the *Pre-Agreed Sharing of Grazing Grounds* and the *Purchase of Animal Feed*. The variable used for describing the participants' conflict exposure was called the degree of conflict. It measures how the participants were affected by the conflict on a scale, ranging from zero (not affected) to five (highly affected). All three factors – socio-demographics, local markets and conflict exposure – form the capabilities of the participants in the present research.

The factor of capability is used to identify decisive factors influencing the motivations of the participants towards the set of predefined options for acquiring animal feed. To measure the influence of the participants' capabilities on their motivations, it is necessary to identify an independent variable connected to the participants' motivations. Due to the limited extent of the present thesis, it was not possible to examine the influence of the participants' capabilities on all variables used to determine their motivations. Instead, I only chose the participants' preferences regarding the predefined options as an independent variable to determine the influence of their capabilities.

The variables defined during operationalisation enable me to divide the second research question into more detailed sub-questions:

Research Question 2: How do the pastoralists' and agro-pastoralists' capabilities influence their motivations towards the predefined options for acquiring animal feed resources?

i. How do socio-demographic factors influence the participants' choice of predefined options for acquiring animal feed resources?
ii. How do local markets influence the participants' choice of predefined options for acquiring animal feed resources?
iii. How does the participants' conflict exposure influence their choice of predefined options for acquiring animal feed resources?

The impact of the predefined options on the participants' conflict potential and livelihoods

As already stated in the introduction in Chapter 1, resource scarcity is an important factor concerning the conflict in the Kerio Valley. Reducing resource pressure with the help of specific pre-determined options should lower the conflict potential within the Pokot community. To examine the potential of

[3] The procedure for the key informant interviews is explained in Chapter 3.1.

these predefined options for alternative feed-acquisition on conflict mitigation, it was necessary to determine the conflict potential within the Pokot community with and without access to the proposed options. Additionally, I assumed that the proposed options would affect the livelihood of the East Pokot population by changing their herd management. Herd size and herd quality are two crucial factors in the pastoral livelihood of the Pokot. Herd size functions as a symbol for wealth and social status and is deeply rooted in the Pokot culture (Mutsotso et al., 2014; Schilling et al., 2012; Thom & Marten, 1983). Therefore, I assume that an increase in the accessibility to animal feed will lead to increases in the Pokot herd size, intensifying the resource pressure. Furthermore, changes in herd quality may also influence the resource pressure among the East Pokot population given that herd quality bears a potential influence on their resilience and economic efficiency. The herd`s improved health will increase their resilience to droughts, helping the Pokot to earn higher profits on the livestock market and lead to a higher production of animal products (Hjort, 1981; Lugusa et al., 2016; Mureithi et al., 2016; Odhiambo et al., 2012). Examining the participants' willingness to increase herd quality and quantity is important to gain an understanding of a sustainable conflict transformation in the Kerio Valley.

Two variables were used to measure the conflict potential with and without access to the three predefined options for acquiring animal feed. The first variable, the **conflict potential without access to the proposed options**, asked the participants to estimate whether they thought they would engage in conflicts over animal feed resources in the coming year (2020) by ranking this probability on a scale from zero (unlikely) to five (very likely). The same measurement method was used on the second variable, the **conflict potential with access to the alternative options**. Here, participants had to estimate whether they would engage in conflicts over animal feed if they had access to their preferred alternative option out of the proposed set of options. Comparing both variables allowed me to examine the change in the participants' conflict potential in relation to their access to a set of alternatives for acquiring animal feed.

Two further variables were used to measure the influence of the participants' access to one of three predefined options for feed acquisition on their livelihoods. The first variable measured changes in the **herd quality** by determining whether the participants would increase their herd quality if they had secure access to animal feed. The second variable, regarding the **herd size** change, determined if the participants would increase the size of their herds if they had secure access to animal feed. Both questions had dichotomous answers.

3.6 Data Collection Tool

The data collection was conducted using a structured interview based on a questionnaire. The decision to use a structured interview on top of a questionnaire for data collection was taken in reaction to the difficult circumstances in the field. Cultural differences, the language barrier and a high level of illiteracy among the research population demanded an amount of certain flexibility during data collection to explain questions and to isolate the propositions in the participants' answers.

The questionnaire was composed of closed and open-ended, standardised questions. Standardised questions are characterised through fixed answer categories and allow for the creation of comparable data (Atteslander, 2010). The comparability of data is essential for the present research project because it makes possible a statistical analysis and the identification of trends and correlations within the data (Atteslander, 2010). As the research was conducted independently by multiple interviewers, it was necessary to standardise the data collection tool to prevent bias created by individual interpretations. Closed questions, consisting out of dichotomous questions and scales, were used wherever it was possible while standardised open-ended questions were linked to deductive answer categories to allow standardisation. Furthermore, standardised open-ended questions helped to convert the spoken words into quantitative data while also allowing the interviewees to express themselves rather than simply answering questions (Sandelowski, 2000). This approach stands in line with Flick's (2005) concept of mutual communication, focussing on the respondents' own experiences and interests and thus leading to enhanced data quality.

The survey was grouped into four thematic fields:

- Socio-demographic information
- Motivation towards the predefined options for acquiring animal feed
- Livestock market and conflict exposure
- Predefined options' possible impact on the conflict potential and livelihood

Summarising the questions in four thematic fields mirrors Atteslander's (2010) understanding of empirical research as a reproduction of reality. The participants can reproduce their experiences through an in-depth engagement with the topics. To enhance this process, the questions within the thematic fields are structured. Every thematic block begins with an entry question and builds up to more complex questions. The simple entry creates a stimulus for the participants to adjust and open up to the new topic (Atteslander, 2010). The composition of the questionnaire is related to Atteslander's (2010) idea of stimulus and reaction. He points out that certain questions can bias the interviewees and their answers, not only regarding an individual question but affecting the whole

interview. Sensitive topics, expectations or social pressure can lead to a negative stimulus, biasing the answers (Atteslander 2010). To avoid biasing the participants, all sensitive questions, potentially creating a negative stimulus, were placed in the final section of the questionnaire, including questions about the conflict and livestock numbers. Questions on the participants' conflict exposure, their behaviour in the conflict and their predictions regarding the probability of future conflicts could lead to emotional distress or suspicion among the participants. Furthermore, questions about livestock numbers are unusual in the Pokot pastoral culture. For the Pokot, revealing the exact size of their herds necessitates a high level of trust, because they might thus make themselves more vulnerable to raids. Addressing sensitive topics last during the interviews was supposed to build up trust between the interviewees and interviewers and encourage the interviewees to open up about sensitive topics.

The final version of the questionnaire was digitalised so it could be used on tablets via the survey app *MEASURE*, developed by the *International Crop Research Institute for the Semi-Arid Tropics* (ICRISAT). The data gathered was saved in a cloud for easy access and as a safety measure. A simplified data collection, automatic transfer and saving of the data on ICRISAT servers as well as automatic data preparation are the advantages of this digital data collection tool in comparison to the traditional paper form.

3.7 Data Collection Procedure

The data collection was conducted between August and October 2019. The 180 interviews were gathered with a team of four enumerators, including myself. Two enumerators interviewed autonomously, while one of the enumerators translated for the interviews that I conducted. The enumerators were able to acquaint themselves with the digital data collection tool and the questionnaire during a theoretical workshop that was combined with a pretesting in the field.

The procedure for data collection included seven steps:

a) Introduction of the research topic and the interviewer to the interviewee

b) Introductory questions regarding the sociodemographic background

c) Guiding the interview towards the topic of animal feed scarcity by triggering the interviewee's personal experience with pasture scarcity

d) Followed by the introduction of the predefined set of options for acquiring animal feed

e) The interviewee talks about his motivation towards the options for acquiring animal feed

f) Followed by questions about markets and livestock prices

g) Closing with questions on how the choice of a specific option to mitigate the lack of animal feed could influence the conflict behaviour and the livelihood of the interviewee

The answers given by the participants were immediately digitalised via the *MEASURE* application. Furthermore, visualising the suggested alternative options for acquiring animal feed enhanced participants' attention and participation during the interviews.

Using pictures helped to engage the participants in difficult and abstract concepts and enhanced their reaction by provoking a response (Hurworth et al., 2005). Hurworth et al. (2005) state that pictures are traditionally used to simplify data collection in studies on rural communities' attitudes towards modernisation, a process thus also helpful in the context of the present research project. Three images were used during the interviews to illustrate the three predefined options for acquiring animal feed. The visualisation functioned as a stimulus, enhancing participants' interest and identification with the concepts behind the suggested options. When shown the images, participants were eager to receive more information on the suggested options. The images helped to communicate the meaning of the predefined options to the participants. Questions related to the suggested options benefited from the use of the pictures, especially the question addressing the participants' preference of a specific option. Arranging the pictures in a certain order allowed the participants to visually express their preferred options. The use of pictures to illustrate the predefined options for acquiring animal feed also allowed me to react to the circumstances in the field. On the one hand, the enumerators and the participants came from different communities and even from different continents, speaking different languages and not necessarily sharing the same values. Atteslander (2010) locates a potential source of bias in these circumstances. Stimuli such as a different language, different social norms or the interviewers' unfamiliar look influence the participants' reaction to the interview questions. He states that it is important to acknowledge these disruptive stimuli and control them systematically. The pictures were used to implement Atteslander's (2010) thoughts in the data collection, by creating a consistent visual stimulus. The interviews were conducted in the village centres of the three sub-locations, Kolowa, Chepkarerat and Mirkissi. The chiefs in the sub-locations where the data collection was conducted were a crucial element of my research project. They established our entry point to the research area and took an important part in mobilising the participants. The chiefs mobilised about 20 participants each day and gathered them in the village centres. The enumerators conducted the interviews in separate places. Caution was taken to provide a calm and private environment for the interviewees by reducing interruption and the presence of external people to a minimum. Figure 9 shows two example interview situations.


Figure 9: Interview situations. The picture on the left was taken during an interview in Kolowa, the picture on the right during an interview in Chepkarerat. (Own Pictures)

It was crucial to provide an atmosphere, in which the participants felt safe and unobserved because some questions asked for sensible information. Outsiders listening to the interview, especially officials like the chiefs, could have biased the answers. It is necessary to mention that it would have been more adequate to conduct the interviews in places chosen by the participants. However, it was logistically impossible to conduct all the interviews without gathering the participants in one place. The migrational lifestyle of the Pokot does not bind them to a certain location, leading to the participants being scattered over remote areas. Most of the Pokot do not have a permanent residence or live far out in the bush. Even those Pokot who do have a fixed homestead herd their animals during the day and sleep close to the feeding grounds in improvised huts or out in the open.

3.8 Ethical Standard

Researching within the context of other cultures, especially on sensible topics like conflict mitigation, demands the precise adherence to ethical standards. I ensured to meet ethical standards by taking four principles into account: *respect for human beings*, *beneficence*, *research merit and integrity* and *justice*. These principles for ethical research are considered fundamental in development research and for the relationship between researchers and the participants by the *Australian Council for International Development* and the *Research for Development Impact Network* (ACFID & RDI, 2016).

To ensure the uttermost *respect for all human beings* involved in the research, I needed to acquire prior knowledge on the culture, values, customs, beliefs and practices of the Pokot and be aware of differences between researchers and participants (ACFID & RDI, 2016). Furthermore, the data collection process was always accompanied by contact persons who were part of the local community

and guided the researchers with regard to appropriate behaviour. The contact persons were able to build up access to the field in an adequate manner and were present during all direct contact between participants and researchers. Data collection in the field was conducted with close attention to mutual respect by ensuring that the participants took part in the research based on informed consent, meaning that the participation in the research was voluntary, the participants could withdraw their participation at any time and that the participants were informed about the study before taking part in it. The participants were also granted anonymity and confidentiality throughout the research process.

To meet the principle of *beneficence*, I adhered to the concept of *do no harm* (ACFID & RDI, 2016). The participants should not be harmed in any way by their participation in the current project or by the research outcome. Efforts were taken to minimise the discomfort of the participants during the survey and to not raise any unrealistic expectations regarding the outcome of the research. This latter aspect was crucial because some participants perceived the research as an indicator of a positive change in their situation. It was necessary to make clear that we, as a research team, and the research itself would not lead to a direct and immediate change in the situation of the participants. However, the research itself aims to bring benefits to the community by generating information that should support the conflict transformation and the resource scarcity situation in the Kerio Valley.

Research merit and integrity were another crucial part of the present research project and implemented by meeting certain quality standards during the development of the research concept and methodology, during analysis and interpretation and also during fieldwork. The quality of my research was continuously monitored by my supervisors, while the fieldwork was supported by qualified enumerators. Furthermore, the research itself was conducted without external contribution, ensuring that the research findings are not biased by third party interests.

Finally, the principle of *justice* was considered by representing all groups within the research population in the research, giving no space to further marginalisation, discrimination, and exclusion. Therefore, the sampling method, namely random sampling, provided a randomised selection of the participants.

3.9 Pretesting

The research tool was pretested to meet Atteslander's (2010) requirements of monitoring and goal-orientation for the interview. Atteslander (2010) identifies four important factors for pretesting: reliability / validity, understandability, categories, and data collection problems. I assessed my questionnaire based on the four factors suggested by Atteslander (2010). It was not possible to conduct the pretesting under research conditions, due to logistical reasons. However, the questionnaire was tested under conditions close to the actual situation in the field. The first round of

pretesting was conducted on the ICRISAT campus in Nairobi. The second and final pretesting was conducted with pastoralists on a livestock market in Kiamaiko, Nairobi. The market offered the possibility to test the research tool with participants similar to the research population and thereby simulate the conditions in the field. Especially the second round of pretesting revealed the importance of only introducing sensible topics at the end of the interview in order to reduce bias.

Additionally, the data preparation and analysis procedure were pretested as well. The data, collected in the pretests for the questionnaire, was evaluated for its usefulness in quantitative analysis. This step revealed the frequent use of multiple-choice questions with a great number of answer categories as problematic. As a result, the answer categories were reduced and more questions yielding quantitative data were included.

3.10 Data Analysis

The collected data, digitalised into Excel files using the MEASURE application, was coded and analysed in the *Statistical Package for Social Science* (SPSS). Descriptive as well as inductive statistics were used to get an overview of the data, identify trends and correlations and statistically verify or falsify statements (Atteslander, 2010).

Foremost, the data was analysed in order to receive a first impression of the sample composition. I used a combination of crosstabs and boxplots to get an overview of the most important characteristics within the sample. The variables used in the analysis were age, gender, marital status, income, household size and ethnicity. Besides, variables apart from the sociodemographic attributes were considered in the analysis. Those were the participants' conflict exposure, livelihood and factors regarding their economic development. The data was also analysed to identify specific characteristics of the sample for the three research locations. In the process, the variable of conflict exposure, rateable on a scale from zero to five, was regrouped into three new categories because of its low and unequal frequency distribution. All answers with the value zero were grouped as 'no exposure', values from one to four were grouped as 'conflict exposure' and answers valued at five were grouped as 'high conflict exposure'.

The first research question - *What are the pastoralists' and agro-pastoralists' motivations towards the predefined options for acquiring animal feed resources?* - was answered by analysing four different variables, representing the motivations of the participants towards the set of predefined options: preference, frequency of use, advantages/disadvantages and feasibility. The analysis was only conducted through descriptive statistics, neglecting statistical testing because of its clear results. The frequency of use and the advantages/disadvantages of the predefined options for acquiring animal feed were visualised as bar charts. Additionally, the frequency of use, measured through the periods

where participants experienced feed scarcity, was grouped into profiles for further analysis. The profiles were used for analysis via crosstabs to identify correlations between times of scarcity and important socio-demographic factors. Groups were only formed for profiles with a frequency of eight or higher. All profiles with a frequency of less than eight were summarised in one group.

To answer the second research question - *How do the pastoralists' and agro-pastoralists' capabilities influence their motivations towards the predefined options for acquiring feed resources?* – it was necessary to identify the external factors that influenced the participants' motivations towards the set of predefined options. Furthermore, the analysis was limited to one of the four variables measuring the motivations of the participants. The scope of the research did not allow to determine the influence of external factors on all four of the variables measuring the motivations of the participants. Therefore, the participants' preferences of the predefined options were chosen as the variable to represent the participants' motivations in the data analysis. The participants were grouped into three different categories, according to their preferred choice out of the set of predefined options. Group one contained all participants who chose the *Purchase of Animal Feed* as their first choice, group two contained all participants who chose the *Cultivation and Conservation of Animal Feed* as their preferred option and group three summarised all participants who preferred the *Pre-Agreed Sharing of Grazing Grounds* over the other two options. The specific characteristics of each of these groups, based on their socio-demographic attributes, the local market and their conflict exposure were analysed to identify external factors influencing the participants' motivations towards the predefined options. Crosstabs combined with Pearson's chi-square tests, as suggested by Atteslander (2010), were used to verify correlations between the participants' preferred options and their capabilities. To ensure the validity of the assertions, Fisher´s exact test was used to complement Pearson's chi-square test for crosstabs with expected counts lower than five. The significance level was set at a value of 0.05. Additionally, adjusted residuals were applied to interpret correlations. The explorative nature of the present study shifted my focus in the data analysis from testing hypotheses to a more open approach of identifying correlations and trends within the data. Therefore, no hypotheses were formulated to maintain flexibility during data analysis and to not limit the search for possible correlations to specific variables. This enabled me to generate a broad overview of the data set.

The final research question - *How do the predefined options for acquiring animal feed resources influence the pastoralists' and agro-pastoralists' conflict behaviour and their livelihoods?* – was answered by analysing the data of the two variables representing the participants' likelihood to engage in animal feed-related conflicts. The first variable measured the participants' likelihood to engage in animal feed-related conflicts in the following year, that is 2020, considering their present situation stayed unchanged. The second variable measures the probability of participants engaging in animal feed-related conflicts if they had access to their preferred option for acquiring feed resources in the next year. The value of the two variables was originally measured through a scale from zero (not

likely) to five (very likely). However, the variables showed a strong shift towards the value zero, with low frequencies within the values one to four, making it necessary to group the values for data analysis. The six initial values were grouped into two categories. The value zero was grouped as ‘no conflict probability’, while the values one to five were grouped into one category, named ‘conflict probability’. The difference between the conflict probabilities of the two scenarios was analysed with Pearson’s chi-square test and visualised using bar charts.

The potential influence of the predefined options on the livelihoods of the participants was determined by their potential changes in livestock management through access to a secure source of animal feed. The variables measuring the potential qualitative and quantitative change in livestock were analysed using descriptive statistics.

4 Results

4.1 Sample Description

The male and female participants show a homogeneous age distribution, as indicated in the crosstab Table 5.

Table 5: Crosstab of the samples' age classes and gender. (n=180)

			Gender		
			Female	Male	Total
Age Classes	16-27 Years	Count	13	31	44
		%	18.8%	27.9%	24.4%
	28-38 Years	Count	22	26	48
		%	31.9%	23.4%	26.7%
	39-50 Years	Count	19	26	45
		%	27.5%	23.4%	25.,0%
	51-80 Years	Count	15	28	43
		%	21.7%	25.2%	23.9%
Total		Count	69	111	180
		%	100.0%	100.0%	100.0%

The number of male participants was nearly twice that of female participants. The age distribution for the female and male participants, grouped into the three sub-locations, is displayed in the following boxplot diagram (see Figure 10).

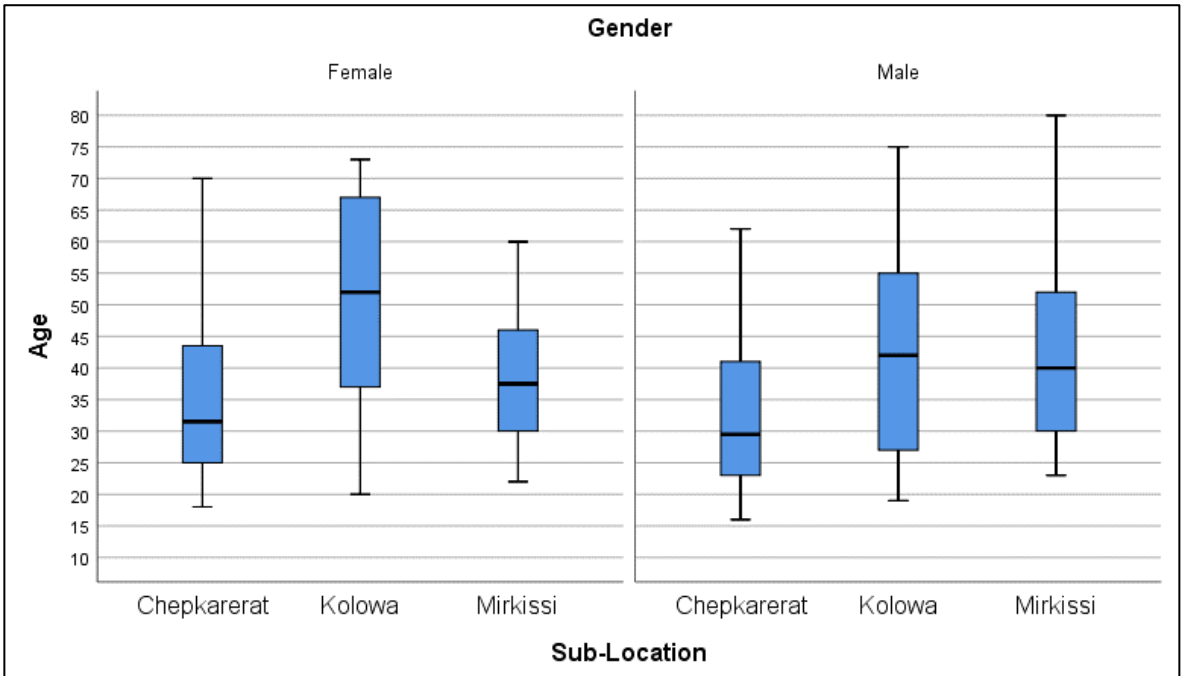

Figure 10: Age distribution of male and female participants within the three sub-locations Chepkarerat, Kolowa and Mirkissi. The upper and lower quartiles are separated through the median. (n=180)

Figure 10 shows approximately the same age distribution for the male and female participants for all three research-locations. Only Kolowa differs slightly.

The marital status of the participants shows a heterogeneous distribution with over 90.1 % being married and only 8.9 % being single. Also, the samples' educational level shows a heterogeneous distribution with 93.4 % of the participants who did not finish school. A comparison of the household sizes of the participants reveals a high frequency of households with more than six members. A crosstab for household size distribution within the three research-locations can be found in Annex 8.2.1 and displays a homogeneous distribution. However, the household size shows a heterogeneous distribution over the age groups. There is a higher frequency of smaller households among participants in lower age classes than among participants in higher age classes (Annex 8.2.2).

The income distribution was calculated based on the monthly household spending of the participants. Figure 11 shows the monthly spending distribution, grouped into female and male participants for all three research locations.

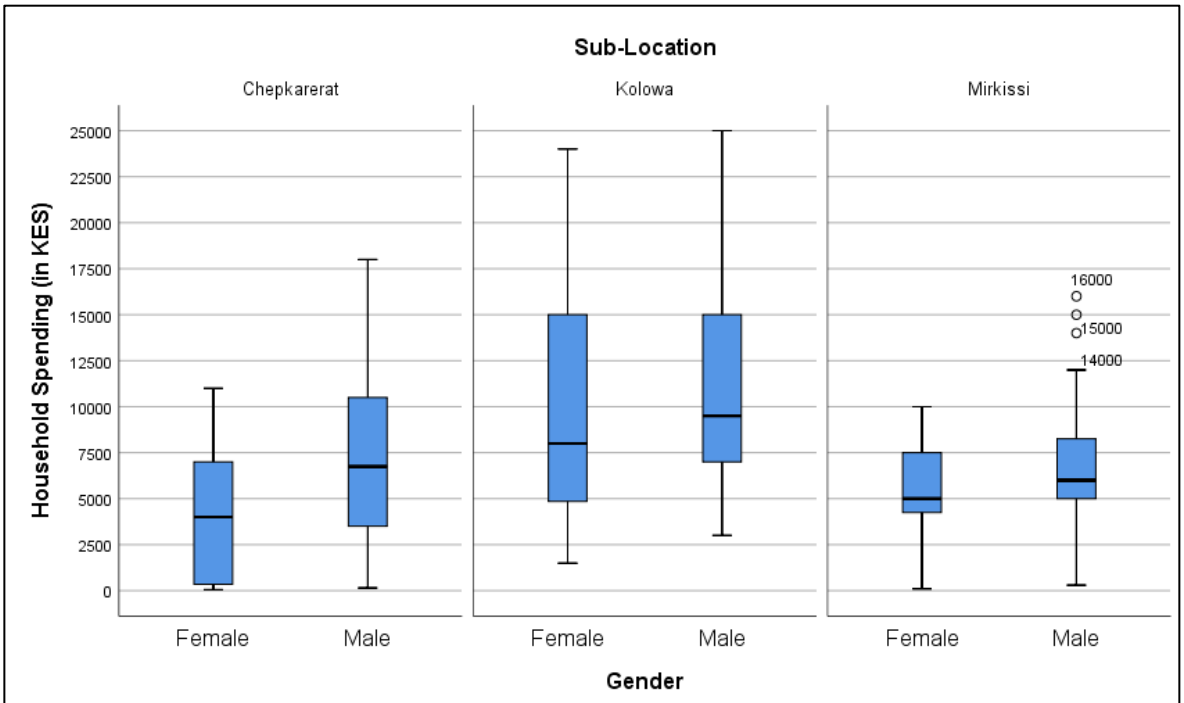

Figure 11: Monthly spending distribution of the participants grouped according to the three sub-locations and filtered into male and female participants. The upper and lower quartiles are separated through the median. (n=168)

The boxplot indicates a high frequency for participants with high monthly spending in Kolowa, compared to the other two research locations. Especially Mirkissi shows a low frequency of participants with high monthly spending. The monthly household spending of the participants significantly correlates with their gender. Pearson's chi-square test statistically confirms the correlation (see Annex 8.2.3). Adjusted residuals indicate a trend where female participants are

unlikely to have high monthly household expenses and are likely to be represented within the lowest household spending group. The monthly household spending shows no correlation with the age of the participants. The participants' spending power is used as an indicator of the research locations' economic development. I assumed a higher economic development for the research locations in Kolowa compared to the other research locations. This assumption was confirmed: The participants in Kolowa have higher monthly expenses, compared to the other research locations. However, the participants' frequency of market use was also used to determine the economic development of the research locations. A crosstab, which can be found in Annex 8.2.4, indicates a significant difference in the frequency of market use for the three research locations. Participants from Kolowa and Chepkarerat frequent markets rarely compared to participants from Mirkissi.

The conflict exposure of the participants is homogeneously distributed within the sample. Grouping the conflict exposure into the three research locations showed a significant correlation, indicated by Pearson's chi-square test in Annex 8.2.5. The adjusted residuals revealed that the participants in Chepkarerat and Kolowa typically show moderate to high conflict exposure while participants from Mirkissi typically show no conflict exposure. Furthermore, the age of the participants significantly correlates with their conflict exposure. The crosstab for the age classes and the conflict exposure in Annex 8.2.6, analysed through Pearson's chi-square test and the adjusted residuals, show a significant trend. Participants in the low and middle age classes show higher frequencies in the exposure and high exposure categories while participants in the high age classe typically show no high conflict exposure. A trend between gender and conflict exposure was determined as well. The crosstab in Annex 8.2.7 shows a trend for the female participants towards a high conflict exposure, while male participants tend to have low conflict exposure.

The results for the livelihoods of the participants show that close to 30 % are agro-pastoralists while over 70 % are pastoralists. The three sublocations do not show any significant correlation with the participants' livelihoods (see Annex 8.2.8). The herd size distribution for the pastoralists and agro-pastoralists is shown in Figure 12. The participants practising pastoralism have higher quantities of livestock, especially goats. The livestock numbers significantly correlate with the gender of the participants. The number of goats is significantly higher among male participants (Annex 8.2.9). The livestock distribution for the three sub-locations is homogeneous and visualised by Figure 13. Lastly, the participants' ethnicity was analysed; all of the participants identified as Pokot.

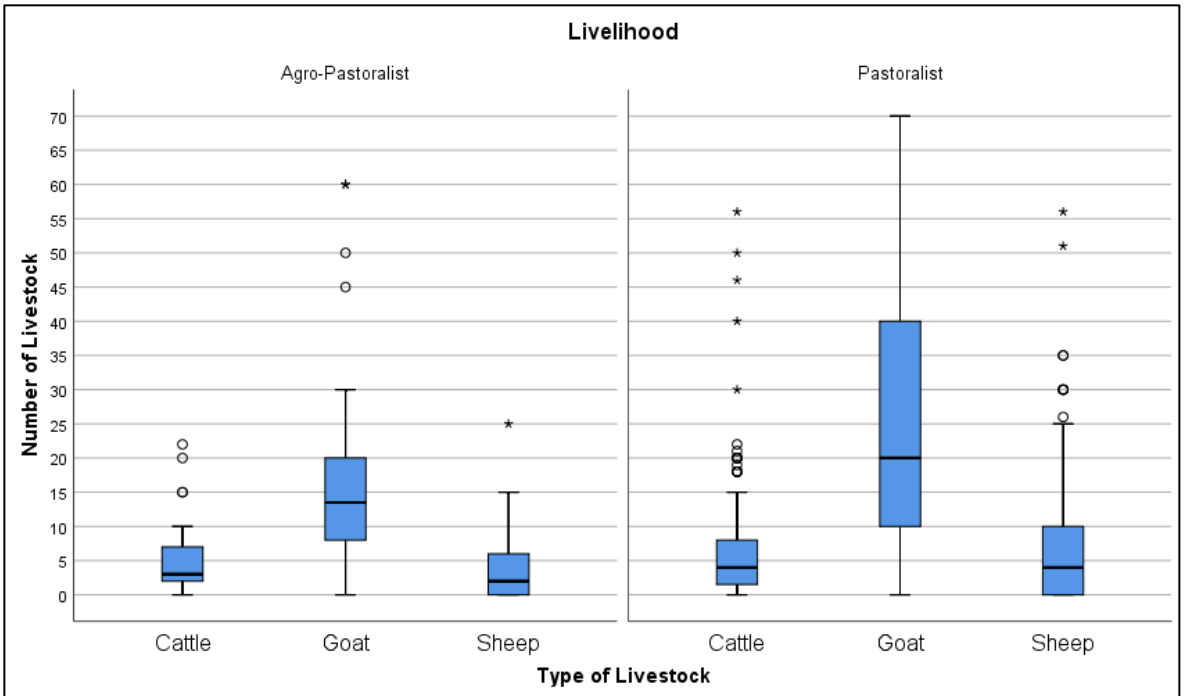

Figure 12: Boxplot of the participants' livestock numbers, categorised into the three most important livestock types – 'Cattle', 'Goat' and 'Sheep' – and grouped for the pastoral and agro-pastoral participants. The upper and lower quartiles are separated through the median. (n=179)

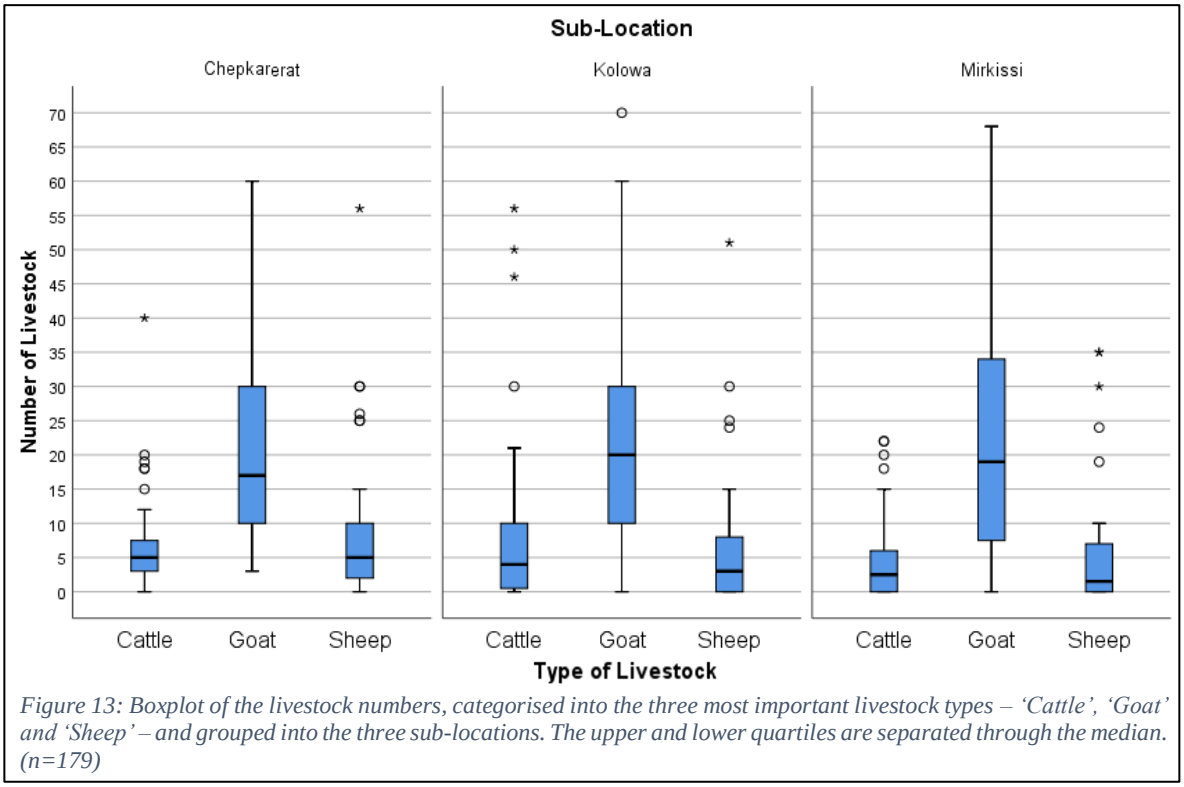

Figure 13: Boxplot of the livestock numbers, categorised into the three most important livestock types – 'Cattle', 'Goat' and 'Sheep' – and grouped into the three sub-locations. The upper and lower quartiles are separated through the median. (n=179)

4.2 Participants' Motivations towards the Predefined Options for Acquiring Animal Feed

The motivations of the participants towards the predefined options were analysed according to Chapter 3.10.

Participants' preferences regarding the set of predefined options for acquiring animal feed

The participants' preferences regarding the set of predefined options were captured through a ranking. The participants ranked the three suggested options from favourite to least favourite. Results for the ranking, according to frequencies, are visualised in Table 6.

Table 6: Frequency table of the participants' preferences regarding the predefined options for acquiring animal feed. (n=172)

			Preference Choice			
			First Preference	Second Preference	Third Preference	Total
Predefined Options for Acquiring Animal Feed	Purchase of Animal Feed	Count	9	96	67	172
		%	5.2%	55.8 %	39.0%	100.0%
	Cultivation and Conservation of Pasture	Count	153	16	3	172
		%	89.0%	9.3%	1.7%	100.0%
	Pre-Agreed Sharing of Grazing Grounds	Count	10	60	102	172
		%	5.8%	34.9%	59.3%	100.0%
Total		Count	172	172	172	172
		%	100.0%	100.0%	100.0%	100.0%

Table 6 shows that nearly all the participants favour the *Cultivation and Conservation of Pasture* as a possible option for acquiring animal feed. Most of the participants ranked the *Purchase of Animal Feed* as their second favourite option, while three-fourths of the participants chose the *Pre-Agreed Sharing of Grazing Grounds* as their least preferred option.

Frequency of use of the suggested alternative options

The second indicator for the participants' motivations towards the predefined options is the frequency of use. It was determined by the period in which the participants experienced feed scarcity in 2018 and their prognoses for the period of animal feed scarcity for 2020. The results are presented in the bar chart in Figure 14.

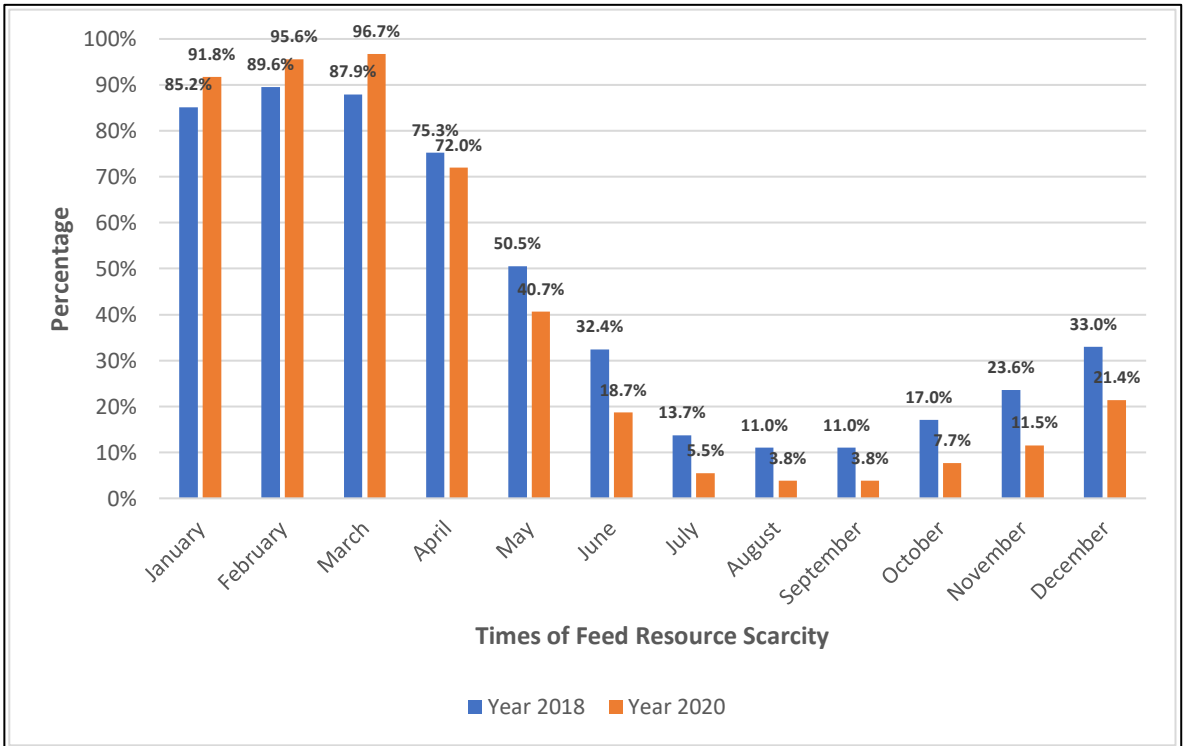

Figure 14: Period of feed resource scarcity in 2018 and 2020. The periods of scarcity are represented by the time period in which the participants experienced or foresee a lack of feed resources. (n=180)

The results for the years 2018 and 2020 show approximately the same distribution. With two-thirds of the participants experiencing feed scarcity, January to April are the months marked by the highest frequency of resource scarcity, followed by May, when over half of the participants are affected by feed scarcity.

No correlations were determined between the participants' periods of pasture scarcity and the socio-demographic variables.

Advantages and disadvantages of the predefined options

The advantages and disadvantages of each of the predefined options, as perceived by the participants, are displayed in the following bar charts (Figure 15 to Figure 20).

Figure 15 to Figure 17 display the advantages of each of the predefined options.

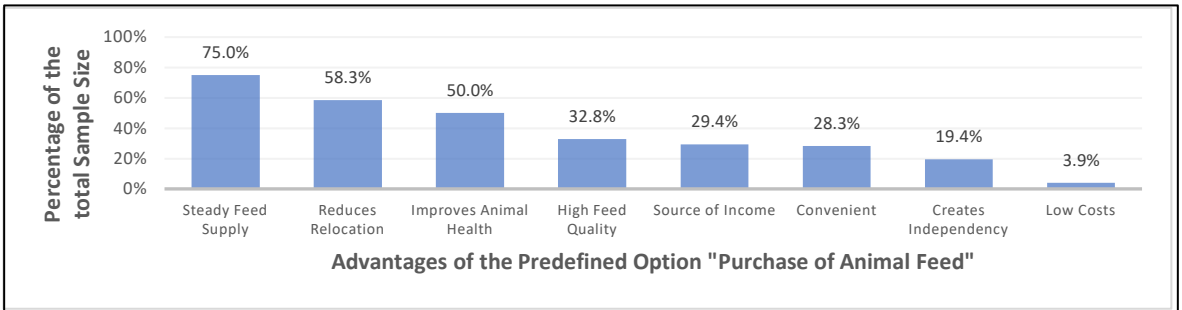

Figure 15: Advantages of the predefined option 'Purchase of Animal Feed'. (n=180)

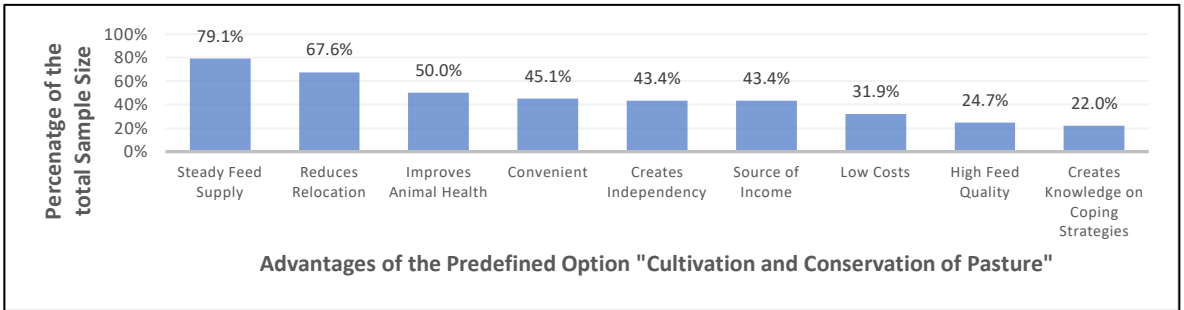

Figure 16: Advantages of the predefined option 'Cultivation and Conservation of Pasture'. (n=180)

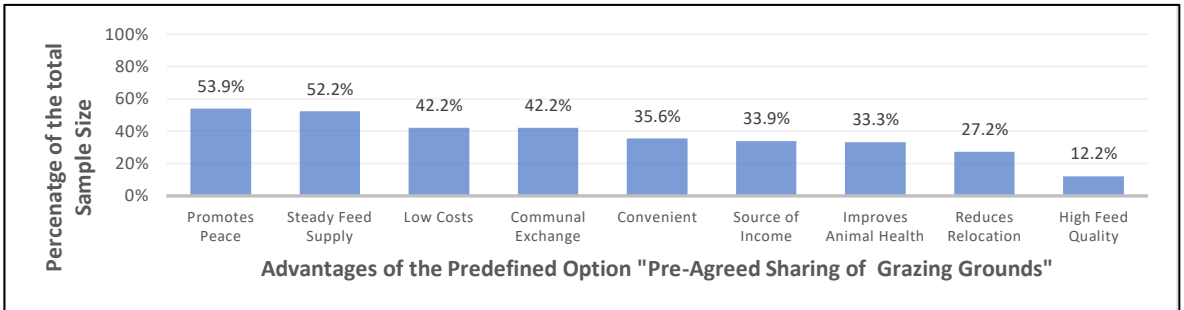

Figure 17: Advantages of the predefined option 'Pre-Agreed Sharing of Grazing Grounds'. (n=180)

Most of the participants perceive the three suggested options as a secure method to acquire animal feed. The options *Purchase of Animal Feed* and the *Cultivation and Conservation of Pasture* are perceived to reduce the need for relocations. Another frequently stated advantage for *Purchasing Animal Feed* and the *Cultivation and Conservation of Pasture* is the livestock health improvement. A large number of participants named higher independence, convenience and the new source of income as advantages of the option *Cultivation and Conservation of Pasture*. The *Pre-Agreed Sharing*

of Grazing Grounds is perceived to promote peace. Two-thirds of the participants see a communal exchange of knowledge, wealth, culture and diversity as an important advantage of the *Pre-Agreed Sharing of Grazing Grounds*. Lastly, the low costs connected with the *Pre-Agreed Sharing of Grazing Grounds* was frequently named as a benefit.

The disadvantages of the predefined options are displayed in the following bar charts (Figure 18 to Figure 20)

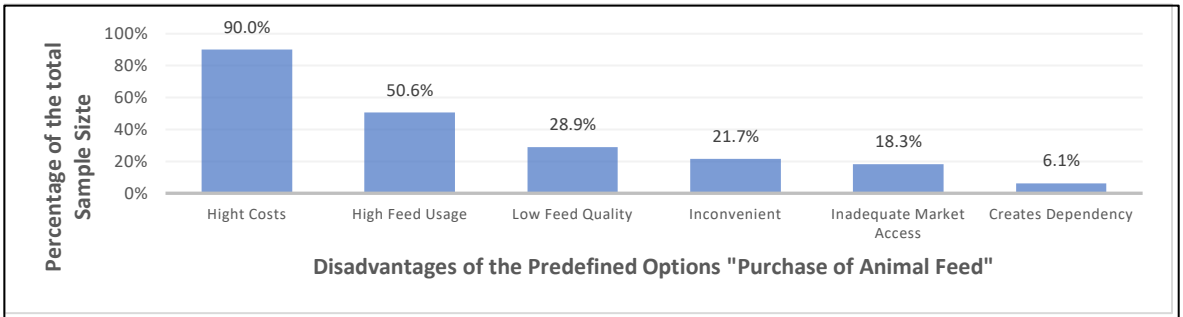

Figure 18: Disadvantages of the predefined option 'Purchase of Animal Feed'. (n=180)

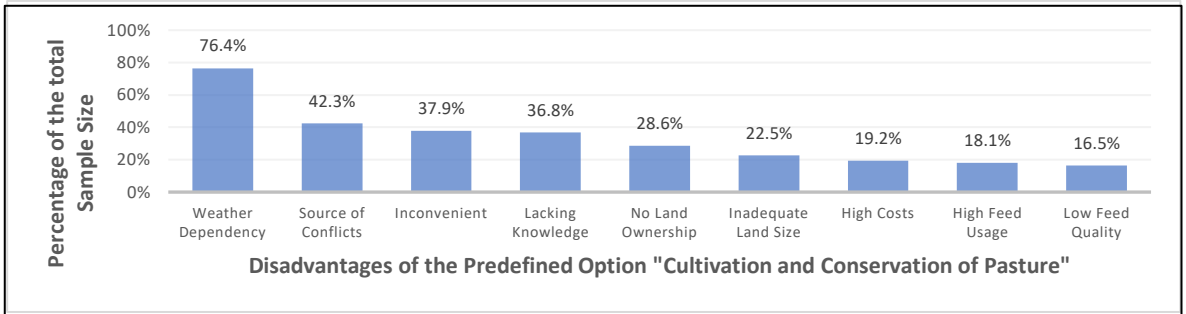

Figure 19: Disadvantages of the predefined option 'Cultivation and Conservation of Pasture'. (n=180)

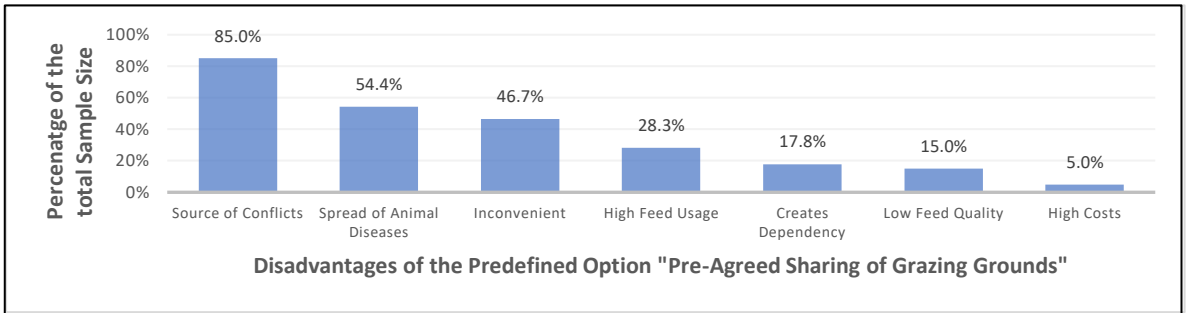

Figure 20: Disadvantages of the predefined option 'Pre-Agreed Sharing of Grazing Grounds'. (n=180)

Participants named the high costs and the high amount of feed input needed for their livestock most frequently as disadvantages of the option *Purchase Animal Feed*. The most frequently named disadvantage of *Cultivation and Conservation of Pasture* is weather dependency. Two-fifths of the participants saw the *Cultivation and Conservation of Pasture* as a source of conflict. The most

prominent disadvantage of *Pre-Agreed Sharing of Grazing Grounds*, with over four-fifths of the participants naming this factor, is the potential source of conflict inherent in this option, closely followed by a fear of the spread of animal diseases. Lastly, the high inconvenience connected with the *Pre-Agreed Sharing of Grazing Grounds* is named as a disadvantage by close to half of the participants.

Feasibility of the predefined options

The feasibility of the suggested options for acquiring animal feed was measured in their potential ability to support the participants with sufficient animal feed to overcome times of scarcity. The data reveals a clear result: Nearly all the participants (98.9 %) perceived the predefined options as feasible to overcome times of feed scarcity.

4.3 Decisive Factors Influencing the Participants' Motivations towards the Predefined Options for Acquiring Animal Feed

The decisive factors influencing the participants' motivations towards the predefined options were analysed according to Chapter 3.10.

Socio-demographic factors

A crosstab along with Pearson's chi-square test and Fisher's exact test showed significant correlations between the participants' preferred choice regarding the predefined options and their gender, age, livelihood, and monthly household spending.

A correlation between the participants' gender and their preferred option for acquiring animal feed has been identified. The number of women who preferred the other two options over the *Cultivation and Conservation of Pasture* is about five times smaller than in the group of male participants. The adjusted residuals indicate a higher likelihood for female participants to name option two - *Cultivation and Conservation of Pasture* - as their first choice, compared to the male participants (see Table 7). *The Purchase of Animal Feed* – shows a trend based on the adjusted residuals where male participants typically named this option as their first choice.

Table 7: Crosstab showing correlations between gender and preferred option for acquiring animal feed: option 1 is the 'Purchase of Animal Feed', option 2 is the 'Cultivation and Conservation of Pasture' and option 3 is the 'Pre-Agreed Sharing of Grazing Grounds'. (n=172)

			First Choice			
			Option 1	Option 2	Option 3	Total
Gender	Female	Count	0	63	3	66
		%	0.0%	41.2%	30.0%	38.4%
		Adjusted Residual	-2.4	2.1	-.6	
	Male	Count	9	90	7	106
		%	100.0%	58.8%	70.0%	61.6%
		Adjusted Residual	2.4	-2.1	.6	
Total		Count	9	153	10	172
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 6.409$; $p = 0.041$
Fisher = 6.899; p = 0.031

The age of the participants shows a significant correlation with the participants' first choice out of the suggested options for acquiring animal feed. The following crosstab (Table 8) displays this correlation in detail.

Table 8: Crosstab of the participants' age and preferred option for acquiring animal feed: option 1 is the 'Purchase of Animal Feed', option 2 is the 'Cultivation and Conservation of Pasture' and option 3 is the 'Pre-Agreed Sharing of Grazing Grounds'. (n=172)

			First Choice			
			Option 1	Option 2	Option 3	Total
Age Classes	<= 38 Years	Count	4	72	9	85
		%	44.4%	47.1%	90.0%	49.4%
		Adjusted Residual	-.3	-1.8	2.6	
	39+ Years	Count	5	81	1	87
		%	55.6%	52.9%	10.0%	50.6%
		Adjusted Residual	.3	1.8	-2.6	
Total		Count	9	153	10	172
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 7.018$; $p = 0.030$
Fisher = 7.163; p = 0.024

The adjusted residuals indicate that participants under the age of 39 are more likely to choose the *Pre-Agreed Sharing of Grazing Grounds* as their favourite option. The group of participants choosing *Cultivation and Conservation of Pasture* and the *Purchase of Animal Feed* shows a homogeneous age distribution.

Overall, Fisher's exact test, as well as Pearson's chi-square test, showed no correlation between the monthly household spending of the participants and their first choice out of the suggested options. However, a closer look at the adjusted residuals shows accumulations within certain household

spending groups. Participants with monthly spending over 9,000 KES were especially likely to prefer the *Purchase of Animal Feed*. Among the participants who picked *Cultivation and Conservation of Pasture* as their first choice, monthly household spending tended to be lower, with three quarters spending less than 9,000 KES per month.

Table 9: Crosstab of the participants' monthly household spending and preferred option for acquiring animal feed: option 1 is the 'Purchase of Animal Feed', option 2 is the 'Cultivation and Conservation of Pasture' and option 3 is the 'Pre-Agreed Sharing of Grazing Grounds'. (n=158)

			First Choice			
			Option 1	Option 2	Option 3	Total
Monthly Household Spending Groups [in KES]	<= 5000	Count	2	59	3	64
		%	22.2%	42.1%	33.3%	40.5%
		Adjusted Residual	-1.2	1.2	-.5	
	5001 - 9000	Count	2	44	3	49
		%	22.2%	31.4%	33.3%	31.0%
		Adjusted Residual	-.6	.3	.2	
	> 9000	Count	5	37	3	45
		%	55.6%	26.4%	33.3%	28.5%
		Adjusted Residual	1.9	-1.6	.3	
Total		Count	9	140	9	158
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 3.795$ p = 0.434
Fisher = 3.542; p = 0.516

Finally, the livelihoods of the participants did not significantly influence their preferred choice of an alternative option for acquiring animal feed. Nonetheless, nearly all participants who chose the *Pre-Agreed Sharing of Grazing Grounds* as their favourite option are pastoralists. For more detailed information see Annex 8.2.10.

Local Markets

The influence of the local markets on the participants' preferred choice of the predefined options was examined using three variables: market use frequency, market prices and the local market. A correlation between the local markets and the participants' preferred choice was only determined for the different markets used by the participants. A crosstab with the markets used by the participants and their preferred choice showed a significant correlation, based on Pearson's chi-square test. However, Fisher's exact test did not show a statistical correlation between the two variables. Still, the adjusted residuals indicate two trends. The number of participants that use the Takaiwa market and prefer the *Pre-Agreed Sharing of Grazing Grounds* is higher than statistically expected. Additionally, the number of participants who used the Takaiwa market and who do not prefer the *Cultivation and Conservation of Pasture* is lower than statistically expected (see Table 10).

Table 10: Crosstab of the participants, grouped by the market they typically attend, and preferred option for acquiring animal feed: option 1 is the 'Purchase of Animal Feed', option 2 is the 'Cultivation and Conservation of Pasture' and option 3 is the 'Pre-Agreed Sharing of Grazing Grounds'. (n=166)

			First Choice			
			Option 1	Option 2	Option 3	Total
Market Used by Participants	Kolowa	Count	6	104	4	114
		%	66.7%	70.3%	44.4%	68.7%
		Adjusted Residual	-.1	1.3	-1.6	
	Lomut	Count	1	21	0	22
		%	11.1%	14.2%	0.0%	13.3%
		Adjusted Residual	-.2	1.0	-1.2	
	Takaiwa	Count	2	23	5	30
		%	22.2%	15.5%	55.6%	18.1%
		Adjusted Residual	.3	-2.4	3.0	
Total		Count	9	148	9	166
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 9.759$ p = 0.045
Fisher = 7.496; p = 0.073

Conflict Exposure

The final variable, examined for its potential influences on the participants' preferred choice regarding the acquisition of animal feed, was the conflict exposure. Pearson's chi-square test and Fisher's exact test show no significant correlation between the conflict exposure of the participants and their preferred choice (see Table 11). Nonetheless, those participants who chose the *Purchase of Animal Feed* as their favourite option for acquiring animal feed frequently also fell in the 'Very High Conflict Exposure' category. In contrast, among the participants who named the *Pre-Agreed Sharing of Grazing Grounds* as their first choice, over 50 % fell into the 'No Conflict Exposure' category.

Table 11: Crosstab of the participants' conflict exposure and preferred option for acquiring animal feed: option 1 is the 'Purchase of Animal Feed', option 2 is the 'Cultivation and Conservation of Pasture' and option 3 is the 'Pre-Agreed Sharing of Grazing Grounds'. (n=172)

			First Choice			
			Option 1	Option 2	Option 3	Total
Participants' Conflict Exposure Groups	No Conflict Exposure	Count	3	47	5	55
		%	33.3%	30.7%	50.0%	32.0%
	Exposed to Conflict	Count	1	56	2	59
		%	11.1%	36.6%	20.0%	34.3%
	Very High Conflict Exposure	Count	5	50	3	58
		%	55.6%	32.7%	30.0%	33.7%
Total		Count	9	153	10	172
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 4.703$ p = 0.319
Fisher = 4.541; p = 0.318

4.4 Measuring the Influence of the Predefined Options on the Participants' Conflict Potential and their Livelihoods

The influence of the predefined options on the participants' conflict potential and their livelihoods was analysed according to Chapter 3.10.

Predefined options' influence on the conflict potential

A comparison of the participants' likelihood to have resource-related conflicts, with and without access to the suggested options for acquiring animal feed, shows a lower probability of conflict if the participants have access to the suggested options. Figure 21 visualises this difference in conflict probability for the two scenarios. Pearson's chi-square test shows that the difference between the two conflict probabilities is significant (X^2=27.492, p= 0.000).

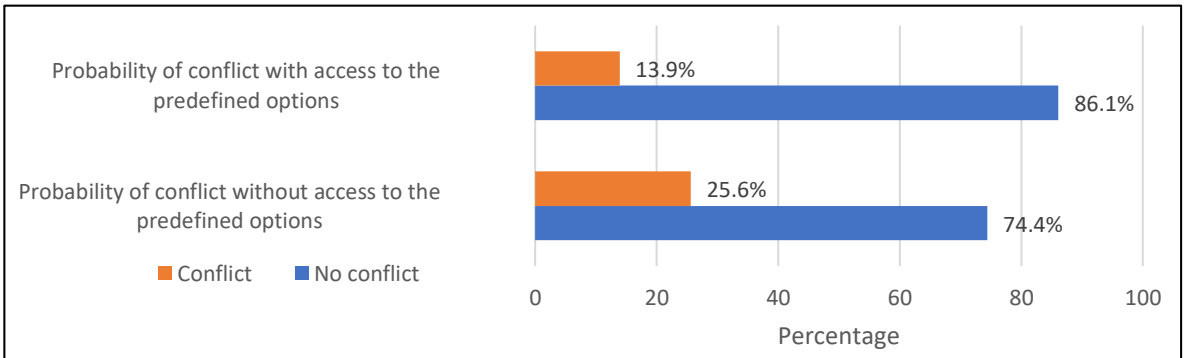

Figure 21: Comparison of the participants' conflict probability for the two scenarios, with and without access to the predefined options. (n=180)

Predefined options' influence on the participants' livelihoods

The potential influence of the predefined options for acquiring animal feed on the participants' livelihoods was determined by the changes in the livestock management of the participants through access to a secure source of animal feed. The potential increase in livestock numbers as well as in herd quality was used to determine these changes. Close to all the participants would increase the quality of their animals (99.5 %) and would also increase their livestock in quantity (95.1 %).

4.5 Representativeness of the Data

Due to the homogeneity of specific vital variables within the sample such as age and income, the data gathered is suitable to represent the East Pokot population to a satisfying degree. It is necessary to point out specific variables, especially the high representation of males within the sample. However, these discrepancies can be justified and should not challenge the representativeness. Furthermore, it is necessary to state that the sample was chosen to represent the entire East Pokot population, although the data was collected solely within the lowlands. It must be considered that the data represents the lowland population to a higher degree than the highlands population because the East Pokot lowland population differs in its characteristics from the highland population. On the one hand, the highlands show climatic conditions sufficient for rain-fed agriculture enabling the cultivation of crops, helping the highland Pokot community to diversify their livelihood into sedentary agro-pastoralism and reduce resource pressure (Greiner, 2013; Huho, 2012). Furthermore, the highlands were not affected by the conflicts, rendering them a place of refuge for the lowland Pokot during times of violence. Whilst generalising the research findings, it is necessary to keep in mind that the data represent the East Pokot lowland population to a higher degree than the remaining East Pokot population.

Although the data represents the participants' motivations towards the predefined options, it is necessary to take a closer look at the representativeness of the data used for determining the influence of the external factors on the motivations of the participants. The different external factors were examined for their correlations with the participants' preferred choice out of the options given. It is notable that the majority of participants picked the same option when asked which of the presented alternatives they would favour. While the participants opting for the *Cultivation and Conservation of Pasture* amount to 89%, those preferring other options for acquiring animal feed only reach an accumulated share of 11%. Comparing groups with such a great difference in size can decrease the data's representativeness. Although Fisher's exact test can help to overcome this problem, it is necessary to keep this issue in mind when interpreting the results regarding the capabilities that influence the participants' motivations towards the suggested options for acquiring animal feed.

5 Discussion

The following chapter presents a comprehensive discussion of the preceding results and relates the outcome to the overall research topic, the participants' motivations towards acquiring livestock feed to reduce the probability of resource conflicts in the Kerio Valley.

5.1 Sample Characteristics

According to Elfversson (2017), it is vital to understand the conflicting parties in the Kerio Valley as unitary in their decision to engage in conflict or peace while acknowledging intra-party dynamics that influence the possibility and the circumstances of conflict mitigation. The sample for the present research was chosen in line with Elfversson's (2017) assumption. A closer look at the chosen sample and its specific characteristics will answer whether the unity and simultaneous complexity that Elfversson (2017) mentions are represented in the present research sample.

One noteworthy characteristic of the sample that also plays a crucial role in the Kerio Valley resource conflict is the participants' supposedly unitary livelihood. Based on previous literature I assumed that most of the participants are traditional pastoralists, meaning that they depend on livestock for the bigger part of their income and consumption (Czuba et al., 2017; Mutsotso et al., 2014; Thom & Marten, 1983). The livelihood of the participants is essential for this research project because multiple authors have previously identified a correlation between the pastoral lifestyle and resource-related conflicts in the Kerio Valley due to the high vulnerability of pastoralists to pasture scarcity and due to the role of traditional pastoral practices in the conflict (Elfversson, 2016; D. Kipkorir & Kareithi, 2013; Muricho et al., 2017; Schilling et al., 2012). A closer look at the sample's characteristics shows that 72 % of the participants are pastoralists while 28 % are agro-pastoralists. The results correlate well with the 2019 census which found that 32 % of the East Pokot population are engaged in crop production. This indicates that the different Pokot livelihoods are well represented in the current study's sample.

The pastoral livelihood generally correlates with high livestock numbers. Schilling et al. (2012) find that the Pokot hold one of the highest livestock population in Kenya. The present sample represents this correlation. Participants engaged in pastoral livelihood activities own a higher quantity of livestock compared to the participants engaged in agro-pastoral livelihood activities. However, the livestock numbers determined in my data deviate from the livestock numbers of the Pokot suggested in previous literature and by key informants[4]. The average livestock number within the Pokot

[4] The procedure for key informant interviews is explained in Chapter 3.1.

community, according to key informants, is 35 TLU per household, while the literature identifies only a small number of households with less than 30 TLU (Österle, 2008). The present research identified an average of 12,5 TLU per household[5]. This discrepancy can be explained by deliberate misinformation on the participants' side. Herd size is a sensitive topic for the pastoral Pokot and is usually not discussed with strangers. As key informants state, not revealing the real number of livestock to strangers is a measure of precaution to avoid being targeted by raiders. The participants were likely biased because the enumerators conducting the interviews were Marakwet and therefore part of the opposing party in the Kerio Valley conflict. My own experience during data collection showed that participants changed their answers after being reminded that the interview was only intended for scientific purposes and that their information would be handled confidentially. Especially the low number of cattle within the herds of the participants indicate a bias. Relevant literature suggest a deep cultural and social connection between the Pokot and cattle, which they also rely upon heavily for their subsistence, leading to the accumulation of cattle in their livestock composition (Elfversson, 2016; Mutsotso et al., 2014; Schilling et al., 2012; Thom & Marten, 1983). In contrast to the literature, the results of the present study show a very low amount of cattle per household. However, Österle (2008) supports my findings. He identified a shift from the traditional East Pokot pastoralism that is centred on cattle to a new form of pastoralism that centres on goats. Evidence can be found in the fact that from 1988 to 2005 the number of goats and sheep rose to roughly seven times its original number. In 2005, out of 700,000 animals about 500,000 were goats, while the number of cattle remained more or less stable, counting around 100,000 heads in East Pokot (Österle, 2008). Cattle has lost some of its importance in East Pokot society but owning a couple of heads is still prestigious. The shift from cattle to small stocks is prominent in East African pastoral communities and named the 'Maasai model'*;* yet the intensity in which the Pokot carry out the transition stands out from other pastoral communities (Österle, 2008). Österle (2008) relates this transition to goats to their increased drought resilience, which is due to their ability to browse and feed on shrubs. Additionally, owning a big number of cattle bears the danger of becoming a target of cattle rustling. The shift in the livestock composition of the participants is important for the development and implementation of possible measures in the resource-related conflict transformation. The predefined strategies for acquiring animal feed used in the present research project are focused on cattle-based pastoralism. However, goats and sheep are considered an important part of the herd too.

[5] The TLU were calculated based on Galvin and Little (1999): 1 head of cattle = 1 TLU; 1 camel = 1.25 TLU; 1 goat/sheep = 0.125 TLU. Key informants suggested 25 head of cattle, 50 goats, 20 sheep and 1-2 camels as average livestock number per Pokot household. My collected data shows an average of 7 head of cattle, 6 sheep, 28 goats and 1 camel per household.

Surprisingly, the sample shows a high frequency of female participants, with 38 % of the sample consisting of women. The great number of female homestead heads is not typical for the polygamic Pokot culture. It is common in East Pokot to have homesteads with multiple women living in different households and one man being the head of the homestead. The literature suggests that 10 % of the households have a female household head in Baringo County (County Government of Baringo, 2013). I cannot explain the discrepancy between my results and previous literature. One possible explanation might be a higher rate of widows in East Pokot compared to Baringo county, a situation which is retraceable to the Kerio Valley conflict.

Another factor in the sample that must be discussed is the monthly spending of the participants. It is questionable whether the participants' monthly spending measure their income because the variable depends on multiple different factors, such as household size. Annex 8.2.11 shows a significant correlation between the participants' monthly spending and household size. Therefore, it is questionable whether monthly spending functions as an indicator of the participants' monetary wealth. However, the lack of a regular income within the Pokot community forced me to rely on this variable to determine the spending power of the participants.

Lastly, the sample shows a high degree of heterogeneity regarding the educational level of the participants. The significant frequency of participants on a low educational level in the East Pokot population is not represented in the literature. The 2019 census indicates that over 80 % of the participants have finished some level of education (KNBS, 2019c). Other publications identify a lower general level of education among the Kerio Valley part of the East Pokot population, marked by a high level of illiteracy, with only 45% of the youth enrolling for secondary school and a large number of people with no formal education (County Government of Baringo, 2018; Greiner, 2013). Nonetheless, my sample seems to display a significantly lower educational level than the overall East Pokot population.

Furthermore, it was possible to determine specific groups within the sample, an indicator of diverging characteristics. Older participants, from the age of 31 upwards show a lower conflict exposure compared to the youth. On the one hand, the youth are responsible for livestock herding and function as warriors in the Kerio Valley conflict (Elfversson, 2016). On the other hand, cultural practises, such as the necessity of paying dowries, force the youth to engage in cattle rustling (Schilling et al., 2012). These factors can explain why older participants are less exposed to conflict than younger participants. Male and female participants differ significantly with regard to socio-demographic values. Overall, male participants count bigger herd sizes, higher monthly spending and have lower exposure to conflicts compared to female participants. Specific characteristics were also determined for the three sub-locations. One vital characteristic is the difference in monthly spending between the three sub-locations. Kolowa shows a higher frequency of participants with high monthly household

spending while participants from Chepkarerat and Mirkissi rarely have high monthly spending. One reason for the difference could be the higher livelihood diversification through market access and the economic centre in the Kolowa sub-location, which the other two sub-locations lack. The second factor differentiating between the research-locations is the participants' conflict exposure. Participants from Mirkissi show a lower conflict exposure compared to participants from Kolowa and Chepkarerat. Mirkissi, sharing a border with West Pokot, is isolated from the main area of conflict. In contrast, Kolowa and Chepkarerat share an extended border with Marakwet East and are therefore more exposed to the conflict.

The heterogeneity in some of the sample's socio-demographic factors stands in line with the theoretical framework and helps to acknowledge the complexity within the East Pokot community. It represents the existing dynamics within the homogeneous group of East Pokot and helps to examine the influence of these dynamics on resource-related conflict mitigation.

5.2 Motivations of the East Pokot towards the Predefined Options for Acquiring Animal Feed

Four factors were used to determine the participants' motivations towards the predefined options. The preferences regarding the suggested options, the period of use, advantages, and disadvantages of each of the predefined options and their feasibility.

Motivation towards the *Cultivation and Conservation of Pasture*

Results indicate that participants largely preferred the *Cultivation and Conservation of Pasture* when provided with the three predefined options to choose from. This is a significant finding with regard to the Kerio Valley conflict transformation because it highlights the importance of a transition in the traditional pastoral approach for acquiring animal feed towards a sedentary coping strategy. It seems surprising that the East Pokot, mainly dominated by pastoralists, favour an option connected with a sedentary lifestyle. However, multiple publications indicate a similar transition within the pastoral communities in East Africa. Fratkin (2006) identifies a slow change in the nomadic lifestyle of East African pastoralists towards sedentarism. He examined a similar transition for the Maasai, the Boran and the Rendille. All three communities show a decline in traditional pastoral practices and an increase in the uptake of crop and animal feed production, livestock production in ranches and labour work. According to Fratkin (2006), multiple factors pressure the pastoralists to engage in this transition: a growing population, privatisation of commons, political insecurity, ethnical conflicts, marginalisation, and harsher climatic conditions. All these factors come together in the Kerio Valley too, indicating that the external conditions stress a transition from traditional pastoralism to an

agro-pastoral lifestyle within the East Pokot community in the Kerio Valley. Österle (2008) agrees with Fratkin's (2006) statement on livelihood transition within the pastoral communities of East Africa and specifies this transition for the Pokot in Kenya. He identifies that the Pokot shift from their nomadic cattle-centred pastoralism to a sedentary, goat-dominated livelihood in combination with the adaption of farming. *Shambas*, fields from about 500m², are used for agricultural purposes mostly by women, while men are herding the livestock. A sedentary lifestyle was not imaginable for the Pokot fifteen years ago, but increased population, conflicts, cattle rustling, and droughts cause the livelihood change (Österle, 2008). Nowadays, a big part of the Pokot pastoral community remains in one place all year long and only drives their livestock to distant pastures for single days.

Mutsotso (2013) similarly identifies the social change, previously addressed by Fratkin (2006) and Österle (2008), happening in the East Pokot population too. He sees the traditional pastoral livelihood of the East Pokot changing under the pressure of the conflict. More and more former pastoralists are not able to access their dry season grazing grounds anymore because of insecurity and privatisation, leading to the adaption of non-pastoral livelihood activities that they previously despised. Mutsotso (2013) views sedentary crop farming combined with goat-centred pastoralism as one of the approaches used by the East Pokot to cope with the difficult situation, while parts of the population even migrate into rural areas and entirely neglect their pastoral livelihood in favour of wage labour.

The three publications conclude that there is a transition from the traditional pastoral to a sedentary livelihood taking place within the East African pastoral communities and even within the East Pokot community. Both, the participants' preference of pasture cultivation and conservation practices and their prioritisation of reduced relocation mirror the transition in my findings as well. I argue that pasture production and conservation is an adequate strategy in the resource-related conflict transformation in the Kerio Valley because it supports social change within the East Pokot community, fulfilling Galtung's and Fischer's (2013) demand for a sustainable conflict transformation, which is accepted within the population and created through a bottom-up approach rather than forced upon the affected population. Supporting social change within the East Pokot population is crucial because they are not as engaged in the transition from pastoralism to agro-pastoralism compared to other pastoral communities in Eastern Africa, due to the climatic conditions they are facing (Fratkin, 2006). My findings similarly indicate a slower transition from pastoralism to agro-pastoralism among the East Pokot, with 72 % of the participants still living as pastoralists. According to Fratkin (2006), the transition must be supported by the production and storage of forage.

The benefits of sedentarism that comes with the cultivation of pasture are manifold. Pastoral communities can benefit from a wider economic resource base which increases their resilience to severe droughts, grants them access to public education, markets and health care (Fratkin et al., 2006).

Lowering their dependency on communal pastures, a highly contested resource during times of drought, can support conflict mitigation (Fratkin, 2006; Österle, 2008; Wasonga et al., 2016). The advantages that participants expect of the cultivation and conservation of pasture correspond with the benefits named in the literature. The major benefits named by the participants are a steady feed supply, the reduced need for relocation and increased independence. The two latter factors show that the sedentary lifestyle is highly appreciated within the East Pokot community. Furthermore, nearly 45 % of the participants see the additional source of income that arises out of selling feed surplus from pasture cultivation as vital benefits, indicating that pasture production can have a positive effect on the East Pokots' income. Fratkin (2006) and Mutsotso (2013) support this finding when stating that the sedentary transition within the pastoral communities of East Africa correlates with an adaptation of new sources for income such as crop production. Additionally, 50 % of the participants name animal health improvement as the third most important benefit. Improved animal health can lead to better prices and can increase the output of animal products while also increasing the resilience of the animals during times of drought. Opiyo et al. (2015) identify a similar correlation. They examine the drought adaption strategies among the Turkana in North Kenya and find that the use of livestock feed reserves is appreciated not only for tackling feed scarcity but also to increase the quality of the livestock. Mureithi et al. (2016) add that a higher livestock quality through fattening leads to higher revenues even compared to the sale of seeds and animal feed surplus.

The last paragraphs have shown that the coping strategy of pasture production and conservation may support the transition from nomadic pastoralism to a sedentary lifestyle within the East Pokot community. Furthermore, implementing strategies related to the predefined option of *Cultivation and Conservation of Pasture* will not only help the East Pokot to acquire animal feed but show multiple beneficial effects: lowering the conflict potential, creating new sources of income and increasing the overall herd quality and resilience.

However, Mutsotso (2013) and Fratkin (2006) state that the East Pokots' options for cultivation are limited because adequate land is scarce. Parts of the community use the less arid areas of Churo for crop production and to grow dry season grazing reserves, while others are bound to rely on sufficient precipitation (Mutsotso, 2013). My findings reflect the difficulties of adequate cultivation conditions in the East Pokot community. The participants perceived the dependency on the weather as the gravest disadvantage for pasture production. Therefore, to implement pasture cultivation in the ASALs of East Pokot, it is important to consider solutions to the climatic limitations as well. Lugusa et al. (2016) determined the use of irrigation or the usage of drought-resistant strains as key for overcoming the climatic challenges. Both solutions are potentially feasible in the Kerio Valley. Irrigation can be provided utilising the Kerio River itself. Lugusa et al. (2016) and Bukari (2016) state that riverbanks have been used for cultivating pasture in the drylands of Kenya and Ghana. This system could be adapted for the Kerio River riverbanks too. Irrigation can also be provided by reactivating the *Red*

Cross irrigation schemes close to Kolowa, which have been abandoned since the conflict outbreak in 2016 (D. Kipkorir & Kareithi, 2013). Resistant strains (for example the *Cenchrus Ciliaris*) have been used to create feed banks to bridge times of animal feed scarcity in West Pokot and Turkana and are promising to enable the cultivation of pasture in the Kerio Valley as well (Lugusa et al., 2016). Furthermore, the East Pokot are already extraordinary familiar with agricultural practices that could enhance the implementation of cultivation and conservation practices. The East Pokot have had multiple contact points to cultivation practices. About 500 hectares of irrigation system were used by the community for farming purposes, while NGOs, e.g. the *Arid Lands Resource Management Project*, have propagated and supported agricultural practices among the Pokot since the 1980s. Also, the neighbouring West Pokot practice the cultivation of pasture by using enclosures during times of drought (Lugusa, 2015; Mureithi et al., 2016). Furthermore, Mutsotso (2013) states that the East Pokot have had to take up farming due to the difficult situation they find themselves in, although they despise it. Both, the existence of cultivation practices in and around the East Pokot community and the changing social perception of these practices are supportive factors in the implementation of cultivation and conservation practises.

To provide a complete discussion of the strategies of pasture cultivation and conservation as a potential option for resource-related conflict transformation in the Kerio Valley, it is necessary to consider possible negative side effects connected to the implementation of such practices. About 40 % of the participants regard the predefined option of *Cultivation and Conservation of Pasture* as a potential source of conflict. This is rather surprising because previous studies ascribe the potential of conflict mitigation to the cultivation of pasture within pastoral communities because this practice enables a sedentary lifestyle and reduces resource pressure (Fratkin, 2006; Österle, 2008; Wasonga et al., 2016). Conversations with the participants revealed that inter-community conflicts are perceived as potential sources of problems related to the predefined option of *Cultivation and Conservation of Pasture*. Livestock from the same community could potentially invade the cultivated pastures and spark conflicts within the East Pokot community itself. Lugusa et al. (2016) confirm my findings when stating that poor fencing leading to the trespassing of livestock is one of the main problems among the fodder producers of Baringo. Furthermore, my results show that the inconvenience ascribed to and lacking knowledge of cultivation and conservation practices can prevent the East Pokot from engaging in this coping strategy. Manyeki et al. (2013) come to a similar conclusion in their publication on the adoption of natural pasture improvement technologies in the ASALs of Kenya. The publication determines the labour intensity that is connected to a lack of information and training as major problems in the adaption of fodder production techniques. Therefore, Manyeki et al. (2013) and Lugusa et al. (2016) stress the need for training, access to information and extension services, offered by NGOs, the private sector or the government, to empower the East Pokot with regard to cultivation and conservation practices.

Lastly, it is necessary to critically examine the consequences that sedentarism, which is required for the cultivation of pasture, can have on the East Pokot. Fratkin et al. (2004) and Fratkin et al. (2006) state that the shift from a nomadic to a sedentary lifestyle is connected to multiple negative consequences: insufficient nutrition, inadequate housing, no access to clean drinking water and higher rates of infectious diseases. Furthermore, the two publications point out the negative effects of sedentarism on pastoral communities in Northern Kenya: Here, settled communities show significantly higher rates of childhood mortality and a significantly poorer nutritional status of children and women, as compared to nomadic communities. According to Fratkin et al. (2006), the former effect can be traced back to the increased population density within settled communities, increasing the risk of infectious diseases. The latter effect is retraceable to a lower protein intake within the settled communities. Sedentary communities have lower milk and higher grain intake because livestock is often herded far away from the settlement, reducing access to protein-rich food (Fratkin et al., 2006). Both publications stress the significance of their findings for any policy implementation connected with the sedentarism of pastoral communities. For a sustainable resource--related conflict transformation to take place in the Kerio Valley, it is, therefore, necessary to address the possible negative effects of the sedentarism that goes along with the implementation of cultivation and conservation practices.

Motivations towards the *Purchase of Animal Feed*

Purchase of Animal Feed was the second most chosen predefined option. Possible reasons why many of the participants do not view the *Purchase of Animal Feed* as the best option can be found in multiple publications. Aklilu and Wekesa (2002), Morton et al. (2005), Taye and Jensen (2019) and Pantuliano and Wekesa (2008) all examined purchasing animal feed as a coping strategy to the 2009 and 2016/2017 droughts in Kenya. These publications conclude that the *Purchase of Animal Feed* is a prominent coping strategy, but not as widely chosen as other options due to missing liquid capital in pastoral communities. Especially Taye and Jensen (2019) see the lack of a functional livestock market with adequate prices as the main reason for preventing the pastoralists from generating money. I see the lack of liquid capital and the problematic market integration in the Kerio Valley connected to the participants' lower motivation toward the *Purchase of Animal Feed*. It is necessary to address these issues when trying to enable the East Pokot to engage in purchasing animal feed during times of drought and to effectively use this strategy within the resource-related Kerio Valley conflict transformation.

Close to 60 % of the rural Pokot population are impoverished, and the East Pokot population is one of the poorest in Kenya (Greiner, 2013; Kenya Interagency Rapid Assessment, 2014). The participants' mean daily household spending of $ 2.39, determined in the present thesis, is very close

to the *World Bank* poverty line of $ 1.90 daily income. Taking the participants' high number of household members into consideration, the comparison of $ 2.39 daily household spending with the *World Bank* poverty line indicates an even higher poverty rate among the participants. Furthermore, 90 % of the participants perceived the costs arising out of the *Purchase of Animal Feed* as the most significant disadvantage for this strategy for acquiring animal feed. Half of the participants perceived the high demand for animal feed to support their herds as the second most significant disadvantage. These results indicate that the lack of capital would hinder the East Pokot from buying animal feed in times of feed scarcity. Traditionally, the pastoral Pokot sell off livestock to gain capital. However, cartels among buyers and the insecurity that comes with conflict have led to low revenues for livestock sales on East Pokot markets (Mutsotso, 2013). Taye and Jensen (2019) and Opiyo et al. (2015) come to a similar conclusion. They stress the need for a functioning livestock market with adequate prices, which enables the pastoralists to convert their livestock into capital and to invest in coping strategies connected with the purchase of animal inputs. However, Taye and Jensen (2019) also point out a common problem with regard to selling off livestock: Especially during times of drought, the prices paid for livestock are low. Interestingly, the participants identify similar advantages for purchasing animal feed and for cultivating and conserving pastures. The participants perceive the steady feed supply, the reduced need for relocation and improved animal health as the most beneficial effects of both options to cope with feed scarcity. These similarities indicate that the high costs for purchasing animal feed could be the main reason why the East Pokot would rather engage in pasture production than in the purchase of fodder.

Different approaches could be used to pave the way for the East Pokot to engage in the *Purchase of Animal Feed* during times of animal feed scarcity. Taye and Jensen (2019) suggest increasing pastoralists' engagement in the purchase of livestock feed through the use of livestock insurance systems. The publication examined the influence of a livestock insurance system on the choice of the pastoralists regarding different coping strategies during the 2016/17 drought in Kenya. Livestock insurance systems were found to significantly influence the behaviour of Kenyan pastoralists. Up to 80 % of the surveyed households changed their coping strategies through access to insurance payments, with most of the households switching to the purchase of animal inputs. Additionally, Opiyo et al. (2015) suggest affordable credit facilities as a useful method to tackle the lack of capital within pastoral and agro-pastoral communities.

Furthermore, livestock prices on the East Pokot markets have to improve so that the pastoralists can convert their livestock into capital and be able to purchase animal feed. For a long time, an efficient system for livestock sell-off had been in use in Marigat district, Baringo. The government organised an annual event, the *Kimalel Culture Fair and Goat Auction*, to help the East Pokot pastoralists to sell-off their animals for fair prices and thus tackle poverty. Such a system could be adapted for the East Pokot region to foster pastoral resilience via a regular income, which can be invested in animal

feed. Lastly, Schilling et al. (2014) suggest subsidising animal feed during times of drought to enable the pastoralists to purchase animal inputs rather than having to sell their livestock. However, it is important to keep in mind that the provision of subsidised animal feed can only be a short-term measure for lowering the effect of resource scarcity in the Kerio Valley, as it leads to dependency and does not offer a sustainable solution.

Motivations towards the *Pre-Agreed Sharing of Grazing Grounds*

Close to 60 % of the participants named the *Pre-Agreed Sharing of Grazing Grounds* as their least favourite option for acquiring animal feed. Furthermore, the *Pre-Agreed Sharing of Grazing Grounds* is not perceived as similarly beneficial as the other two predefined options. Only a small number of participants was able to think of advantages arising out of the pre-agreed use of communal pastures. The most prominent advantage is the promotion of peace between the communities and the steady animal feed supply, followed by low costs and the communal exchange of knowledge, wealth, culture, and diversity. It was especially surprising that some participants named the promotion of peace as a key benefit, considering the number of publications identifying communal pasture use as a central driver of the Kerio Valley conflict (Elfversson, 2016; Kidake et al., 2016; Muricho et al., 2017). However, Schilling et al. (2014) support my findings when stating that grazing arrangements have a positive effect on the relations between communities by creating bonds. The promotion of peace, in combination with the communal exchange of knowledge, wealth, culture and diversity, should be considered a crucial aspect of communal pasture use. This especially holds true for the fostering of mutual relations between the Pokot and the Marakwet.

Furthermore, the low costs connected with the previously agreed sharing of pastures are a key benefit for the participants. Communal pasture use is traditionally not connected to high monetary inputs. The East Pokot arrange the communal pasture use through a traditional ritual. A meal, usually the meat of a bull, is shared between the communities and thus confirms the mutual agreement to communal pasture use (Pilly, 2012). Therefore, the sharing of grazing grounds was traditionally an affordable coping strategy and widely used within the East Pokot community (Elfversson, 2016; Muricho et al., 2017; Mutsotso, 2013).

Considering that the migration to adequate (shared) pastures has been the typical coping strategy in the East Pokot pastoral community during times of animal feed scarcity, it is surprising that the majority of participants rated the *Pre-Agreed Shared Grazing Grounds* as their least favourite option.

While more than half of the participants argued that the relations between the Pokot and Marakwet communities might be improved through communal pasture use, a large number of participants also perceived the pre-agreed communal use of grazing grounds as a possible source of conflict. The

possible promotion of peace and understanding between the Pokot and Marakwet stands in stark contrast to the possible acceleration of conflict brought about by communal use of pasture. While 53 % of the participants perceive the *Pre-Agreed Sharing of Grazing Grounds* as an effective option for creating peace between the communities, 85 % of the participants see a heightened potential for conflict in the communal use of pastures. The perceived negative effect significantly outweighs possible positive effects, rendering communal pasture use a risk to peace rather than contributive to it, even when conducted within a certain regulatory framework. Different publications substantiate my findings when they determine the Pokots' traditional coping strategy, the migration to fertile lands and sharing of pasture with other communities, as a major driver of the Kerio Valley conflict (Elfversson, 2016; Kidake et al., 2016; Muricho et al., 2017). It is very likely that the East Pokot are no longer willing to engage in communal pasture use because they are tired of the conflict which has lasted for over 50 years. Mutsotso (2013) similarly argues that the East Pokot started to neglect traditional pastoral activities as a reaction to the conflict and have been trying to adjust their livelihood accordingly.

One question remains: Why do the East Pokot perceive the sharing of grazing grounds as a source of conflict, even when communal pasture use has been agreed upon in advance? One possible answer is given by Elfversson (2016). She sees the erosion of customary authority within the East Pokot community as a major problem for communal pasture use. Elfversson (2016) states that the elders, once highly involved in the agreement on the communal use of pastures, are losing their authority. Especially the youth do not obey the traditional hierarchies and customs anymore. The missing basis for agreement and regulation in the communal use of pasture could be a major reason for the high conflict potential that comes with this strategy. Pilly (2012) delivers an example of how the neglect of traditional practices within communities can lead to conflicts. The case study describes the communal pasture use between three communities, the Pokomo, Orma and Wardei, in the Tana River district. Traditional customs, practised by the Pokomo and Orma, helped to keep the use of pastures as commons peaceful. However, the Wardei migrated into areas inhabited by the Pokomo and Orma to feed their animals. The Wardei did not engage in traditional customs when using the communal pastures on Pokomo and Orma land, leading to violent incidents. This example shows how the lack of an intact rule-based structure and compliance with this structure interferes with the peaceful use of commons. The problem of unregulated communal resource use can be traced back to Hardin's (1968) tragedy of commons, which is comparable to the problems within the communal resource use between the Pokot and Marakwet in the Kerio Valley. Limited pasture is used by multiple stakeholders, thus leading to overuse and conflicts. Nonetheless, Ostrom (2015) states that the peaceful use of commons is possible if rules and principles are implemented. Applying Ostrom's (2015) findings to the Kerio Valley shows the urgency to create a framework for the use of pastures as commons which is recognised by all stakeholders. Implementing such a framework could raise the East Pokots'

motivation towards communal pasture use. The development of the *Kolowa Declaration* in 2002 was the first step in the right direction. This declaration implemented a framework for the communal use of resources in the Kerio Valley. The period of peace, lasting until 2016, showed how effective a framework like this can prove. However, the renewed outbreak of conflict in 2016 demands a change in the approach to communal pasture use. Multiple publications mention the importance of bottom-up principles, where traditional approaches to communal pasture use are strengthened (Cousins, 1996; Pantuliano & Wekesa, 2008; Pilly, 2012; Tah, 2014). Building a new framework on the traditional customary regulation mechanisms could be key to increase the willingness of the East Pokot to engage in communal pasture use, while simultaneously mitigating the conflict potential of this specific strategy for acquiring animal feed.

Frequency of use and feasibility of the predefined options for acquiring animal feed

Any measures taken to lower resource scarcity and mitigate the conflict in the Kerio Valley should be implemented in the correct time period. The findings of the present study suggest that the period where additional animal feed is required falls between the months of January and May. It overlaps with the dry season in the Kerio Valley, which officially lasts from January to March (County Government of Baringo, 2018). Furthermore, the participants named the months of April and May as times of animal feed scarcity. Official government recordings do not define these two months as dry months. However, these two additional months of feed scarcity can be traced back to climatic changes in the Kerio Valley. Baringo and Turkana show an increase in the frequency of droughts during the last 10 years (Kidake et al., 2016; Opiyo et al., 2015). Huho (2012) finds that the drought circles have become narrower, from droughts occurring every five to ten years to almost yearly occurrences. Climatic changes worsen the already harsh conditions in the Kerio Valley and must be taken into consideration in the resource-related conflict transformation. The defined period – January to May – is vital for mitigating resource-related conflicts through the implementation of strategies for overcoming resource scarcity. According to Mutsotso (2013), the dry season bears a high potential for conflict because it forces the East Pokot to access areas in the border region between Marakwet East and East Pokot in the search of fertile pasture. Enabling the East Pokot to cope with their animal feed scarcity during this specific time period could be key in the Kerio Valley resource-related conflict transformation.

Regarding the motivations of the participants towards the predefined options for acquiring animal feed, it is also noteworthy that the vast majority displayed a positive attitude regarding the feasibility of the presented options. Close to all the participants rated the options as feasible in times of pasture scarcity. This acceptance of the different strategies for acquiring animal feed is vital because it meets Galtung's and Fischer's (2013) requirements for sustainable, bottom-up conflict transformation.

Galtung and Fischer (2013) stress how important it is that the process of conflict transformation is accepted by the people who are affected by the conflict. The transformation should be started by creating a new reality in the Kerio Valley, in which the contrary goals of the conflicting parties are replaced by sustainable solutions. Overcoming feed scarcity through the provision of strategies for acquiring animal feed which is accepted by the Pokot will fulfil Galtung's and Fischer's (2013) demands.

5.3 Factors Influencing the East Pokots' Motivations towards the Predefined Options for Acquiring Animal Feed

The results indicated that various factors influence the participants' choice of predefined options for acquiring animal feed. These factors are described as capabilities in the present thesis and summarised into three overarching categories: sociodemographic factors, markets, and conflict exposure. I will discuss these influencing factors and point out their significance in the resource-related conflict transformation in the Kerio Valley.

Sociodemographic factors

Four sociodemographic factors potentially influence the participants' motivations toward the three strategies for acquiring animal feed: age, gender, livelihood, and monthly household spending.

Young participants between the age of 18 to 38 tended to prefer communal pasture use. Omollo et al., (2018) and Doss and Morris (2000) found a similar correlation in their publications. Doss and Morris (2000) examine a significant correlation between the age of farmers and their adaption to advanced cultivation practices in Ghana. Omollo et al. (2018) hypothesise that the age of pastoralists and agro-pastoralists has a significant influence on their willingness to participate in fodder production. The publication predicts but fails to establish a negative correlation between age and the adaption to new fodder production technologies in the Makueni and Kajiado Counties, Kenya. My results do not confirm the hypothesis of Omollo et al. (2018), because a converse trend between age and motivation towards new options for acquiring animal feed can be identified. Younger participants, from the age of 18 to 38, tend to favour the traditional approach for acquiring animal feed: the communal use of pasture. The examined trend can be justified by four specific reasons connected with young age: lack of labour, knowledge, wealth, and increased conflict potential. The *Cultivation and Conservation of Pasture* is a labour-intensive strategy for acquiring animal feed, with the household members usually functioning as the pool of labour. Doss and Morris (2000) and Manyeki et al. (2013) state that younger participants, due to their smaller households, are not able to mobilise as many household members for work as older participants and tend to prefer methods for acquiring animal feed that are less

labour-intensive. This could also be a crucial factor determining the preference of communal use of pastures among the younger Pokot. My findings indicate a significantly lower number of household members for young homestead heads compared to older ones. However, not only the number of household members is crucial for the labour force, but the number of members which are able to take part in the cultivation and conservation of pasture (Doss & Morris, 2000). Additionally, techniques for cultivating and conserving pasture as forage could be lesser known among the East Pokot youth. Multiple publications identify a correlation between the number of extension visits and the access to information regarding new agricultural technologies and the adaption thereof (Doss & Morris, 2000; Lugusa et al., 2016; Manyeki et al., 2013). Age could play a major role with regard to the knowledge gap when it comes to alternative agricultural practices. The youth might have reduced access and little exposure to new agricultural practices which makes it harder for them to gather knowledge of agricultural practices other than communal pasture use. Lastly, the wealth of pastoralists and agro-pastoralists influences their motivations towards new agricultural technologies. According to Doss and Morris (2000), land ownership and the amount of money owned are crucial factors for the adoption of new agricultural technologies. Omollo et al. (2018) state that age is important in wealth accumulation, with younger participants usually being less wealthy than older ones. The lower access to indicators of wealth, such as land and money, among the youth crucially lowers their motivation for engaging in strategies such as the *Purchase of Animal Feed* or the *Cultivation and Conservation of Pasture*. It also explains their stronger motivation for engaging in communal pasture use, where lower costs are expected by the participants. However, the monthly household spending of the participants does not correlate with their age, indicating that there is no difference in wealth levels between the youth and the elders. Doss and Morris (2000) state that wealth is not only measured through the availability of money but also through other crucial resources, such as land ownership. Furthermore, monthly household spending, as examined in the present research project, is influenced by other factors, such as household size, and it is, therefore, questionable whether it can accurately represent the actual wealth of the participants. Lastly, conflict exposure can influence the preference of communal pasture use among the Pokot youth. It is possible that the youth, compared to the older East Pokot, are more willing to risk conflict arising out of communal use of pastures because of their higher exposure to the Kerio Valley conflict and their role in it. Elfversson (2016) and Schilling et al. (2012) state that the youth were actively involved in the conflict as warriors and frequently performing cattle raids.

Secondly, female participants are more motivated to engage in the *Cultivation and Conservation of Pasture* than male participants. Furthermore, they show a very low motivation towards the *Purchase of Animal Feed*. Omollo et al. (2018) determined gender as a significant factor in the adaption of agricultural practices too, especially in the uptake of fodder production practices. However, the publication states, in contrast to my findings, that female-headed households are less likely to switch

to fodder production than male-headed households, because of the required labour intensity and their lacking access to agricultural information, training and extension services. Doss's and Morris's (2000) conclusions stand in line with the findings of Omollo et al. (2018) but suggest that gender, considered in isolation, should not be seen as the significant influence on the choice to strike up agricultural practices. The publication points out that the influential factors are hidden in factors that differentiate between men and women on a social scale, such as wealth, access to information, labour, and education. Therefore, it is important to identify such differences between male and female participants within my study as well.

In the present study, major differences between male and female participants exist with regard to their monthly household spending, conflict exposure and herd size. Female participants tend to have lower monthly spending than male participants. Thus lower wealth, measured through the access to different monetary resources, correlates with a lower motivation to engage in new agricultural practices (Doss & Morris, 2000; Omollo et al., 2018). In the present research project, this claim was not confirmed. Instead, female participants tended to prefer agricultural practices, meaning the *Cultivation and Conservation of Pasture*, as a method for acquiring animal feed. This mismatch between the literature and my findings can be explained by the selection of the three predefined options for acquiring animal feed that was presented to the participants. One of the predefined options, the *Purchase of Animal Feed*, is perceived as expensive by nearly all participants. Female participants' lower monthly spending, compared to the monthly spending within the group of male participants, could indicate that it is less feasible for them to purchase animal feed during times of scarcity. This could explain the female participants' low motivation towards purchasing animal feeds as a strategy for overcoming resource scarcity. The low motivation of the female participants towards communal pasture use can be explained when considering their high conflict exposure. Mutsotso (2013) argues that the reduced willingness to engage in the communal use of pasture is connected to an experience of intense conflict because it creates distrust and hostility between different communities. Due to their high exposure to conflict, female participants might show a more distinct need for a method to acquire animal feed that is not reliant on interactions with other communities. Cultivating and conserving pasture, on the other hand, does not require much interaction and is perceived by the participants as an option that leads to greater independence.

Lastly, the female participants' lower numbers of livestock, compared to the male participants, could determine their preference of the *Cultivation and Conservation of Pasture* as a strategy to overcome animal feed scarcity. Lugusa's (2015) study on fodder production groups in Baringo County supports my hypothesis. Here, lower livestock numbers positively affect the engagement in fodder production groups. The increase of wealth through higher livestock numbers is seen by Lugusa (2015) as a reason for participants to engage in other ways of acquiring animal feed than the cultivation of pasture. This stands in line with the tendency of female participants to prefer the *Cultivation and Conservation of*

Pasture, to have lower livestock numbers and to have lower monthly spending as compared to male participants. My findings indicate that the female East Pokot population would prefer the *Cultivation and Conservation of Pasture* as a strategy to overcome resource scarcity. Furthermore, strategies that require large monetary investments or that are dependent on the interaction with other communities seem less suitable to this specific sub-group among the East Pokot population in the resource-related conflict transformation.

The size of the monthly household spending seems to have a significant influence on the East Pokots' motivations towards strategies for acquiring animal feed as well. Participants with higher monthly household spending typically prefer the *Purchase of Animal Feed* over the other two predefined options. Kiprop et al. (2017) discussed similar findings in their publication on farmers' willingness to pay for irrigation in the Kerio Valley. He determined a positive correlation between the willingness of farmers to pay for irrigation and their size of income. A higher income was shown to enable the farmers to pay for irrigation water. The findings of Kiprop et al. (2017) can be related to the present research. Higher monthly household spending also indicates greater monetary resources and therefore opens up the possibility to pay for animal feed. However, as already mentioned above, the size of monthly household spending is influenced by other factors as well, such as household size, and is therefore not the most reliable indicator for the participants' income or wealth.

The participants' livelihoods do not statistically correlate with their preferences of the predefined options. However, a large number of the participants who prefer the *Pre-Agreed Sharing of Grazing Grounds* over the other predefined options are pastoralists. This finding is particularly noteworthy because multiple publications have determined a transition among the pastoral communities from the traditional pastoral livelihood to an agro-pastoral and more diverse one, which has made migration and communal pasture use less dominant coping strategies (Fratkin, 2006; Hjort, 1981; Österle, 2008; Pilly, 2012). The large number of pastoralists who chose to engage in communal pasture use shows that parts of the East Pokot population have not completed the transition from a nomadic to a sedentary lifestyle. This stands in line with Fratkin's (2006) findings, which indicate that the Pokot community has not engaged in the livelihood transition to the same degree as other pastoral communities in Kenya. This slower transition is a major factor hindering the Pokot pastoralists from increasing their resilience to resource scarcity. However, such a transition could be a key element for conflict mitigation. One possible reason why the East Pokot community only partly engages in the transition could be the lacking knowledge of agricultural practices. I hypothesise that East Pokot agro-pastoralists have more experience in agricultural practices, compared to the pastoral population, which increases their motivation to engage in strategies for acquiring animal feed that differ from those of traditional pastoralists. The findings of Omollo et al. (2018) support my assumption. They determine a significant effect between farming experience and the adoption of new agricultural practices to acquire animal feed. Therefore, it seems important to specifically address the East Pokot

pastoralists during the process of a resource-related conflict transformation. On the one hand, a strategy must be developed that is similar to the traditional communal pasture use, which can help acquire animal feed in the short run. On the other hand, pastoralists' familiarity with agricultural practices must be increased, thus enabling the transition from a nomadic lifestyle to a sedentary one.

The influence of education on the participants' motivations towards the predefined options could not be determined. Nevertheless, multiple publications show that the educational level has a significant influence on the shift to new agricultural approaches. Manyeki et al. (2013) see a correlation between a higher educational level and the deployment of natural pasture improvement technologies in the ASALs of Kenya. Kiprop et al. (2017) support the findings of Manyeki et al. (2013) when stating that farmers with a higher educational level are more willing to pay for irrigation water. The publication determined an increase in the willingness of 2.97 % per additional year spent in school. They explain this increase by stating that higher education helps the farmers in understanding water scarcity issues and long-term risk mitigation. Unfortunately, a low educational level among the participants prevailed in the present study, rendering it impossible to examine the influence of education on the East Pokots' motivations towards the predefined options. However, education should still be considered as an influential factor in the resource-related conflict transformation in the Kerio Valley. The Marakwet, having a higher educational level compared to the Pokot, show a bigger livelihood diversification and a higher resilience to pasture scarcity. This indicates a similar trend as the ones examined by Kiprop et al. (2017) and Manyeki et al. (2013). Therefore, I argue that the lower educational level is a relevant factor preventing the East Pokot from engaging in alternative options for acquiring animal feed. It is, therefore, vital to consider the educational level in the resource-related conflict transformation in the Kerio Valley.

Influence of Markets

Multiple authors identify a significant influence of livestock markets on the pastoralists' and agro-pastoralists' abilities to engage in new practices for acquiring animal feed. Low livestock prices are determined as an especially limiting factor when it comes to increasing the farmers' drought resilience. Iiyama (2006) examined a negative correlation between low livestock prices and the motivations of households to enhance their livelihood in the Kerio River Basin. Hjort (1981) argues that low livestock prices hinder pastoralists from engaging in practices that may help them to cope with droughts, such as the purchase of fodder or increased herd quality.

The present research project could not examine a correlation between the local livestock market prices or the market use frequency of the participants and their motivations towards the predefined options for acquiring animal feed. However, the specific local markets used by the participants seem to influence the participants' choice of strategy for acquiring animal feed. Participants who chose the

communal pasture use as their preferred option were likely to use the Takaiwa market as their local market. It was not possible to characterise the Takaiwa market based on literature. Nonetheless, key informants provided helpful information[6]. Takaiwa market comes in handy for livestock farmers and traders alike, due to its proximity to bigger towns, e.g. Kitale, Eldoret, Iten and Kabanet. A good road network allows all year long-accessibility. The market is located in an area with little conflict exposure. Therefore, it was not forced to close during times of conflict. Additionally, the livestock sold in the market has high quality because the surrounding environment offers adequate pasture and access to water sources. The information gathered from key informants helps to understand why the group of participants who frequent the Takaiwa market typically prefer communal pasture use over other options for acquiring animal feed. I argue that the availability of animal feed and the low conflict exposure around the Takaiwa market are two crucial factors leading to this trend. A very low conflict exposure also characterises the group of participants using the Takaiwa market. Because of their low exposure to conflict, these participants have fewer negative experiences and expectations when it comes to communal pasture use (Mutsotso, 2013). Furthermore, all the participants who use the Takaiwa Market come from Mirkissi, which is located close to the border to West Pokot. The proximity to West Pokot enables the participants to migrate into areas owned by the same ethnicity in search of pasture. Communal pasture use within the Pokot community does not carry the same conflict potential as the shared use of pasture with the Marakwet or Turkana, especially because Pokot regard pasture as commons anyways (Campbell et al., 2000; Fratkin, 2006). The people of Mirkissi might simply not need to engage in methods to acquire animal feed other than traditional communal pasture use. Additionally, the group of participants using the Takaiwa market have low household spending. As already mentioned, low income, as well as low conflict exposure, have both been found to impede the shift to agricultural practices and to limit the ability to purchase feed during times of scarcity. The East Pokot who reside in the area bordering West Pokot seem to favour communal pasture use over the other alternative strategies for acquiring animal feed presented to them.

Conflict Exposure

The present study does not reveal a significant correlation between conflict exposure and the participants' preference regarding the presented alternative options for acquiring animal feed. This indicates that there is no specific need to address the East Pokot population according to their conflict exposure in the resource-related conflict transformation. However, a descriptive analysis of the results shows that among the group of participants who preferred the *Pre-Agreed Sharing of Grazing*

[6] The procedure used for the key informant interviews is explained in Chapter 3.1.

Grounds as a strategy for acquiring animal feed, many are characterised by low conflict exposure. In stark contrast, the group of participants who preferred the *Purchase of Animal Feed* during times of scarcity is characterised by high conflict exposure. This stands in line with the already mentioned findings by Mutsotso (2013), who identifies a decline in cooperation between communities with a higher degree of conflict exposure. My findings support the correlation between conflict exposure and the motivation to engage in certain options for acquiring animal feed. The trend for female participants, who tend to be more exposed to conflict, to prefer the *Cultivation and Conservation of Pasture* whilst rejecting the *Pre-agreed Sharing of Grazing Grounds* and the *Purchase of Animal Feed* indicates a reduced willingness to cooperate amongst those who are exposed to a high degree of conflict. On the other side, the group of participants from Mirkissi, who show very low conflict exposure, typically preferred communal pasture use, which indicates that a lower conflict potential could have a positive effect on the willingness to cooperate in order to acquire animal feed. Therefore, I assume that conflict potential is an influential factor when it comes to the East Pokots' preference of specific strategies for acquiring animal feed, even though my data did not provide statistical proof for this hypothesis.

The reason why my results do not show a significant correlation between conflict potential and the participants' motivations towards the predefined strategies for acquiring animal feed could be a possible bias. The participants' conflict exposure, including their involvement in the conflict, is a sensitive topic. Participants might have felt intimidated by questions about this topic. This is even more true because the enumerators were Marakwet and therefore from the formerly opposing conflict party. It is highly probable that participants did not give entirely honest answers or held back critical information, especially if they were themselves highly affected by the conflict. This bias becomes visible in the conflict exposure of the male youth. This group self-characterised as being exposed to a low level of conflict, although it is well known that they are actively involved in the conflict as warriors (Elfversson, 2016; Schilling et al., 2012). I assume that the participants did not mention their real conflict exposure out of self-protection and thereby biased the data.

5.4 The Impact of the Predefined Options on the East Pokots' Conflict Potential and their Livelihoods

The participants' motivations towards the predefined options are crucial for a sustainable conflict transformation in the Kerio Valley's resource-related conflict. Nonetheless, Galtung and Fischer (2013) state that the participants need not only accept the solutions to overcome the root conflict but also the transformation itself. Therefore, it is important to take a close look at how the predefined options may influence the conflict potential of the participants. This step will reveal if the participants identify a potential for conflict mitigation in the different proposed strategies for requiring animal

feed. Furthermore, examining the influence of the predefined options on the livelihoods of the participants will give an idea of the changes in herd management that would take place if the East Pokot had access to the predefined options.

The predefined options' potential for conflict mitigation in the Kerio Valley

Access to the predefined options will help to mitigate the resource-related conflict in the Kerio Valley and can be a sustainable solution in conflict transformation. They seem to be capable of reducing the root conflict and changing the underlying structure of the conflict by creating a new reality, where feed resources are no longer a limiting factor. The contradicting goals of the East Pokot and the Marakwet, leading to competition over resources, can be changed to a positive goal, a new approach to acquire animal feed. Multiple publications that identify a potential for conflict mitigation in measures for acquiring animal feed, such as the ones used in the present thesis, support my findings. Nyong (2006) states that the purchase of animal feed helped to settle a conflict between farmers and herders in the Hadejia-Nguru Wetlands, Nigeria. Fratkins (2006) sees the adaption of farming practices as one way to reduce the pressure of conflict on pastoral communities in East Africa and Tah (2014) examined a significant conflict reduction between agro-pastoral and pastoral communities through communal pasture use, controlled by an institutional framework, in the Wum province, Cameroon.

However, a closer look at my results shows that only a small number of participants changed their conflict potential through access to the predefined options for acquiring animal feed. This fact can be traced back to the great number of participants who did not identify any potential for conflict in the first place, with or without access to the predefined options. It appears that the resource-related conflict is only of minor relevance for the majority of the participants. However, the high number of participants who do not foresee any potential for resource-related conflicts in the next year, with or without access to the predefined options, might also be retraceable to a bias. The *Chesengo Peace Accord* established peace between the Pokot and the Marakwet only two months before the data collection was conducted and gave the participants a new sense of security. It promised a new period of peace through fostering collaboration and communication between the communities. Peace committees were created to deal with marginalisation, conflicts and to improve the security in the region. The new measurements seem to have affected the participants' perception of the resource-related conflict potential because many were assured that the peace accord would prevent further outbreaks of conflict in the region. I assume that the hopefulness of the participants - their trust in the newly established peace - is responsible for their predictions of a low potential for resource-related conflict for the following year.

However, considering previous peace efforts in the Kerio Valley shows that peace is fragile in the region. The 2002 *Kolowa Peace Declaration* failed to bring long-lasting peace to the valley and was followed by violent outbreaks in 2016 (Elfversson, 2019b). The measures taken as part of the *Kolowa Peace Declaration* could not put an end to resource scarcity and were not able to disarm the community, thus leaving two root conflicts unsolved. The declaration only focused on the development of communal pasture use as an approach for solving the natural resource-related problems in the Kerio Valley and did not involve other strategies for lowering the resource pressure (Elfversson, 2019b). The Kerio Valley seems to be in a similar situation after the *Chesengo Peace Accord*. The problem of pasture scarcity is not yet solved, and a solution still has to be developed.

Therefore, it would be a fallacy to conclude, based on the euphoric atmosphere following the new peace accord, that there is no need for implementing resource-related strategies. It is necessary to consider the rather small number of participants who stated that their conflict potential would be lowered through access to the predefined options. They concluded that the predefined options for acquiring animal feed would have a significant influence on the resource-related conflict mitigation in the Kerio Valley. The *Chesengo Peace Accord* should not lead to a misconception of the still critical situation in the Kerio Valley and its need for a sustainable conflict transformation. If the current resource situation remains unchanged, a new conflict outbreak is only a matter of time.

Galtung and Fischer (2013) state that short-term conflict interventions, which do not target the root conflicts, can help to stop the violence, but will not succeed to transform the conflict. According to Galtung and Fischer (2013), only a sustainable conflict transformation can prevent the conflict from drifting back into violence. The period after the implementation of short-term interventions to stop violence is a critical phase in conflict transformation (Galtung & Fischer, 2013). The absence of violence disburdens the conflicting parties and gives them a sense of security. Additional interventions no longer seem urgent in this newly established peaceful situation. Nonetheless, Galtung and Fischer (2013) stress the need for sustainable peace initiatives to transform the underlying conflict, lest violence rises again. It is important to regard the predefined options' potential for conflict mitigation in the context of this bias. This helps to evaluate the small change in the conflict potential of the East Pokot as a significant result and not to underestimate the important contribution of specific alternative options for acquiring animal feed in the context of the Kerio Valley conflict transformation.

Increase in herd quality and quantity through the access to predefined options

Granting the East Pokot access to a set of alternative options and thereby increasing their availability of animal feed would lead to a higher livestock quality and quantity. My thesis examined that almost all of the participants would increase the number of cattle and fatten the animals if they had sufficient

animal feed. This finding is supported by Schilling et al. (2014), who examined an increase in pastoralists' livestock numbers correlating with the access to drought adaption options, in the Turkana community, Kenya. The publication views this correlation as a major problem and determines resource depletion and overgrazing as consequences of the higher livestock quantity. Similar problems can be predicted in the case of the Kerio Valley. If the pastoralists use the predefined options for acquiring animal feed and therefore increase the number of their livestock, it will not solve the resource scarcity. The use of the suggested options to mitigate the resource-related conflict could even backfire and intensify the competition over animal feed resources. Schilling et al. (2014) offer a solution to limit the herd size increase: offering access to the options for acquiring animal feed only during periods when animal feed is scarce. In one example, the publication suggests that the government could subsidise animal feed only during times of drought. Limiting access to the alternative options could also be used to mitigate the herd size increase and enable a sustainable conflict transformation in the Kerio Valley. Pantuliano and Wekesa (2008) add that destocking can also act as a solution to reduce the herd size, especially during times of animal feed scarcity, with market access and adequate livestock prices being crucial. However, a big herd size does have positive effects as well. It can, for example, increase the resilience to droughts. Pilly (2012) and Huho (2012) state that pastoralists use herd expansions as an adaption strategy to droughts. Larger herds mean that the pastoralists have a larger capacity to restore and compensate for livestock losses. Nonetheless, a critical look at the potential increase in herd quantity is necessary, because such an increase will intensify the existing resource pressure. Therefore, it is crucial to think about measures that could counteract a herd size increase in the resource-related conflict transformation process. Limiting the access to the alternative methods for acquiring animal feed to the critical time period of January to April seems like a feasible solution in the Kerio Valley.

Furthermore, the herd quality will increase if there is sufficient access to methods for acquiring animal feed in East Pokot. A similar effect was examined by Lugusa et al. (2016) in Baringo and Odhiambo et al. (2012) in Isiolo, Kenya. Both publications see the uptake of new agricultural practices within pastoral communities as connected to an increase in herd quality. Especially the cultivation of pasture is named as a practice that allows the pastoralists to fatten their animals. The increase in herd quality bears vital advantages for the East Pokot, as multiple publications have previously stated. Livestock quality has a significant influence on the resilience of the pastoralists to droughts since healthier animals have a higher chance to overcome the scarcity of pasture and water (Odhiambo et al., 2012; Schilling et al., 2014). Besides, healthier animals attain better prices on the livestock market. Mureithi et al. (2016) and Odhiambo et al. (2012) examined the practice of fattening animals before selling them on the market within pastoral communities in Kenya. This practice creates an income opportunity that can help the pastoralists to build up a financial buffer for times of scarcity and to increase their household spending – thus creating positive effects on the families' education and

health (Opiyo et al., 2015). Fattening animals can also enhance the livestock sell-off before droughts. Opiyo et al. (2015) identify the sell-off as a common coping strategy to drought. However, low livestock prices prevent pastoralists from selling livestock (Opiyo et al., 2015). A higher livestock quality can help the East Pokot to gain better prices for their livestock, increase their willingness to engage in destocking and improve their resilience to resource scarcity. However, livestock prices in the Kerio Valley are generally low, harming the East Pokots' ability to sell-off animals for a higher price (Mutsotso, 2013). Therefore, it is necessary to build up an adequate market integration within the Kerio Valley.

5.5 Reflection on the Methodology

The following reflection of the methodology used in the present thesis will focus on four vital parts: research design, research area and population, sampling procedure, and data collection.

External factors forced me to use a quantitative approach in my research. I am aware that the use of quantitative methods is not the standard procedure in explorative research. Therefore, I agree with Atteslander (2010) and Fredebeul-Krein (2012), who question the validity of quantitative methods when it comes to reacting to new findings during the research process. They state that a standardised, method-based approach does not offer the flexibility to identify and explore the critical content in an explorative research field. Especially the use of surveys in explorative research can lead to wrongly interpreted data, with the lack of sufficient information inhibiting the formulation of precise variables (Atteslander, 2010). The theoretical framework used in the present research helped me to narrow down the research approach and set boundaries for the key variables. Nonetheless, it was difficult to determine precise variables for the specific case of a resource-related conflict transformation in the Kerio Valley. Multiple publications suggest factors that should be taken into account, but the extent of my thesis forced me to select a number of these factors, based on my personal perception, and to potentially neglect important aspects in the process. Additionally, interpreting the collected data solely on statistical correlations and trends is difficult, especially within a complex post-conflict environment such as the Kerio Valley. Comparing quantitative results with similar findings in other publications is a possible way to find explanations for correlations and trends. Nonetheless, interpretations based on such comparisons are bound to be inaccurate, given that the circumstances are never the same.

However, the quantitative method used in the present research project is justifiable. The first field visit revealed the need for a quantitative approach because the language barrier was a more serious problem than previously assumed. Almost all the research population spoke with a specific dialect only used among the Pokot ethnical group. I could not communicate with the participants without translation and the team of enumerators, who were part of the Marakwet community, were only

partially able to speak the specific Pokot dialect. In their publication on translation issues in qualitative research, van Nes et al. (2010) state that "language is used to express meaning, but the other way round, language influences how meaning is constructed […] qualitative research is considered valid when the distance between the meaning as experienced by the participants and the meanings as interpreted in the findings is as close as possible" (van Nes et al., 2010, p. 314). The language barrier, as experienced in the field, would have biased qualitative research by creating a possibly large gap between the intended meaning of the participants and the interpreted meaning.

The research area and population used in the present research project were a product of theoretical assumptions and external constraints present in the field. The purposive selection of the three sub-locations was significantly influenced by questions of security and logistic feasibility. Even though it would have been practical to use research areas that lie further apart and at a greater distance to the Marakwet East border, it was simply not possible to do so. The violent conflict stopped only two months before the data collection was conducted, not leaving enough time to calm down the area completely. Also, the poor infrastructure limited the distances which could be travelled daily. Additionally, I intended to limit the research population based on specific demographic characteristics, namely age and educational level (see Chapter 3.2). These limitations would have enabled me to address only the main conflict actors within the East Pokot population and to thus generate more specific data for the resource-related conflict transformation in the Kerio Valley. However, the situation in the field forced me to neglect these additional limitations and use a broader research population instead. Looking back at this decision, I now recognise the broader research population as an advantage for my research, because it enabled me to create the rich database needed for quantitative analysis and to identify trends and evaluate findings representative for the entire East Pokot population. Atteslander (2010) states that a large database within quantitative research is vital for identifying trends and correlations, especially within the explorative framework. Additionally, the research process itself revealed that the broad majority of the East Pokot is affected by resource scarcity. Therefore, their needs must be considered in a sustainable resource-related conflict transformation. It was even possible to identify groups within the East Pokot population, such as the youth, whose attitude towards a resource-related conflict transformation differed from that of other groups. Limiting the research population would have rendered this complexity invisible.

It is necessary to consider that the sampling procedure caused a biased sample. Participants were randomly chosen from census lists to ensure an unbiased random sampling. However, the lists only named the homesteads heads who are, in the patriarchal Pokot culture, most likely men. The male-dominated sample, with a 38 % female and 62 % male ratio, might be due to these circumstances. Surprisingly, the bias did not manifest itself as much as expected. Choosing the sample from the listed homestead heads can be justified because of their authority and degree of decision making within the subordinated households. Another possible option would have been to select participants other than

the homestead heads, which would, however, have meant including participants not involved in decision-making. The most valuable data for the present research is generated by that part of the study population that is responsible for decision-making within the households.

The process of data collection was successful. Nonetheless, certain factors potentially influenced the outcome of this research project. On the one hand, the field team, consisting of the enumerators and their drivers, were all Marakwet. Having Marakwet in the field team and involved in the data collection within the East Pokot community bears major problems. The fact that the two ethnicities stopped their violent conflict only two months before the data collection left them still divided. Additionally, some of the Marakwet enumerators were not fluent in the specific dialect of the East Pokot. My presence, a White European in rural Kenya, surely influenced the participants' reactions during the survey as well. Atteslander (2010) states that differences in the appearance, language and culture between the interviewee and interviewer significantly influence the data collection. Participants were visibly restrained to answer sensible questions regarding their herd sizes and the conflict itself. Only inquiries and the assertion that the gathered data would be used confidentially helped some participants to open up. In my opinion, it would be more fruitful to engage enumerators from the same ethnicity in data collection, not only to ease out potential difficulties but also to create a higher level of trust and familiarity between the interviewer and the interviewee. Furthermore, I see the high dependency on the chiefs for data collection as a possible source of bias. Access to the research locations and mobilising the participants was only possible because of the chiefs of the research-locations. Personal contacts are vital in the rural areas of Kenya, especially within the East Pokot nomadic culture, which forced us to rely on the chiefs to a high degree. The chiefs contacted the participants and were present during the data collection process most of the time, in order to organise the mobilisation. I assume that their involvement influenced the participants. The chiefs interpreted the presence of ICRISAT, in whose name I was conducting the data collection, as a potential opportunity for development in their locations and were, therefore, strongly in favour of the research project. This enthusiasm might have had a potential effect on the participants as well.

Lastly, my experiences with the data collection tool MEASURE were mixed. Digitalising the survey simplified the logistics and the handling of the data collection to a great extent. There was no longer any need to print the surveys and carry them, which can be problematic in rural Kenya. The collected data was transferred onto a server, where it was stored for further processing. However, the format in which the data was transferred was not compatible with SPSS, which made post-editing necessary. Transferring the digitalised data to a format suitable for SPSS took great effort.

6 Conclusion

The present study examined the potential of three different, predefined options to mitigate the resource-related conflict in the Kerio Valley and evaluated the East Pokot motivations towards these options. The communal conflict in the Kerio Valley has existed since the 1970s and is created by a complex net of actors and drivers. A new peace agreement has managed to settle the violence between the conflicting parties, the Pokot and Marakwet, only shortly before the research was conducted. Due to the peace agreement, the circumstances are ideal for transformation and for detaining the conflict from shifting into violence again. However, sustainable conflict transformation needs to address the different root conflicts present in the Kerio Valley, by offering solutions accepted by the people concerned by the conflict. The present research project intended to support a sustainable conflict transformation by generating an understanding of how the root conflict of resource scarcity can be addressed in order to mitigate the resource-related conflict potential in the Kerio Valley. Adequate options for acquiring animal feed were identified based on previously published literature and quantitative research was carried out to measure the East Pokots' motivations towards different strategies for acquiring animal feed. Furthermore, the different strategies for acquiring animal feed were examined for their potential in the mitigation of the resource-related Kerio Valley conflict.

6.1 Summary of the Results and Discussion

Focussing on pasture scarcity and possible measures to overcome this scarcity, the present thesis has explored the resource-related conflict transformation in the Kerio Valley.

My findings enable me, within the limitations set in Chapter 4.5, to describe specific patterns in the motivations of the East Pokot towards the predefined options for acquiring animal feed and to relate these patterns to already existing scientific work. My results show a strong preference among the East Pokot of the *Cultivation and Conservation of Pasture* over the other two strategies for acquiring animal feed - the *Purchase of Animal Feed* and the *Pre-Agreed Sharing of Grazing Grounds*. Several reasons were discernible for the high acceptance of the method of *Cultivation and Conservation of Pasture* among the East Pokot population. The possibility to reduce the need for relocation, achieving independence and benefits for the family and livestock were determined as major advantages. It seems rather surprising that the East Pokot would neglect their pastoral tradition, characteristical for the rural Kenyan population, in favour of an agro-pastoral livelihood. However, my findings, which suggest a shift to a sedentary lifestyle within the East Pokot community, stand in line with a common trend in East Africa that multiple publications have previously identified. Pastoralists all over East Africa tend to diversify their livelihoods while abandoning their nomadic lifestyle. The fact that the East Pokot favoured cultivating pasture as a measure to overcome resource scarcity and their general

support for the transition from a nomadic to a sedentary livelihood highlights the large potential of this specific strategy in the resource-related Kerio Valley conflict transformation. However, it is important to consider possible negative consequences arising out of the shift from a nomadic to a sedentary lifestyle as well.

My findings show that the other two predefined options for acquiring animal feed, the *Purchase of Animal Feed* and the *Pre-Agreed Sharing of Grazing Grounds*, are significantly less accepted by the East Pokot. Purchasing animal feed was determined as too cost-intensive because of the high poverty rate within the East Pokot population. Implementing this strategy as part of the resource-related conflict transformation in the Kerio Valley must go hand in hand with improving the East Pokots' market integration so that they may liquefy their capital, which is bound in their livestock. The findings of the present study indicate that the East Pokot community are least likely to opt for pre-agreed communal pasture use, even though this method is related to the traditional approach for acquiring animal feed. The sharing of grazing grounds, whether with prior consent or not, is perceived as a major source of conflict. Additionally, a limited time period, between January and May, was determined as the period in which the predefined options would be needed most to tackle animal feed scarcity within the East Pokot community.

Furthermore, the present research project identified specific characteristics that potentially influence the East Pokots' motivations towards the suggested, predefined options: gender, age, spending power, and conflict exposure. The strategy of *Cultivation and Conservation of Pasture* is highly favoured by the female participants. *Purchasing Animal Feed* is typically favoured by younger participants, participants with higher spending power and participants with high exposure to the conflict. Male, pastoralists and participants with low conflict exposure tend to prefer the *Pre-Agreed Sharing of Grazing Grounds*. Additionally, a high share of the participants who preferred the communal use of pasture came from the sub-location of Mirkissi. A discussion of the specific characteristics influencing the participants' motivations towards the predefined options is provided in Chapter 5.3.

My findings allow the hypothesis that the predefined options will have a positive effect on the conflict transformation in the Kerio Valley by mitigating the resource-related conflict potential among the East Pokot. This hypothesis is based on the estimated change in the conflict potential of the participants through their access to the predefined options. Therefore, the participants' perceived access to the predefined options is a significant factor for lowering their potential involvement in conflicts over resources. Furthermore, the implementation of the predefined options and the resulting access to additional animal feed resources could also lead to crucial changes in the East Pokots' livelihoods. Nearly all the participants argued that they would decide to increase their herd size and herd quality if they had access to the predefined options for acquiring animal feed. This possibility of a major increase in the East Pokot livestock numbers and livestock quality must be considered in the

process of resource-related conflict transformation. Positive effects - the increase in resilience - as well as negative effects - the higher resource pressure - are vital to a sustainable conflict transformation in the Kerio Valley.

6.2 Contribution to the Conflict Transformation in the Kerio Valley

By creating a basic understanding of the direction in which future resource-related conflict mitigation projects could head, the findings of the present thesis should function as recommendations for future conflict transformation in the Kerio Valley. The significant difference between the East Pokots' conflict potential with and without the access to alternative options for acquiring animal feed suggest that such options need to be implemented. Furthermore, my results not only suggest focussing on new approaches to acquire animal feed for the resource-related conflict transformation in the Kerio Valley, but they also give a clear recommendation in which direction such approaches should head. One such promising approach seems to be the support of the East Pokot in shifting from a nomadic pastoral lifestyle to a sedentary one, focussing on the cultivation of pasture, in order to overcome animal feed resource scarcity. Initiating such a shift could be crucial for the present peace efforts. As the *Kolowa Declaration* showed, enhancing traditional communal pasture use does not lead to sustainable peace. To implement long-lasting peace within the Kerio Valley it is important to address the topic of animal feed resource scarcity, among many other conflict drivers, in an adequate way. I suggest building the resource-related conflict transformation on the cultivation and conservation of pastures. This strategy would not only help the East Pokot to acquire animal feed, but it would also allow them to diversify their livelihoods, by engaging in the selling of animal feed surpluses from the cultivation of pasture or by fattening their animals and yielding higher livestock prices on markets. However, it is vital to counteract possible negative consequences when implementing methods that presume a shift to sedentarism.

Nonetheless, the present thesis highlights that not all parts of the East Pokot community want to engage in animal feed cultivation, which should be taken into consideration in the process of sustainable conflict transformation. It is important to diversify the approaches to tackle the animal feed scarcity and not rely on a one-fit-all solution. Instead, different groups need to be addressed with different solutions. My findings show that especially the youth and traditional pastoralists should be addressed separately. For these groups, the purchase of animal feed and the use of communal pastures within a certain institutional framework could be better options for acquiring animal feed during times of scarcity. Furthermore, the options for acquiring animal feed examined in the present study should be supplemented by additional measures when used in resource--related conflict transformation. Promising additional methods are the use of seed banks or livestock insurances. Besides, it is important to keep in mind that a lower animal feed resource pressure will most probably lead to an

increase in the East Pokots' livestock numbers. Counteracting such a development is also crucial for a sustainable conflict transformation.

Additionally, the resource-related conflict mitigation is, in my opinion, closely related to the markets and the prevalent education level in East Pokot. Only the establishment of functioning livestock, seed and animal feed markets combined with the improvement of the East Pokots' level of education, the access to agricultural information and the implementation of extension services can make possible a sustainable conflict transformation.

My summarised recommendations for implementing the findings of this thesis within a process of sustainable conflict transformation in the Kerio Valley are:

- Animal feed resource-related measures, as agreed upon in the *Chesengo Peace Accord,* should be extended by approaches other than the traditional communal use of pasture.
- Actions, in the form of initiatives and projects that build crucial knowledge and infrastructure, should promote a shift from the nomadic pastoral to a sedentary lifestyle within the East Pokot community.
- The findings of this thesis should be used to address particular groups within the East Pokot community, who need to be treated with special attention in the resource-related conflict transformation and who could function as leverage in conflict mitigation.
- Projects and initiatives should not only focus on resource-related measures but also address education and markets, as they are interrelated.
- A potential increase in livestock numbers, enabled by lower animal feed resource pressure within the East Pokot community, should be considered and counteracted.

6.3 Implications for Future Research

The present thesis complements the existing literature on conflict transformation in the Kerio Valley, which is mainly focused on the stakeholders involved in the peacebuilding process, offering insights into potential practices for resource-related conflict mitigation. The findings of my thesis suggest that future research on resource-related conflict mitigation in the Kerio Valley should head into three specific directions.

First, future research should build upon the hypotheses, trends and correlations examined in the present thesis. A possible starting point is the East Pokots' preference of the *Cultivation and Conservation of Pasture* as a strategy for acquiring animal feed. With regard to this strategy, the development of a framework for implementing such a strategy and its feasibility in the Kerio Valley are most relevant. Additionally, the possible benefits and problems related to the shift from a nomadic to a sedentary practice in the specific case of the Kerio Valley Pokot community need to be further

researched, especially regarding the findings of Fratkin et al. (2006) and the issue of overthrowing indigenous knowledge and cultural heritage. This topic could be examined in the West Pokot community, which already adapted agro-pastoral practices to a higher degree than the East Pokot community. Furthermore, the trends and correlations identified in my research should be analysed further. The specific groups who differ from the majority in their motivations and capabilities regarding the predefined options for acquiring animal feed should be examined with regard to their roles in the resource-related conflict transformation. Furthermore, it is vital to take a closer look at the livestock composition of the East Pokot. In my findings, I was able to identify a shift from cattle-centred pastoralism to goat-centred pastoralism. The herd composition is crucial for developing and implementing strategies for acquiring animal feed, and therefore the extent of this shift should be identified for the East Pokot.

Second, additional approaches for resource-related conflict mitigation in the Kerio Valley should be examined for feasibility. One way is to shift the focus from solutions that grant access to animal inputs to approaches that lower the resource pressure. For example, early warning systems, livestock insurances or new forms of income for higher livelihood diversification could be suitable options.

Third, the conflict transformation is not only limited to pasture but also to other natural resources such as water and multiple further factors. As discussed in Chapters 1.5 and 2.3, the Kerio Valley conflict is due to a complex net of different root conflicts, and they all need to be addressed for a sustainable conflict transformation to work. Therefore, it is important to address each of the root conflicts individually and to thus support the efforts in conflict mitigation. Only a transformation of every single root conflict can bring lasting peace to the Kerio Valley.

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8 Annex

8.1 Questionnaire

Consent form

Hello, we are the *International Crops Research Institute for the Semi-Arid Tropics*, working with Egerton University. We are conducting a study to understand animal feed resource-related issues in the Kerio Valley. I wish to inform you that you are one of the selected participants for this study.

You will be asked a series of animal feed resource-related questions which will take approximately one hour to complete. The conversation will be recorded and the information you will provide will be included in this study and further presentations. We will not share raw data; it will be reported anonymously and your confidentiality as a participant in this study will remain secure. Your participation in this study is voluntary. We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview at any time.

You may ask more questions about the study at any time. For questions comments or concerns about the study, contact Roman Spiegelsberger (roman.spiegelsberger@gmail.com)

If you wish to participate in this study, please tick the following box and sign with your name. This indicates that you have acknowledged the above and agree to participate in this study.

☐ I acknowledge and agree to the conditions under which the study is conducted.

Signature: …….

Name of the respondent:	Interview location:
Name of the interviewer:	Date:
Respondent's telephone number:	Time:

A. Demographic information

1) Name of the interviewer

2) Name of the respondent

3) Respondent's telephone number

4) What is your marital status?
☐ married /☐ single

5) How old are you?

6) In which village do you live?

7) How many people live in your household?

8) What is your highest level of education? (Single Choice)
☐Did not complete any school
☐Completed primary school
☐Completed secondary school
☐Completed Middle-Level College
☐Completed University

9) How much do you spend on your household per month? (in KES/month)

10) What is your main source of income? (Single Choice)
☐Pastoralism (depend on livestock for at least 50% of their income and basic needs)
☐Agro-pastoralism (under 50% of their income and basic needs derive from livestock)
☐Any other (specify...)

11) Additional source of livelihood (Multiple Choice)
- ☐Beekeeping
- ☐Farming
- ☐Employee (in a company)
- ☐Self-employed (driver, shop owner etc.)
- ☐Trading (non-livestock products)
- ☐No other livelihood
- ☐Any other (specify...)

12) What is your ethnicity? (Single Choice)
- ☐Pokot
- ☐Marakwet
- ☐Any other (specify...)

B. Motivation towards the predefined options for acquiring animal feed resources

13) Please think about the last year. Was there a time when you were not able to provide sufficient feed for your animals? (Single Choice)
- ☐ Yes / ☐ No

If question 13 = "Yes" ask the following questions 14/15/16 and go on with question 18

14) How many months were you not able to provide sufficient feed for your animals? (Number of months)

15) In which specific month did the resource feed scarcity occur? (Multiple Choice)
- ☐January
- ☐February
- ☐March
- ....

16) What was the reason why you were not able to provide sufficient feed during this/these month/s? (Multiple Choice)
- ☐Climatic conditions
- ☐Overgrazing
- ☐Big herd size
- ☐No possibility to migrate for grazing
- ☐Any other (specify...)

If question 13 = "No" then ask question 17

17) Why did you not have problems feeding your animals? (Multiple Choice)
- ☐Destocked
- ☐Planted animal feeds
- ☐Migrated to better pastures
- ☐Sufficient pasture
- ☐Any other (specify...)

18) Please think of next year. Do you foresee a time when your livestock will not have enough to eat? (Single Choice)
- ☐ Yes / ☐ No

If question 18 = "Yes" ask question 19/20 otherwise continue with question 21

19) How many months were you not able to provide sufficient feed for your animals? (Number of months)

20) In which specific month did the animal feed scarcity occur? (Multiple Choice)
- ☐January
- ☐February
- ☐March
- ...

21) **Opening Question**: Please think about the times when you will have problems feeding your animals. Are there any options that could help you to overcome times of scarcity? (Multiple Choice)
- ☐Purchase animal feed
- ☐Cultivation or conservation of pasture
- ☐Sharing adequate pasture with other communities
- ☐Livestock grazing on plant residuals
- ☐Migration to adequate pastures
- ☐Destocking
- ☐Irrigation for pasture growth
- ☐Any other (specify…)

Purchase of Animal Feed (show picture "Purchase of Animal Feed" to the participant):

22) Which advantages do you perceive regarding the option "**Purchase of Animal Feed**"? (Multiple Choice)
- ☐Low costs
- ☐Promotes a steady supply of animal feed
- ☐Provides independence
- ☐Reduces the need for relocation
- ☐Animal feed quality
- ☐Source of income
- ☐Convenient to use
- ☐Improved animal health and better prices
- ☐Any other (specify…)

23) Which disadvantages do you perceive regarding the option "**Purchase of Animal Feed**"? (Multiple Choice)
- ☐Access to market
- ☐Creates dependency on others
- ☐High costs
- ☐Inconvenient to use
- ☐Not suitable through large livestock numbers
- ☐Animal feed quality
- ☐Any others (specify…)

Cultivation and Conservation of Pasture (show picture "Cultivation and Conservation of Pasture" to the participant):

24) Which advantages do you perceive regarding the option "**Cultivation and Conservation of Pasture**" (Multiple Choice)
- ☐Convenient to use
- ☐Improved animal health and better prices
- ☐Low costs
- ☐Opportunity to gain knowledge on coping with lack of animal feed
- ☐Provides independence
- ☐Animal feed quality
- ☐Reduces the need for relocation
- ☐Source of income
- ☐Steady supply of animal feed
- ☐Any others (specify…)

25) Which disadvantages do you perceive regarding the option "**Cultivation and Conservation of Pasture**"? (Multiple Choice)

- ☐High costs
- ☐Inconvenient to use
- ☐Lack of knowledge of cultivation and conservation practices
- ☐Land ownership
- ☐Not suitable through large livestock numbers
- ☐Potential source of conflict
- ☐Animal feed quality
- ☐Size of land
- ☐Unreliability due to weather uncertainties
- ☐Any other (specify…)

Pre-Agreed Sharing of Grazing Grounds (show picture "Pre-Agreed Sharing of Grazing Grounds" to the participant):

26) Which advantages do you perceive regarding the option "**Pre-Agreed Sharing of Grazing Grounds**"? (Multiple Choice)

- ☐Convenient to use
- ☐Exchange of knowledge, wealth, culture and diversity
- ☐Improved animal health and better prices
- ☐Low costs
- ☐Promotes peace among communities
- ☐Reduces the need for relocation
- ☐Source of income
- ☐Promotes a steady supply of animal feed
- ☐Animal feed quality
- ☐Any other (specify…)

27) Which disadvantages do you perceive regarding the option "**Pre-Agreed Sharing of Grazing Grounds**"? (Multiple Choice)

- ☐Creates dependency on others
- ☐High costs
- ☐Inconvenient to use
- ☐Not suitable through large livestock numbers
- ☐Potential source of conflicts
- ☐Quality of the animal feed
- ☐Spread of animal diseases and parasites
- ☐Any other (specify…)

28) Please rank these three options from your favourite (1) to your least favourite (3)?
- ☐Purchase of Animal Feed
- ☐Cultivation and Conservation of Pasture
- ☐Pre-Agreed Sharing of Grazing Grounds

29) Which factors influence your decision regarding your ranking of the different options? (Multiple Choice)
- ☐Convenient to use
- ☐Land ownership
- ☐Low costs
- ☐Promotes a steady supply of animal feed
- ☐Animal feed quality
- ☐Size of livestock herd (large)
- ☐Provides independence
- ☐Any other (specify…)

30) Are there any external factors that could prevent you from using your preferred option? (Multiple Choice)
- ☐Access to the option
- ☐Conflict in the region
- ☐Inconveniences
- ☐Lack of awareness
- ☐Missing access to markets
- ☐Missing support
- ☐Size of livestock herd (large)
- ☐Any other (specify…)

31) Please think about the time of animal feed scarcity. How much would you be able to pay to feed one animal per day using your preferred option? (Single Choice + number)
- ☐Per cattle:
- ☐Per goat:
- ☐Per sheep:
- ☐Per camel:

32) Which kinds of payment methods are you willing to use to pay for your preferred option? (Multiple Choice)
- ☐Cash / M-PESA
- ☐Goods for goods
- ☐Service for goods
- ☐Any other (specify…)

33) Please think about the time when your animals will not have enough to eat. Would you be able to feed your livestock if you had access to your preferred option? (Single Choice)

☐ Yes / ☐ No

If Question 33 = "No" then ask question 34 otherwise go on with question 35

34) Why do you think that your preferred options might not help you through times of scarcity? (Multiple Choice)

☐High Costs

☐Option does not deliver enough animal feed

☐Option does not deliver a steady supply of animal feed

☐Inconvenient to use

☐Dependency on others

☐Any other (specify…)

35) Could a combination of options be a possible solution to support your livestock in times of scarcity? (Single Choice)

☐ Purchasing of Animal Feed & Cultivation and Conservation of Pasture

☐ Purchasing of Animal Feed & Pre-Agreed Sharing of Grazing Grounds

☐ Cultivation and Conservation of Pasture & Pre-Agreed Sharing of Grazing Grounds

☐ No combination

C. The influence of local livestock markets on the decision to acquire fodder resources using the preferred option

36) Do you sell livestock on your local market? (days/year)

37) Please think about the last year. How many times did you sell livestock on the market? (days/year)

If the answer for question 36 = "Yes" then go on with question 38 otherwise go on with question 45

38) What is the name of your local market?

39) How do you evaluate the livestock prices on your local market? (Single Choice)

☐Low ☐Moderate ☐High

40) Please think about the last year. Which factors affected the livestock prices of your local market? (Multiple Choice)

☐Insecurity in the region
☐High demand
☐High supply
☐Size of the livestock
☐Type of the livestock
☐Any other (specify…)

41) What could encourage you to sell livestock to use your preferred option? (Multiple Choice)

☐Higher market prices for livestock
☐Destocking
☐Assured security of animal feed
☐Feasibility of the options for acquiring animal feed
☐Accessibility to the options for acquiring animal feed
☐Any other (specify…)

42) How do you choose the livestock that you sell on the market? (Multiple Choice)

☐Breed of the animals
☐Sex of the animals
☐Old animals
☐Fattened and healthy-looking animals
☐Unproductive animals
☐Weak animals
☐Any other (specify…)

43) Provided you will get higher prices for healthier animals, would you use your preferred option to fatten your animals? (Single Choice)

☐ Yes/☐ No

44) Provided you will earn more for well-fed animals, would you increase the quality of your livestock or would you increase the herd size? (Single Choice)

☐Increase the quality of animals
☐Increase herd size
☐Both

If the answer for question 36 = "0" then go on with question 45

45) Which factors hinder you from going to the market? (Multiple Choice)

☐Access to the market
☐Livestock prices
☐Insecurity
☐Low demand for animals
☐No economical need to trade
☐Any other (specify…)

46) Would you trade your animals on the market if there was a demand for high-quality animals? (Single Choice)

☐ Yes / ☐ No

47) Would you be more willing to use your preferred option to acquire animal feed resources if you traded animals on the market? (Single Choice)

☐ Yes / ☐ No

D. The impact of the predefined option on the conflict potential and livelihood:

Impact on conflict potential

48) Please think about the next year. How likely is it that you will have conflicts over pasture? (Ranking from 0 "not likely" to 5 "very likely")

Not likely					Very likely
0	1	2	3	4	5

49) Please think about the next year. How likely is it that you will have conflicts over pasture if you can use your preferred option to acquire animal feed? (Ranking from 0 "not likely" to 5 "very likely")

Not likely					Very likely
0	1	2	3	4	5

Conflict exposure

50) Please think about the times of conflict in the Kerio Valley. Were you affected by the conflict? (Multiple Choice)

☐lnjured
☐Loss of family members/friends
☐Displaced from home
☐Loss of livestock and other property
☐Interference with livelihood
☐Not directly affected
☐Any other (specify…)

51) Please think about the times of conflict in the Kerio Valley. How was your degree of conflict exposure? (Ranking from 0 "not affected" to 5 "highly affected")

Not affected					Highly affected
0	1	2	3	4	5

Changes in Livelihood:

52) Provided you have secure availability of animal feed, would you increase the quality of your herd? (Single Choice)

☐ Yes / ☐ No

53) Provided you have secure availability of animal feed, would you increase the number of animals in your herd? (Single Choice)

☐ Yes / ☐ No

A. Demographic information

54) Do you mind telling me the amount of livestock that you own? (in Numbers)

Cattle: Goat: Sheep: Camel:

55) Do you have any comments, or do you want to add something that was not covered in the questionnaire?

8.2 Extended Analysis and Results

8.2.1

Crosstab: Household Size Group * Sub-Location (n=179)

			Sub-Location			Total
			Chepkarerat	Kolowa	Mirkissi	
Household Size Groups	0 - 6 Members	Count	22	20	18	60
		%	36.7%	33.3%	30.5%	33.5%
	7 - 8 Members	Count	14	13	11	38
		%	23.3%	21.7%	18.6%	21.2%
	9 - 11 Members	Count	14	11	13	38
		%	23.3%	18.3%	22.0%	21.2%
	12+ Members	Count	10	16	17	43
		%	16.7%	26.7%	28.8%	24.0%
Total		Count	60	60	59	179
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 3.12$; $p = 0.793$

8.2.2

Crosstab Age Classes * Household Size Groups (n=178)

			Household Size Groups			Total
			<= 6	7 – 10	11+	
Age Classes	<= 30 Years	Count	35	23	8	66
		%	53.0%	34.8%	12.1%	100.0%
		Adjusted Residual	4.2	-.5	-3.8	
	31 - 46 Years	Count	14	27	15	56
		%	25.0%	48.2%	26.8%	100.0%
		Adjusted Residual	-1.7	2.1	-.5	
	47+ Years	Count	11	16	29	56
		%	19.6%	28.6%	51.8%	100.0%
		Adjusted Residual	-2.7	-1.6	4.5	
Total		Count	60	66	52	178
		%	33.7%	37.1%	29.2%	100.0%

$CHI^2 = 31.40$; $p = 0{,}000$

8.2.3

Crosstab Household Spending Groups * Gender (n=166)

			Gender		
			Female	Male	Total
Household Spending Groups [in KES]	<= 5000	Count	33	34	67
		%	49.3%	50.7%	100.0%
		Adjusted Residual	2.5	-2.5	
	5001 - 9000	Count	19	33	52
		%	36.5%	63.5%	100.0%
		Adjusted Residual	-.3	.3	
	>9000	Count	11	36	47
		%	23.4%	76.6%	100.0%
		Adjusted Residual	-2.4	2.4	
Total		Count	63	103	166
		%	38.0%	62.0%	100.0%

$CHI^2 = 7.902$ p = 0.019

8.2.4

Crosstab Market Frequency Group * Sub-Location (n=176)

			Sub-Location			
			Chepkarerat	Kolowa	Mirkissi	Total
Market Use Frequency Groups [per year]	<= 3 Sales	Count	20	25	5	50
		%	40.0%	50.0%	10.0%	100.0%
		Adjusted Residual	1.3	2.8	-4.1	
	4 - 6 Sales	Count	13	16	17	46
		%	28.3%	34.8%	37.0%	100.0%
		Adjusted Residual	-.8	.1	.7	
	7 - 12 Sales	Count	14	9	21	44
		%	31.8%	20.5%	47.7%	100.0%
		Adjusted Residual	-.2	-2.2	2.4	
	> 13 Sales	Count	11	10	15	36
		%	30.6%	27.8%	41.7%	100.0%
		Adjusted Residual	-.3	-.9	1.2	
Total		Count	58	60	58	176
		%	33.0%	34.1%	33.0%	100.0%

$CHI^2 = 19.64$; p = 0.003

8.2.5

Crosstab Conflict Exposure * Sub-Location (n=180)

			Sub-Location			
			Chepkarerat	Kolowa	Mirkissi	Total
Conflict Exposure Groups	No Conflict Exposure	Count	7	11	40	58
		%	12.1%	19.0%	69.0%	100.0%
		Adjusted Residual	-4.2	-2.8	7.0	
	Exposed to Conflict	Count	21	30	9	60
		%	35.0%	50.0%	15.0%	100.0%
		Adjusted Residual	.3	3.4	-3.7	
	Very High Conflict Exposure	Count	32	19	11	62
		%	51.6%	30.6%	17.7%	100.0%
		Adjusted Residual	3.8	-.6	-3.2	
Total		Count	60	60	60	180
		%	33.3%	33.3%	33.3%	100.0%

$CHI^2 = 55.23$; $p = 0.000$

8.2.6

Crosstab Conflict Exposure * Age Classes (n=180)

			Age Classes			
			<= 30 Years	31 - 46 Years	47+ Years	Total
Conflict Exposure Groups	No Conflict Exposure	Count	17	22	19	58
		%	29.3%	37.9%	32.8%	100.0%
		Adjusted Residual	-1.4	1.2	.2	
	Exposed to Conflict	Count	26	10	24	60
		%	43.3%	16.7%	40.0%	100.0%
		Adjusted Residual	1.3	-3.1	1.7	
	Very High Conflict Exposure	Count	23	25	14	62
		%	37.1%	40.3%	22.6%	100.0%
		Adjusted Residual	.1	1.8	-1.9	
Total		Count	66	57	57	180
		%	36.7%	31.7%	31.7%	100.0%

$CHI^2 = 10.99$; $p = 0.027$

8.2.7

Crosstab Conflict Exposure * Gender (n=180)

			Gender		
			Female	Male	Total
Conflict Exposure Groups	No Conflict Exposure	Count	18	40	58
		%	26.1%	36.0%	32.2%
		Adjusted Residual	-1.4	1.4	
	Exposed to Conflict	Count	20	40	60
		%	2.,0%	36.0%	33.3%
		Adjusted Residual	-1.0	1.0	
	Very High Conflict Exposure	Count	31	31	62
		%	44.9%	27.9%	34.4%
		Adjusted Residual	2.3	-2.3	
Total		Count	69	111	180
		%	100.0%	100.0%	100.0%

CHI² = 5.51; p = 0.064

8.2.8

Crosstab Livelihood * Sub-Location (n=177)

			Sub-Location			
			Chepkarerat	Kolowa	Mirkissi	Total
Livelihood	Agro-Pastoralist	Count	15	16	19	50
		%	25.4%	27.1%	32.2%	28.2%
	Pastoralist	Count	44	43	40	127
		%	74.6%	72.9%	67.8%	71.8%
Total		Count	59	59	59	177
		%	100.0%	100,0%	100.0%	100.0%

CHI² = 0.73; p = 0.696

8.2.9

Crosstab Goat Group * Gender (n=179)

			Gender		
			Female	Male	Total
Number of Goats Groups	<= 10 Goats	Count	33	30	63
		% within Gender	47.8%	27.3%	35.2%
		Adjusted Residual	2.8	-2,8	
	11 - 18 Goats	Count	7	21	28
		% within Gender	10.1%	19.1%	15.6%
		Adjusted Residual	-1.6	1,6	
	19 - 30 Goats	Count	15	31	46
		% within Gender	21.7%	28.2%	25.7%
		Adjusted Residual	-1.0	1,0	
	31+ Goats	Count	14	28	42
		% within Gender	20.3%	25.5%	23.5%
		Adjusted Residual	-.8	.8	
Total		Count	69	110	179
		% within Gender	100.0%	100.0%	100.0%

CHI² = 8.43; p = 0.038

8.2.10

Crosstab Livelihood * Preference of the Predefined Options (n=167)

			First Choice			
			Option 1	Option 2	Option 3	Total
Livelihood	Agro-Pastoralist	Count	3	45	1	49
		%	33.3%	30.4%	10.0%	29.3%
		Adjusted Residual	.3	.8	-1.4	
	Pastoralist	Count	6	103	9	118
		%	66.7%	69.6%	90.0%	70.7%
		Adjusted Residual	-.3	-.8	1.4	
Total		Count	9	148	10	167
		%	100.0%	100.0%	100.0%	100.0%

$CHI^2 = 1.954$ $p = 0.376$

8.2.11

Crosstab Household Spending * Household Size (n=164)

			Household Size Groups [members]			
			<= 6	7 – 10	11+	Total
Household Spending Groups [in KES]	<= 5000	Count	30	22	13	65
		%	54.5%	36.1%	27.1%	39.6%
		Adjusted Residual	2.8	-.7	-2.1	
	5001 - 9000	Count	15	24	14	53
		%	27.3%	39.3%	29.2%	32.3%
		Adjusted Residual	-1.0	1.5	-.6	
	9001+	Count	10	15	21	46
		%	18.2%	24.6%	43.8%	28.0%
		Adjusted Residual	-2.0	-.8	2.9	
Total		Count	55	61	48	164
		%	100.0%	100.0%	100.0%	100.0

$CHI^2 = 13.090$ $p = 0.011$

9 Affirmation

I, Roman Spiegelsberger, hereby declare that I am the sole author of this work. No assistance other than that which is permitted has been used. Ideas and quotes taken directly or indirectly from other sources are identified as such. This written work has not yet been submitted in any part.

Marburg, 21.03.2021