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Climate Change Adaptation in Turkana's Political Economy of Aid

Pauline Rutten
International Development Studies

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prutten@nmbu.no

Noragric

Department of International Environment and Development Studies

The Faculty of Landscape and Society

P.O. Box 5003

N-1432 Ås

Norway

Tel.: +47 67 23 00 00

Internet: <https://www.nmbu.no/fakultet/landsam/institutt/noragric>

DECLARATION

I, Pauline Rutten, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature.....

Date.....

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ABSTRACT

This qualitative master thesis research analyses how global questions of climate change adaptation manifest in Turkana's local political economy of aid and how that affects vulnerability reduction. Growing awareness of the unequal distribution of adverse climate change impacts generated an increase in climate change adaptation interventions which aimed to reduce vulnerability in the Global South (S. Eriksen, Inderberg, O'Brien, & Sygna, 2014; Nightingale et al., 2019). However, global questions arose when research and evaluations repetitively demonstrated the lack of many adaptation interventions to rise above the technical solutions, questioning if and how adaptation can decrease vulnerability (Jordan, 2019; Nightingale et al., 2019). This research conducts a case study of adaptation interventions in Turkana, drawing on qualitative data collected in Kambi Lore and Nangorchoto and county level government and NGO staff in 2019. Analysis of interviews with local people of Kambi Lore and Nangorchoto demonstrated how the convergence of poverty, exacerbated by drought, and increasing humanitarian aid forced pastoralists to diversify their livelihoods. However, alternative livelihoods remain marginal and exacerbate vulnerability. In addition, the analysis of the interventions demonstrated that adaptation is emerged in the discourses of the political economy of aid that blocks transformation of the vulnerabilities. To conclude, this study identified that Turkana's political economy of aid shapes the co-productive knowledge processes, undermining vulnerability reduction (Nightingale et al., 2019).

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1 INTRODUCTION

This thesis examines how global questions concerning adaptation's ability to decrease vulnerability manifests on local scale through a case study of adaptation interventions in Turkana, northern Kenya. Global warming drives diverse changes in climatic conditions locally, in turn manifesting melting snow and icecaps, rising sea level, more frequent and extreme droughts, wildfires, cyclones etc. (IPCC, 2014). These adverse impacts threaten the sustainability of human and natural systems. The IPCC states that greenhouse gasses are extremely likely the main cause global warming (2014). Reports of the IPCC demonstrate that current fossil fuel-led development trajectories are unsustainable and unjust (2018). Similarly, Eriksen, Inderberg, O'Brien, and Synga state that climate change is as much a problem of as for development (2014). The link between climate change and development highlighted the unequal distribution of adverse impacts; with the most vulnerable populations suffering hardest even though their contribution to climate change generally remains relatively low (O'Brien, Eriksen, Nygaard, & Schjolden, 2007; Adger et al., 2006). The unequal distribution of climate change impacts has motivated finance and adaptation interventions aimed at decreasing vulnerability in the Global South.

However, diverse studies raise questions about climate change adaptations' ability to accurately decrease vulnerability. Assessments of climate change interventions demonstrated that adaptation generally lacks to rise above technical solutions. Nightingale et al. (2019) and Pelling, O'Brien, and Matyas (2015) argue that technical solutions lack the capacity effectively reduce vulnerability. Much literature argued what caused for the general technical pathway, such as an outcome vulnerability, the lack of social science integration, depoliticizing adaptation, disregard of the political economy, and the co-production of knowledge (Jordan, 2019; Nightingale et al., 2019; O'Brien et al., 2007; Pelling et al., 2015; Scoville-Simonds, 2015; Tanner & Allouche, 2011).

This master thesis research study's in what way these global questions concerning adaptation manifest in Turkana's local political economy of aid. Turkana is perceived as a vulnerable county in Kenya that struggles with changing climatic conditions such as drought and floods (Marthews et al., 2019; Ratemo, Ogendi, Huang, & Ondieki, 2020; Schilling, Akuno, Scheffran, & Weinzierl, 2014). Semi structured interviews with local population, policy makers, and employees of developmental organisations provided data that highlight the socio-environmental shifts shaping vulnerability in Kambi Lore and Nangorchoto. In addition, the interviews provided understanding of the ways that interventions try to reduce the

processes that drive vulnerability. Findings show that Turkana's political economy of aid stands in the way for a transformative approach that undermines vulnerability reduction.

2 OBJECTIVES

The main objective of this master thesis study is to identify how global questions of climate change adaptation manifest in Turkana's local political economy of aid and what the implications for vulnerability reduction are. To address this main objective, this study utilized two sub-objectives:

Objective 1: Identify the ongoing social and environmental shifts that are shaping social inequality and vulnerability in Kambi Lore and Nangorchoto

This sub-objective is addressed through two sub-questions: 1. What are the main socio-environmental shifts and stressors taking place in Kambi Lore and Nangorchoto? 2. How do these shifts and stressors shape vulnerability in the case study area?

Objective 2: Analyse to what extent formal adaptation interventions transform or reinforce the processes creating vulnerability in Lorengelup.

This sub-objective is addressed through three sub-questions: 1. How do adaptation interventions attempt to address the social and environmental stressors in practice? 2. How do adaptation interventions enrol in existing agenda's knowledges and institutional structures and to what extent does that reinforce or shift discourses in Turkana? 3. To what extent do adaptation interventions conduct a context analysis or gain a vulnerability understanding?

3 THEMATIC BACKGROUND AND CONCEPTUAL FRAMEWORK

This chapter provides background in the global questions by reviewing literature that has investigated how adaptation responses reduce or reinforce vulnerability to climate change. Over the past decades many studies have tried to analyse how global warming is impacting human and natural systems. In doing so, critical scholarship on climate change has grown, in particular literature that challenges narrow scientific framings of climate change and necessary responses. The presented critical frameworks provided background for this study to identify how questions of climate change adaptation manifest in Turkana's local political economy of aid.

The unequal distribution of climate change has motivated finance and interventions aimed at many decreasing vulnerability in the Global South. The fossil fuel-led development trajectories of the North have caused devastating climate change impacts in the Global South (IPCC, 2014). International organisations, government organisations, bilateral aid agencies as

well as non-governmental organisations invested to a great extent in mitigation and adaptation projects, hoping to decrease the vulnerability of people in developing countries (S. Eriksen et al., 2014). Mitigation interventions have as goal to decrease greenhouse gas emissions and to limit climate change and the associated adverse impacts (Adger, Paavola, Huq, & Mace, 2006; S. Eriksen et al., 2014). Due to the cumulative nature of the greenhouse gases in the atmosphere, there will be adverse impacts over the next decades even if the international community do manage to cut emissions dramatically (IPCC, 2014). Societies will therefore have to adapt to climate change impacts to decrease climate change vulnerability (Adger et al., 2006). Adaptation stand for “the process of adjustment to actual or expected climate and its effects” (IPCC, 2014, p. 5). “In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities” (IPCC, 2014, p. 5). These adaptation projects are often aimed at increasing the resilience of people and their societies (Mikulewicz, 2019). Development organisations interpret resilience building as increasing capacity of people to cope and adapt better to climate change (S. Eriksen et al., 2014).

However, vulnerability can be interpreted in many different ways. Adaptation interventions are framed by such different interpretations, shaping the way the interventions attempt to increase resilience (O'Brien et al., 2007). Vulnerability is interpreted differently among both scholars, policymakers and practitioners. O'Brien et al identified these different interpretations as belonging to two contrasting framings, outcome vulnerability approach and context vulnerability (2007). Outcome vulnerability approach looks at vulnerability as an end point. With this approach, people are defined as vulnerable due to adverse impacts of climate change. On the other hand, context vulnerability approach looks at vulnerability as a starting point, or as an inherent condition. People are defined as vulnerable due to their current situation and struggles such as poverty, which obstructs their capacity to cope with climate change (O'Brien et al., 2007). More specifically Twigg (2015) explains that vulnerability is brought about by economic, social, cultural, institutional, and political factors that shape people's lives and environments they are part of. For example, power, lack of skills and trainings, rapid population change, livelihoods at risk, dangerous locations and unprotected infrastructure construct vulnerability (Twigg, 2015). O'Brien affirms that interventions should integrate analysis of the vulnerability context to accurately assess who is vulnerable to climate change and to adequately increase their resilience (2007). Other research also has demonstrated the need to identify the contextual conditions and processes shaping vulnerability to inform adaptation on how to increase resilience. Nightingale et al. (2019) refers to the need to look at the socio-environmental processes and their impact on

vulnerability. Synnevåg, Kabote, Nombo, Mamiro, and Mattee (2015) and Jordan (2019) emphasize the need for gender analysis in order to identify the differentiated nature of vulnerability specific to each context to adequately implement adaptation. Bearing in mind these increasing calls for contextual analysis, this study will examine the socio-environmental processes shaping the context vulnerability in Turkana.

Even though research suggests a contextual analysis is required to strengthen adaptation policy and interventions, research demonstrates that adaptation projects remain unable to rise above technical solutions which are inadequate in decreasing vulnerability. Technical solutions refer to interventions that primarily address biophysical impacts through techno-managerial measures, such as improving physical infrastructure, rather than addressing the socio-political causes of vulnerability (Nightingale et al., 2019). Pelling et al. (2015) and Cote and Nightingale (2012) state that vulnerability and resilience often is interpreted with a natural perspective neglecting the social aspect a context. They state that neglecting social science generates neglect of the context and its specific underlying struggles that cause vulnerability (Jordan, 2019; Pelling et al., 2015). In addition, Eriksen, Nightingale, and Eakin (2015) and Socoville-Simonds (2015) explain that programs depoliticize climate change adaptation which reinforces power imbalances and exacerbates vulnerability. Decision making processes in adaptation entails exercising power by contesting or complying with predominant knowledge, authority and subjectivity (Eriksen et al., 2015; Scoville-Simonds, 2015). Tschakert et al. (2016) explain that “authority refers to how power is operationalized through various actors exerting agendas and influencing outcomes in adaptation decision making”. Subjectivities refers to how individuals or groups are identified by society, shaped by values, norms, discourses and exercise of power (Eriksen et al., 2015; Tschakert et al., 2016). By neglecting these socio-political aspects of adaptation, interventions overlook the power dynamics producing subjectivities that determine whose knowledge or claims are prioritized or excluded (Tschakert et al., 2016). Accordingly, the design of interventions often suppresses local knowledges in adaptation despite research consistently demonstrating the value of integrating diverse knowledges (Hulme, 2018). Neglecting these socio-political aspects of adaptation risks reinforcing power imbalances, consequently exacerbating vulnerability (Eriksen et al., 2015). Furthermore, Tanner and Allouche (2011) suggest that developmental organisations and governmental institution need to increase awareness of political economy in climate change and development discourses. Tanner and Allouche (2011) advocate for applying an analysis of political economy on climate change and development to highlight how ideas, power and resources are conceptualised, negotiated and

implemented within adaptation. In this way they hope to generate a better understanding of the dynamics underpinning adaptation capacity (Tanner & Allouche, 2011). These different perspectives call for an increased awareness and integration of the socio-political nature of climate change adaptation to rise above technical fixes.

On the other hand, Nightingale et al. states that even focussing on socio-political aspects does not trigger improved adaptation approaches in practice. The ability of climate change adaptation efforts to rise above technical fixes is obstructed due to the material realities and socio-political systems that support the status quo approach of the “development as usual”. Nightingale et al. (2019) builds further on the Tanner and Allouche’s (2011) perspective where they highlight political economy in adaptation where power, ideas and resources shape conceptualisation. Nightingale et al. (2019) adds that the way climate change is conceptualised also generates the problem, which they call “coproduction of knowledge”. The coproduction of knowledge calls on “a critical approach to knowledge and recognize how the issues we try to solve are also products of the way they are framed and the power relations they reflect” (Nightingale et al., 2019). The global scale of the climate change problem creates a tendency to seek as complete as possible knowledge of local manifestations of climate change as well as future changes. This pursuit of knowledge drives prioritisation of scientific knowledge, excluding other knowledges and limiting knowledges to address the climate change problem (Hulme, 2018; Nightingale et al., 2019). Accordingly, climate change knowledge conceives social and environmental processes as two separate forces, ignoring the critiques of political ecology. Political ecology demonstrates how humans are active protagonists in the production of environments, including the climate and the knowledge of it (Nightingale et al., 2019). Nightingale et al. (2019) attempt to open knowledge framings by acknowledging coproduction of knowledge, making room for acceptance of uncertainty and a plurality of knowledge. This plurality of knowledge could move climate responses past the technical solutions, transforming the inequitable socio-political relations and the processes that drive vulnerability. To identify how co-productive knowledge processes may undermine vulnerability reduction, this study will explore the conceptualisation of climate change discourse in Turkana.

The questions raised about how adaptations efforts often fail to address vulnerability initiated an urge to apply a transformational approach. Research demonstrated how adaptation often does not address the contextual underlying problems and thus it remains inadequate in decreasing vulnerability (Atteridge & Remling, 2018; O’Brien, 2018). Therefore, climate change literature advocates for a transformational approach, which involves addressing

underlying problems driving both emissions and vulnerability. Few, Morchain, Spear, Mensah, and Bendapudi (2017) defined transformation in adaptation as “deliberate action, referring to interventions and processes initiated purposefully by actors with a goal of bringing about major changes”. Though, different interpretation of transformation created confusion of what constitutes as non-technical adaptation in practice (Pelling et al., 2015; Few et al., 2017). Few et al. (2017) suggests 3 typologies in which different interpretations of transformation take place, such as mechanisms of change, target outcomes in relation to climate risk, and object of change. Mechanisms of change exist out of innovation, expansion, reorganisation, and reorientation. Target outcomes can be instrumental, progressive, or radical. The object of change can be adaptation practice itself or transformation of broader aspects of development. As previously mentioned, assessment of adaptation interventions demonstrated a need for social science integration. Based on a critical social science perspective, transformation tends to demand specific categories, i.e. reorganisation and reorientation, progressive and radical outcomes, and focus on the broader development. Reorganisation and reorientation target social systems such as power dynamics. When interventions combine those mechanisms of change with progressive or radical outcomes, transformative change generating equitable development and sustained reduction of vulnerability is more likely to take place (Few, 2017). Though Few et al. (2017) suggest progressive change could be sufficient to transform a society, it neglects to address the underlying causes of vulnerability. Other authors, such as Pelling et al. (2015) and O’Brien (2018) suggest transformation needs a more radical approach whereby the underlying causes of vulnerability are addressed. Therefore, this study will analyse to what extent interventions in Turkana are able to implement a radical transformative approach that generates equitable development and adequate reduction of the underlying problems shaping vulnerability.

Turkana, Kenya provides a relevant study area to analyse how these global questions of adaptation responses take shape in a local context due to the large investments in adaptation within Turkana’s political economy of aid. Kenya is one of the countries in the Global South, which struggles with the added pressure of climate change on an already vulnerable society. In particular, Turkana’s struggles with added pressure of perceived increase in droughts has further burdened its vulnerable citizens, of which almost 90% already live in extreme poverty (Gengo, Oka, Vemuru, Golitko, & Gettler, 2018; Ratemo et al., 2020; Schilling et al., 2014). Though precipitation patterns are fluctuating and there is no adequate understanding of the climate variability and change in the Horn of Africa, higher temperatures and evaporation levels have been reported in the region of Turkana (Gebrechorkos, Hülsmann, & Bernhofer,

2019; Marthews et al., 2019). Marthews et al. (2019) suggests that this can increase the chances of drought occurrence, though they may not necessarily be linked to climate change. They did attribute increased temperatures and evaporation levels in Turkana to climate change, however (Marthews et al., 2019). Nevertheless, Turkana is an arid and semi-arid county with a population of 926,976 people that mainly have a pastoral livelihood (Mkutu & Mdee, 2020; Muok, 2020; Statistics, 2019). Though pastoralists traditionally migrate to adapt to changes in the environment, many pastoralists in Turkana struggle to adapt to increasing changes in the climate (Schilling et al., 2014). This could indicate that other socio-political changes also drive vulnerability (Lind, 2018; Schilling et al., 2014). Drought in the 60's created a crisis for pastoralists in Turkana, generating much humanitarian aid (Bush, 1995; Reidy, 2012). Humanitarian organisations took a foothold in Turkana, continuously providing relief such as food aid (Bersaglio, Devlin, & Yap, 2015; Lind, 2018). In addition to drought, risks of violence have put pressure on pastoralists' vulnerability. Turkana has volatile borders with Uganda, Ethiopia and South Sudan (Lind, 2018). Even within Kenya, the border between Pokot and Turkana goes accompanied with many violent raids with loss of life on both sides (Lind, 2018). Though, there are multiple complex reasons for raids and livestock. Lind (2018) suggests that raids are linked to political struggle sometimes involving influential political, commercial, and military actors. The recent political devolution and heightened international interests in Turkana's mining and oil opportunities might elevate the tensions, provoking more instability (Lind, 2018; Mkutu & Mdee, 2020).

The vulnerability caused by drought and violence has resulted in Turkana receiving mass humanitarian aid such as food aid (Lind, 2018; Reidy, 2012). The large amount of international aid and devolved funds towards the county government produced new power dynamics with clans trying to position themselves to obtain the largest part of the pie (Lind, 2018). In the course of power struggles, Turkana county government demonstrated increasing interest in climate change adaptation to reduce vulnerability (Turkana-County-Government, 2019). Turkana county government has the promising missions "to facilitate socio-economic transformation of Turkana through sustainable use of resources to ensure a high quality of life for the people of Turkana County" (Turkana-County-Government, 2019, n.p.). At the same time, however, the promise to achieve transformation stands in contrast to their description of oil exploration as a promising means to economic development. Eriksen et al. describes that often adaptation projects and other developmental initiatives are merged into development as usual approaches where underlying factors are not addressed (2014). The political economy of aid in Turkana and its so-called commitment to transformation provides a fascinating

setting to analyse how the previously described global questions concerning adaptation manifest on local scale and affect vulnerability reduction.

4 RESEARCH METHODS

This study utilized various qualitative research methods to obtain a better understanding of how global questions of adaptation manifest in Turkana's local political economy of aid and impact vulnerability reduction. To answer this research question, the earlier presented conceptual background suggested the importance of analysing how socio-environmental shifts shape vulnerability contexts, the political economy, and the co-production of knowledge (Nightingale et al., 2019; Tanner & Allouche, 2011; Few et al., 2017). Therefore, I utilized Twigg's examples of contextual factors and processes shaping the vulnerability context as thematic categories, within which I identify ongoing social and environmental shifts and key contextual factors generating vulnerability in Turkana. In addition, I analysed the formal adaptation interventions' transformative capacity by examining the influence of Turkana's political economy aid on vulnerability reduction. This study selected two villages within a location in Turkana named Lorengelup. A diverse spectrum of adaptation interventions has been carried out in the area of Lorengelup, providing a relevant context for this study. Though Kambi Lore and Nangorchoto are situated in the same location, the villages are very different which provides a useful contrast to study the politics of adaptation in Turkana. Kambi Lore is the "capital" town in Lorengelup characterizing as a more urban centre in which many former pastoralists look for new livelihoods. On the other hand, in Nangorchoto many pastoralists reside with clear land borders and more traditional power structures. The difference between both villages contributes to a more diverse perspective on socio-environmental issues that shape vulnerability.

I draw on feminist political ecology approaches seeing society and nature as intrinsically linked. Nightingale et al. (2019) highlighted the problematic conceptualisation of adaptation whereby humans are not portrayed as active protagonists in the production of the environment. Feminist political ecology approaches also highlighted how the intersectionality of gender and other axes of social differentiation, including socio-economic status, clan, class, livelihoods, generates vulnerability, and how these relations are dynamic, simultaneously shaped by and shaping in term socio-economic change (Rocheleau, Thomas-Slayter, & Wangari, 2013). In this way, feminist political ecology assisted me in analysing socio-environmental shifts that shape inequitable relations and processes that drive vulnerability and are in need of transformation.

The research was conducted in English over a period of one month. I conducted field research in Kambi Lore and Nangorchoto for 10 days and interviewed practitioners and policymakers implementing adaptation for a further two weeks, all the while I was residing in Lodwar. The village level data collection made use of a translator to communicate with citizens of Lorengelup in their mother tongue “Turkana”. During a two months period running up to the village level data collection, I carried out an internship at the National Drought Management Authority (NDMA) in Turkana, a government authority responsible for drought risk reduction. The internship was a unique opportunity for me to be a participant observer, participating in some of the adaptation type processes and coordination by the National Drought Management Authority. I drew on informal observations from this internship period as a source of data, but also in designing this study and subsequent village level data collection.

4.1 Methods of sampling

This study applied snowball sampling and none-probability sampling, more specifically purposive sampling. I utilized snowball sampling to build further on established networks from my internship at National Drought Management Authority and referrals made by a prominent leader of Lorengelup. In addition, I applied purposive sampling to gather information from a diverse group of stakeholders, such as local people of Kambi Lore and Nangorchoto, employees of developmental organisations, and policymakers of Turkana. This study operationalizes policy makers as people in high position in the county government administration. In total, this study had 42 informants, of which 31 informants were local people of Kambi Lore and Nangorchoto, eight were governmental and non-governmental employees, and 3 were policymakers. The small sample sizes limit this study’s capacity to produce generalizable data that represent the whole population. Nonetheless, I intended to collect various perspectives by ensuring a diversified sample based on age, gender, country of origin, and geographic location. During the field study however, I learned that the criterion “country of origin” did not suit the context of Lorengelup and chose not to apply this criterion on the sample “local people of Kambi Lore and Nangorchoto”. Utilizing purposive sampling provided richer and more diverse perspectives on adaptation interventions and their capacity to transform the socio-environmental shifts that cause vulnerability in Turkana (Bryman, 2016).

This study applied purposive sampling with the local people of Kambi Lore and Nangorchoto based on the criteria “age”, “gender”, and “geographic location”. This study

aimed to gather a diversity of the households' geographic location. I made sure to select local people living in different areas of both Kambi Lore and Nangorchoto. Furthermore, I selected both younger, and older local people, however, the informants' age were hard to narrow down due to illiteracy and lack of good registration systems in Kenya. For example, one informant's ID card stated for example that she was 37 years old, though further conversation revealed she was born before a solar eclipse of 1973, suggesting that she was older than 37 years of age. Therefore, this study utilized significant events in Kenyan history to narrow down the ages of the local people. The 31 interviewed local people's age ranges from 20 to 90 years old of which 17 local people have an age between 40 and 65. Moreover, this study ensured a gender balanced sample, though the sample included more female informants with a total of 20 women and 11 men. Fewer men participated in this study because men migrate with livestock most of the day, limiting their time spend at their household where the interviews took place. The sample of local population might consequently provide skewed data, limiting the transferability and generalizability. Though the sample "local people of Nangorchoto and Kambi Lore" consists of more female informants, I was able to apply purposive sampling and collect diverse perspectives based on age and geographic location.

I chose a different approach in the selection of governmental and non-governmental employees and policy maker informants, from the diversifying categories approach. Instead, this study prioritized interviews with employees and policymakers that implement programs in Lorengelup or focus on climate change adaptation to provide insights as key informants. This study interviewed eight employees and three policymakers that originate from Kenya. More specifically three employees and all three policymakers were born in Turkana. All of the interviewed employees and policymakers were male and between the age of 30 and 41 years old, with the exception of one policymaker who was 57 years old, limiting generalizability of the data. The study prioritized to select key informant employees and policymakers that were available during the short field work, revealing a more opportunistic sampling approach (Bryman, 2012).

4.2 Data Collection and Analysis

This master thesis research collected data through public records, semi-structured interviews, and field observations. This study gathered some data through public records such as the climate change adaptation action plan of Turkana, and project reports. Most of this study's data were collected through semi-structured interviews, however. The semi structured interview guide collects a list of questions that are asked in irregular order to conduct the

interview in a more conversational style (Bryman, 2016). The interviews started with some introductory questions about the informants' gender and country of origin. As the interview progressed, the questions proceeded into more sensitive information that highlight factors shaping the vulnerability context and the transformative capacity of interventions. More specifically, the interview guide for policymakers and employees contained questions that illustrate the conceptualisation of adaptation, vulnerability, and transformation. I asked questions about their programs' goals and mechanisms, including to what extent they involve local populations, conduct a contextual analysis, and cooperate with humanitarian organisations. Though the interview guide of the local populations entailed similar questions, the emphasis was on identifying the socio-environmental shifts that shape vulnerability. The questions were based on suggested causes of vulnerability by Twigg (2015) and adapted to what as appeared to be key themes locally. Specifically, I asked questions concerning socio-economic dynamics, infrastructure, gender relations, power dynamics, knowledge, migration, and security. In between the interviews, I made some valuable observations that also provided data for this study.

The interviews were conducted in a way that safeguarded ethical principles and as full as possible participation of local populations in their mother tongue. I registered the study with the "Norwegian Centre For Research Data", who approved my methods regarding sensitive personal data. I obtained oral consent of all interviewees by explaining the research, assuring confidentiality and guaranteeing anonymity (Bryman, 2016). The interviews were monitored by recording and note taking. The recordings and notes were stored safely and solely available for me to ensure protection of sensitive information and identity of the informant. In addition, I made use of a translator to conduct interview with local people of Kambi Lore and Nangorchoto in their native language "Turkana". The translator was born in Lorengelup which benefitted my capacity to build rapport before the start of the interview and ensured the informants' ease to speak openly. However, the translators' male gender might have influenced women's ease to share information due to the unequal gender context. On the other hand, the translators' male gender might have provided an advantage when interviewing men. The translator signed a contract stating that he is unauthorized to convey information provided by informants and has to respect their anonymity. In this way, the study prevented deception, invasion of privacy, and harm of informants.

Most of the informants were not familiar with qualitative research and semi-structured interviews before taking part in this study. In Turkana, governmental and non-governmental developmental organisations often make use of quantitative research and short questionnaires.

Some interviewees merely answered questions because they were not used to the conversational style of semi-structured interviews, creating a more structured interview. In addition, the translator was foreign to the conversational style of the interview. He struggled to balance out the flow of the conversation and accurate translation of conveyed information of the interviewee. The translator generally chose to let the interviewees talk for longer times to ensure the respondents comfort, which caused a more summarized translation. However, I made sure the translator made verbatim translations to the extent that was possible in the interview situation. He also signed a contract stating his translations are verbatim and capture the respondents' view. In this way, the study avoided misrepresentation and secured translation of the semi-structured interviews.

After the field research, I analysed the collected data by utilizing transcription and thematic analysis. During data collection, I recorded the interviews. These recordings were used to transcribe 13 English spoken interviews and the translated parts of 21 interviews. I entered the transcripts in program "Nvivo" to conduct a thematic analysis. Thematic analysis categorizes data under recurring themes and patterns (LeCompte & Schensul, 1999). The objectives of this master thesis research guided the selection of themes, such as the context analysis, interventions, employees' and policymakers' discourse concerning context vulnerabilities, and the interventions' transformative capacity. The theme "vulnerability context" was further divided based on the questions highlighting socio-economic dynamics, infrastructure, gender relations, power dynamics, knowledge, migration and security. Utilizing thematic analysis allowed me to compare and contrast perspectives of all informants, ensuring triangulation (Bryman, 2016). In this way the analysis ensures the production of credible data to answer this study's research question: How do global questions of climate change adaptation manifest in Turkana's local political economy of aid and what are the implications for vulnerability reduction?

4.3 Limitations and ethical considerations

This study's research site - Turkana, Kenya - has a harsh colonial history and requires critical reflexivity to ensure that the study will be conducted in a culturally sensitive and respectful way. Critical reflexivity demands for researchers to think about the implications of their own cultural, political and social context (Faria & Mollett, 2016). I recognize my identity as a female researcher from the Global North, more specifically Norway, and the implications this may have on my study. My country of origin could influence the outcome of the research due to the sensitive colonial history of Kenya and the political economy of aid in

Turkana. During data collection, I observed discomfort of many local people towards me. Though the translator assisted to make connection ensuring to build rapport before the start of the interview. In addition, the conversational nature of the interview was designed to put people at ease and tell their personal story about their experienced vulnerability. A few minutes into the interview, I observed a different attitude of local people, demonstrating willingness to tell their story. Furthermore, I observed that my origin caused a lot of curiosity which caused lack of privacy during the interviews. Many participating local people received visitors during the interview which might have influenced data to a more “village” approved discourse. Moreover, the political economy of aid in Turkana might have shaped the answers of all informants. The employees and policymakers wanted to demonstrate how grateful they were for the aid funding from the global North, demonstrating how much positive impact they provided with the funding. Local people on the other hand felt the need to prove their need for more funds, shaping some interviews. To address the confirmability issues due to this study area’s cultural, political, social context, I ensured to conduct critical observations and triangulation.

Moreover, the language gap and internship in a developmental organisation before the study could have hindered this study’s confirmability. The language gap between the local society and the interviewer might have caused misperceptions. Many policymakers and employees struggled to express themselves in English and might not have been interpreted by the interviewer as intended. The collected data of local populations might also be misrepresented during translation of the questions from English to Turkana and answers from Turkana to English. In addition, I took part in an internship before the research took place. I am aware the internship could have created a bias. However, the internship provided the opportunity to immerse myself in the context for a longer time period, gaining deeper knowledge of the social and cultural context. Nevertheless, the language gap and the internship could have impaired this study’s neutrality.

5 FINDINGS

This study analysed data in order to identify how global questions of climate change adaptation manifest in Turkana, Kenya and how this affects vulnerability reduction. The findings are split up in two interrelated sections. First, I identify the factors and processes that make up the vulnerability context. Accordingly, the first section of this study’s findings (5.1) demonstrates the socio-environmental shifts that shape the vulnerability of Kambi Lore’s and Nangorchoto’s local population. Next, in section 5.2, I distinguish the diverse types of

adaptation interventions implemented by governmental and non-governmental actors and to what extent they could be categorized as transformative. This includes an analysis of how these different actors conceptualise adaptation and vulnerability, and how these understandings shape efforts to reduce vulnerability. Both sections illustrate how climate change adaptation takes place within Turkana's local political economy of aid and how established discourses affect vulnerability reduction.

5.1 Socio-Environmental Shifts and Vulnerability

This section highlights how local populations of Kambi Lore and Nangorchoto experience various socio-environmental shifts that influence their vulnerability. Many authors such as Nightingale et al. (2019) and Jordan (2019) demonstrated the need to identify how socio-environmental shifts shape social differentiated vulnerability patterns. With this conceptual background in mind, this study attempts to identify the socio-environmental shifts and the way they are experienced differently by Kambi Lore's and Nangorchoto's local populations. I utilized Twigg's examples of vulnerability to identify key themes, adjusting them to the local context and key themes in Kambi Lore and Nangorchoto. With these themes, I was able to identify key socio-environmental shifts and how they influence relational vulnerability (Taylor, 2013). Below, I present diverse experiences of each theme such as socio-economic position and status, infrastructure, gender relations, power dynamics, migration, and security. At the end of the section, I discuss how the socio-environmental shifts shape social inequality and vulnerability. In this way, I observe how the convergence of poverty, exacerbated by drought, and the development interventions together shift people away from pastoralism to diversified livelihoods. However, the shifts reproduce vulnerability due to the marginal character of the livelihoods and impact on socio-economic status, as well as power relations.

5.1.1 Socio-Economic Position and Status

The economic position of people living in Turkana or more specifically in Lorengelup mostly depends on livestock given their pastoralist lifestyles, however livestock numbers appear to be dwindling. All respondents living in Kambi Lore and Nangorchoto described how owning a large number of livestock is a sign of their wealth in Lorengelup. Two women described how they used to own a large and diverse number of animals including goats, sheep, cows, donkeys and camel, which would sustain their households and provide nutrition. In addition, a 27- year-old informant said a large number of livestock made it possible for

people to even sell milk, ensuring financial subsistence. In this way, the citizens of Lorengelup utilized livestock to sustain their own livelihoods.

However, nowadays drought has taken a toll on the number of animals, exacerbating the vulnerability of people living in Kambi Lore and Nangorchoto. All informants described how increased temperatures and prolonged and more frequent occurring drought diminished the diversity of animals. A 55-year-old man and 57-year-old woman from Nangorchoto explained how only drought resistant animals remained such as goats, sheep and camels. These animals can sustain themselves on the small amount of leaves from shrubs and trees, explained another 42-year-old man from Nangorchoto. On the other hand, a 47-year-old woman from Kambi Lore explained that cows and donkeys need grass which has diminished due to the frequent occurring drought. Respondents described how every drought that took place more and more animals were killed until the point where many of the households only have a handful of animals. Drought weakens many of the livestock which causes a large loss in numbers, explains a woman from Kambi Lore. A twenty-year-old woman from Nangorchoto said “there are no animals, there are some but only few, the rest is killed by the drought”. Another respondent from Nangorchoto said: “when drought comes, animals, most of them die, and others are weak”. The respondents explain that the weakened state of animals makes it difficult to sell them, the loss of income threatening people’s survival. In addition, if the livestock survives the drought, the large amount of rain that follows might still kill the weakened animals explained a 42-year-old man from Nangorchoto. Both during drought and rain, citizens of Lorengelup have to endure loss of their livestock. With the decrease of livestock, the livelihood of citizens in Lorengelup came under pressure causing for poverty to be the biggest challenge as almost all informants explained.

Poverty has driven all informants to transition from pure pastoralist livelihood and dependency on animals to diverse livelihoods. A 65-year-old female respondent described how the worst drought hit people in Lorengelup in 1992. This has caused many people to shift to alternative livelihoods. Another woman explained how she found herself forced to start weaving mats and burning charcoal to at least have some money in between 1980 and 1990 up to now. A couple of male respondents who could access a car or motorbike had diversified their livelihoods with commercial trading. They buy mats, goats or charcoal in villages of Lorengelup and sell the goods for profit in the markets of Kerio or Lodwar. Even a women’s group started trading mats after receiving a loan from the government. However, a couple of women explained that the trading business did not continue after paying back the loan and investing profits in savings, which may be indicating how people prefer to invest in livestock.

Instead, the same women's group started table banking with the profits, giving out loans to people who wanted to invest in for example livestock, or needed money for school fees or hospital bills. The loan would have to be paid back with a small interest to give others the opportunity to lend money in the future. A prominent villager explained that many informants also tried to increase earnings by offering any type of labour to the wealthier people in their village. For example, the chief pays people to do some small jobs such as cleaning her compound. A 65-year-old woman explained how she gets employed to build traditional houses called "Manyattas". All respondents demonstrated that they had shifted to new livelihoods over the years such as trading, such as trading, table banking, and small jobs for wealthier people in response to the loss of livestock.

However, to perform a service for wealthier people also presents a threat to the social status. A couple of informants explained how undertaking these types of jobs downgrade their status. A 40-year-old man explains that "contracted" jobs, like building houses or cleaning a compound, are stigmatized because it shows that you are so poor that you cannot sustain your own household. A 65-year-old woman corroborated that by taking these jobs, people are stigmatized to be lesser than others in your village. On the other hand, there are two households within Kambi Lore that diversified their livelihood by owning a little shop which sells grains, soda's, flour, vegetables.... Many of the informants wish to also start their own shop, indicating that owning a shop is well respected. These observations show that people's fight for survival and diversification of livelihoods has social repercussions in terms of socio-economic position.

In addition to the social repercussions, the diversified livelihoods are also marginal. Though people fight hard to support their households, most of them remain poor due to low income. Many of the informants stated how the earnings do not balance out to the amount of hours worked. One woman needed to burn charcoal for almost one week to be able to get one full bag, which she can sell for around 200 shillings (2 dollars). The 65-year-old woman that builds houses, needs almost four weeks to gather all the building materials and construct the house. For these four weeks of hard labour, she usually earns between 1500 or 2000 shillings (15-20 dollars). The low earnings and decreased amount of livestock put a strain on people's ability to provide for their households with diversified livelihoods.

Almost all informants explained how they could no longer provide enough food for their households because of they now only had small numbers of animals. A 60-year-old woman from Nangorchoto recounted how during times of drought they sometimes go two days without food. Even during a normal day, many of the informants explained that they do

not have any food for lunch. A woman from Kambi Lore explains that the amount of people in the village who can afford two meals a day are very few. “The masses are very poor”, she said (Woman, 65). Breakfast generally only consists of a cup of tea or fermented milk if the household still has some livestock. One 52 year-old woman who does not own livestock explained she can only cook tea during her lucky days where she has some money from her sales. A young woman of Nangorchoto said that meals in the evening are prioritized if a household has food. Though when food is scarce, the food is spread over as many days as possible by only giving food to the young ones. A few women explained how they give food or milk to the young ones to prevent them from crying in the evening because you cannot stand the crying of your child due to hunger. Pastoral livelihoods are no longer able to provide enough food for households due to the increased drought causing for malnutrition and vulnerability of many citizens in Kambi Lore and Nangorchoto.

Informants explain how they share food and other resources as a strategy to survive. A couple of informants explained that households living next to rivers or in flooding areas in Lorengelup have kitchen gardens. Nangorchoto has some flooding areas where people try to grow some sorghum, maize, watermelons... Many women from Kambi Lore and Nangorchoto explain how the harvest is shared with the neighbours and family friends. A couple of women from Kambi Lore explained that the sharing culture is very important due to the village’s lack of rivers or flooding areas. A 55 year-old-woman explains that she visits her relatives whenever she hears that they are harvesting along the river. Her family generally gives her a bag of flour or maize that would sustain her household and other people in the village. “When a woman gets a bag of maize from a family member and she sees her neighbour with no food, the bag of maize is shared with the neighbour”, said a female informant. Similarly, a 42-year-old man explained that during times of drought he goes to a neighbour who has slaughtered a camel, because a camel is too big and produces too much meat for one household. One woman explains, that whenever a goat is sold to buy food, you will need to give something to your neighbour. In this way, she knows that next time when her neighbour sells a goat, she will equally receive some food from her neighbour. Another woman explained how she cannot be cooking food without giving food to the neighbours’ children if they are not having anything to eat. She said: “you know how painful it is to not have food, and you do not wish anybody to feel that” (Woman, 47). In addition, the local populations experiences spill over effects as resources such as food aid and cash transfers are shared between recipients and those who do not receive such aid. Many informants explained how they were not registered for cash transfers, but they are able to get some cash from the

beneficiaries who were registered. During the fieldwork, food aid was distributed in Kambi Lore but not in Nangorchoto. Consequently, a couple of female informants from Nangorchoto travelled to Kambi Lore to receive some food from the beneficiaries. Informants explained how sharing in addition to diversifying livelihoods is needed to fight malnutrition.

To conclude, decreased rains and increased drought contributed to a depletion of the main pastoral livelihood, exacerbating a transition to diversification of livelihoods. Although pastoralists transitioned with the intent to increase resilience, new livelihoods generated negative effects such as loss of socio-economic status and vulnerability. A 55-year-old man from Nangorchoto said: “There is no change, because it has been poverty, poverty until now”. Though drought might have caused poverty, informants explained that it does not matter if they receive rain or not rain anymore. Several respondents expressed that drought has become a part of their lives and we just have to fight for survival day in day out. The latter observation suggests that societal factors also contribute to the pastoralists’ vulnerability and transition to livelihood diversification when hit by a climatic stress. Some of these societal factors and socio-environmental shifts transforming local society are investigated below.

5.1.2 Infrastructure

A key aspect of local societal changes is the construction and distribution of infrastructure, giving Kambi Lore a particular position in the local aid economy. Most of the informants emphasised infrastructure when they were asked about changes in their lives in comparison to their childhood. During the past 30 years many infrastructural changes took place due to humanitarian aid and county governmental interventions. Construction of roads, a school, a health facility, and a borehole have altered pastoralists’ traditional way of living, to a further extent in Kambi Lore than in Nangorchoto.

5.1.2.1 Roads

The traditional way of living that many pastoralists were accustomed changed significantly following the construction of roads in the 1990’s. Informants explained how in earlier days, pastoralists from Lorengelup used to walk great distances to access markets in Kerio or Lodwar, the two nearest urban centres in that time. A couple men and women described walking while carrying loads of goods that would be sold in Lodwar and sleeping on the way. Moreover, buying food or other things would require walking to Lodwar or Kerio because there were no shops in Lorengelup.

Around 1992, the worst drought yet hit many people in Lorengelup and all of Turkana, explained many informants. Two informants referred to a significant event whereby a man

was desperate enough to sell his daughter for food, which led to many humanitarian organisations to intervening and offering to provide aid. The increase in aid led to a large increase in passing traffic, which ultimately resulted in the start of road development to accommodate the rising traffic. Because of Kambi Lore's position next to the road, food aid was distributed from Kambi Lore. Many informants explained how a lot of pastoralists lost their livestock forcing them to look for aid in Kambi Lore. Consequently, many pastoralists from Lorengelup and surroundings settled down in Kambi Lore causing an increase of population density and the start of an "urban centre", as many informants called the village.

With improvement of the road network and access to more affordable motorbikes, citizens of Kambi Lore and Nangorchoto had started exploring different foods outside of their traditional eating behaviour. A young man explained that the road in the past was not well-constructed and used to have a lot of sandbanks, causing long travel times to Lorengelup. Consequently, only few vehicles drove to Lorengelup which did not allow for passenger transportation, he said. During the time of devolution, the county government invested a lot in the expansion of road networks, explained many informants. During the field research, the graded road provided a fast way to get to Lorengelup in merely 45 minutes. The smoothness of the road has generated more frequent passage of vehicles, said a 27-year-old man. The increase in road traffic has amongst other things increased accessibility to cheap transportation by motorbike and more diverse foods. A couple of informants observed an increase in passing motorbikes which provided cheap transportation for many people in the village to access Lodwar and other large towns. In addition, a woman living in Kambi Lore explained how before the road was constructed, people would only be eating meat and drink milk from the animals. People that were farming would eat sorghum, which was the crop they used to grow to grain into flour to make a sort of Ugali. Nowadays, other foods have been made available, such as cabbages, and other cereals, explained a female and male informants from Kambi Lore. Although the road towards Lodwar is now more paved and provides for quicker transportation, this has not necessarily led to increased food security for everyone in Nangorchoto. A man from Nangorchoto explained how the development of a road has not provided him any food because he is "still in the same state he was before", i.e. he was unable to buy many foods that had become available with increased transport. The infrastructural investments from the county government nevertheless generally led to a shift of diets, predominantly in Kambi Lore.

Although Nangorchoto did not experience much impact of the road construction, Kambi Lore has seen development such as more permanent structures for shops and houses.

Two households in Lorengelup have capitalized on the daily passage of vehicles which allowed for provision of goods to their shops, explained a young man. The shops in Kambi Lore facilitated access to goods for local people in Lorengelup without travelling all the way to Kerio or Lodwar. Although Nangorchoto does not have any “permanent” shops, many of the informants explained how they walk once a week to Kambi Lore with a group of women to acquire some food. In addition, an informant explained that people in Kambi Lore were able to move from the traditional houses called “manyatta’s” to more permanent structures with iron roofs. I only observed four of such constructions within the village during the field research, however, suggesting that only a few could afford (or desired) this improved housing. The households living in these permanent structures are the wealthier people who have jobs with more stable wages, such as being a driver, working for the national government, or owning a shop. As described in the previous chapter, most of the people’s earnings are less than one dollar a day and hence they are unable to afford building permanent houses with iron roofs. Though many people can still not afford permanent structures, local populations experienced social environmental changes due to road construction such as increased provision of aid, the establishment of an urban centre within Kambi Lore, dietary shifts, and new livelihoods triggered by access to vehicles and construction of small shops.

5.1.2.2 School

The county government, churches and development organisations all promoted increased education with the aim of producing positive socio-environmental shifts such as positive social and economic effects, despite this shift reinforcing a diversification away from pastoral livelihoods. Most of the informants explained how there were no schools in Kambi Lore or Nangorchoto in earlier days and that most of the children would instead tend to herd their livestock. A few informants explained that education was only accessible for the very few wealthier people of Lorengelup, who would send their children to “Kerio boys boarding school”. A couple of informants explained how the proliferation of churches introduced schools, though often without a building or any other infrastructure. A 23-year-old man explained that he used to go to Kambi Lore’s primary school, where his teacher would give lessons outside under the trees. Only a decade ago, Safaricom foundation supported construction of a primary school in Kambi Lore, which led to an increase of school going children.

The increase in education has been associated with a shift in livelihoods. Though informants said that parents initially took their children to school in order for them to get a

meal, people have come to see that children with an education can provide a better living for their household. The government with support of NGO's have developed a policy that makes primary schools free and provides one meal a day for children in primary school hoping to convince parents of the importance of education. In addition, in early childhood development (ECD) of Nangorchoto food is provided by an NGO called Marry's Meals. The provision of food has caused an increase in school attendance. Many informants in Kambi Lore and Nangorchoto explained how they only send their children to school so that they at least have a meal a day, however, some informants in Kambi Lore explained that food is not provided on a stable basis. A male informant explained that generally primary schools only get food in the first term and experience a delay of food or funds during the other terms. Due to food being utilized as an incentive to send children to school, the amount of school going children decreases during the time that food is not supplied to the schools, explained the informant. Nevertheless, the provision of food is a key motivation for parents to start taking their children to school. The further education campaigns by Unicef and Child Fund stimulated some informants to invest in education, explained two men. A couple of informants explained how some households still remain reluctant, but many informants could refer to a friend or neighbour who have a family member that finished primary school and now provides financial support to their family in Lorengelup. With continuous poverty, parents really see the need of other income sources. That is why some parents are now investing in primary school in the hope that he or she in the future can get a job and sent money home, explained a couple of female informants. In this way sending children to school has become another form of the diverse livelihoods that citizens in Lorengelup try to implement.

Although parents started embracing the importance of education, the distance to the school combined with small classrooms and limited number of teachers makes it hard for children to receive adequate schooling. Nangorchoto only has infrastructure for early childhood development, said many informants. Two women explained that if children from Nangorchoto want to go to primary school, they have to travel for 10 to 16 kilometres on a daily basis to a school in Kambi Lore or another village called Loreamatet. Many informants explained how this distance is too far to walk on a daily basis for the children. Moreover, if the children would go this far, they often would be late in class, explained a teacher in Kambi Lore. Therefore, some children will sleep in the classrooms even though the primary school in Kambi Lore is not a boarding school and does not provide any diner or breakfast. In addition, the school only has three classrooms and struggles with understaffing. A man suggested that the problem with understaffing is caused by the national governments' mismanagement of the

funds. In Kambi Lore, not enough funds are allocated to employment of teachers, forcing the school to teach the lower grades in the morning and the upper grades from 4 to 8 in the evening. To be able to hire one more teacher, an informant explains, the headmaster tries to collect money from households, which cannot carry this responsibility due to poverty. The later argument shows how government's mismanagement of funds puts added pressure on households to get education for their children.

In addition to the governments' mixed influence on education, poverty, early marriages or teenage pregnancies stand in the way for many children to enjoy a full education. Though the government has made primary schools free for all, the necessary goods such as books or school uniforms still have to be bought, explained a couple informants. Many informants said they could not afford to buy these goods and consequently their children were sent away from school. Secondary school is also supposed to be free in Kenya, however, the long distances from the secondary schools to Kambi Lore and Nangorchoto require children to be sent to boarding school, according to two female informants. The boarding school is not free, putting pressure on parents to gain enough income or other sources of cash to be able to afford secondary education for their children. A woman claimed that this pressure has caused some mothers to kill themselves, often leaving children even more vulnerable. In addition, a 40-year-old man explained that financial challenges sometimes lead to early marriages taking girls out of school. During the field research I participated in a meeting with the new assistant county commissioner of the national government, who explained that early marriages nowadays are illegal. Even though he stated that those involved would be punished, a man stood up and asked the person in charge why it is important that children go to school and not get married. This man said, "even if we send our daughters to school, they get pregnant". His comment refers to another challenge for education - teenage pregnancies. A teacher explained it happens, and the school blames the parents for not teaching their daughters moral behaviour. To prevent teenage pregnancies, the teacher says they explain both boys and girls the importance to abstain themselves from sexual behaviour until they have finished schools. Though the subject of sex and pregnancy caused some discomfort, some informants explain that contraceptive materials are ones in a while distributed by humanitarian outreaches or in the healthcare facilities of Kerio. Both the message of total abstinence and limited access to birth control raise questions on Lorengelup's future on teenage pregnancies. All the previous mentioned reasons prove how infrastructural provision is not sufficient to increase education level for children in Kambi Lore or Nangorchoto.

5.1.2.3 Health Facility

Local populations illustrate an internalization of the facilitation of health services as good development by suggesting that health services improved their lives despite the services signifying sedentarized development rather than decreasing health vulnerability. The construction of a health facility was described as an important positive change for many informants of this study. In earlier days, there were no hospitals and people used traditional medicine or treatment, explained a woman from Nangorchoto. She said the survival of people would be in the hands of God. Nowadays, there is a health facility in Kambi Lore with a nurse responsible for immunization, “sensitization” and a maternity wing. Many informants spoke highly of the healthcare facility, expressing how it has a positive impact for all people. However, more specialized cases need to be referred to either Lodwar or Kerio without the possibility of using an ambulance in emergency situations, explained a 27-year-old man.

Though a health facility was built in Kambi Lore, people in Nangorchoto do not have access to healthcare close by and are required to travel to access such services. A couple of young women explained that citizens from Nangorchoto depend on motorbikes to access health facility in emergency situations. Therefore, some informants state that construction of a health facility with accessible medication in Nangorchoto would save lives. A nurse explains that he tries to “sensitize” people on the importance of coming to the health care facilities to give birth and come for immunizations of new-borns. However, he said that “sensitization” often does not help because of the large distance people have to cross to reach the health care facility. Therefore, the nurse together with an NGO undertake outreaches, sensitizing people and assisting in supplementary feeding. The outreaches are taking place once every two weeks, each time in a different village, which the nurse explains is not enough. He corroborated that further provision of healthcare is needed to assist people living in villages surrounding Kambi Lore.

Some informants have seen an increase in diseases supporting the need for health care. A lady explained how drought was associated with illnesses they had never seen before and last longer. A nurse explained that malaria, diarrhoea and respiratory diseases take place frequently in Lorengelup, but was unable to confirm if there has been an increase over the past years. At the time of data collection, a malaria outbreak took place which might have influenced a woman that explained how malaria diseases are taking place more frequently. Though malaria, diarrhoea and respiratory diseases are frequent, often people think they are sick while they are just suffering of severe malnutrition, explained a nurse. He says food

security is the biggest challenge for people here in Lorengelup. Next to concerns of human health, a man explains how animal health today has come under pressure with increased animal diseases due to drought. Though animal health concerns many informants in Kambi Lore and Nangorchoto, no facility assists in access to animal medication. The later argument highlights the informants' concern about the increased human and animal diseases triggered by the changing climate, demanding for further expansion of healthcare in Kambi Lore and Nangorchoto.

5.1.2.4 Borehole

One of the most prominent changes defined by informants was the access to water due to boreholes, stimulating further development of Kambi Lore. Water used to be a scarce resource before the NGO's invested in a borehole, explained a couple of women. Many informants said that people used to walk to rivers to get water for household use, and livestock and human consumption. People would be walking for sometimes 8 kilometres to access water which was not even potable, stated two women. Kambi Lore is positioned further away from the river which is why many informants from Kambi Lore explained how they used to be getting water from the seasonal river by making use of hand dug wells. A 42-year-old woman explained how the water used to be contaminated and brought a lot of diseases. Nowadays a borehole with pipelines in between Nangorchoto and Kambi Lore provides water to all citizens. Consequently, a man explained that very few people go to the rivers to get water. The water availability has eased lives of people in Kambi Lore and Nangorchoto, explains a woman. Another informant suggested that the central position of the borehole within Kambi Lore even sparked development, where more permanent houses and shops are built. The borehole also supported the functioning of the school and hospital with supply of clean safe water. Informants explain that the maternity wing of the hospital is dependent on the availability of water. Though a borehole was also constructed within Nangorchoto, none of those developmental sparks were observed. Nangorchoto's villagers reside in their temporary manyatta's with clear land division for the households. The lack of a centre within Nangorchoto demands for longer distances to reach the water supply. Although villagers of Nangorchoto were equally grateful for the clean water supply, the construction of a borehole did not spark the same development in Nangorchoto as Kambi Lore.

The construction of infrastructure contributed to socio-environmental shifts such as the diversification of livelihoods and Kambi Lore's crucial position within the political economy

of aid, providing education, healthcare, aid, food, and potable water. Many informants explained how the provision of infrastructure stimulated the “urbanization” of Kambi Lore. The development of important road networks, connection Lodwar with Lorengelup, caused Kambi Lore to be the central spill in provision of developmental services and aid. Many pastoralists that lost their livestock settled down in Kambi Lore, embracing new lifestyle. While leaving behind the nomadic lifestyle and dependency on livestock, the local populations embrace new livelihoods, such as trading of diverse foods, food aid and cash transfers, and education of children. However, only very few local people were able to use the socio-environmental shifts to their favour, clearly affecting inequality within Kambi Lore and Nangorchoto. Only few households were able to become entrepreneurs, live in permanent structures, or provide a full primary or secondary education for their children. In addition, the infrastructural development did not reach villagers from Nangorchoto in the same way as Kambi Lore. Many of Nangorchoto’s villagers expressed how the lack of a road, primary school, or health facility within their village decreased the accessibility of the provided services. Therefore, the unequal distribution of services caused diversification of socio-environmental shifts, exacerbating social inequality between Nangorchoto and Kambi Lore.

5.1.3 Power and Social Differentiation

Intersectionality of Turkana’s culturally defined systems generate an unequal distribution of power within Kambi Lore and Nangorchoto. However, these power structures in Kambi Lore and Nangorchoto are complicated to understand in merely 10 days. In addition, translation challenged the understanding of the word power. Most of the informants referred to their power based on their capacity to make someone follow his or her ideas or example. The way in which local understanding operationalises power is similar to the concept of authority relations whereby power is operationalized through various actors exerting agendas and influencing outcomes (Tschakert et al., 2016). Even though this study was unable to uncover the full depth of Kambi Lore’s and Nangorchoto’s power relations, local populations explained that authority relations are defined by the intersectionality of gender relations, clan relations, and family or kinship relations.

5.1.3.1 Gender Relations

Pastoralist populations living in Kambi Lore and Nangorchoto have a strong traditional separation of labour between men and women, which causes differentiated socio-environmental shifts and climate change impacts. Many informants explained how earlier days men took responsibility of herding and women took responsibility for the household.

Children would not go to school so even for children there was a strong division of labour. Boys would be helping with herding, taking responsibility for the smaller animals like the goats, and girls would be assisting their mothers with household duties. Much of this traditional division of labour is still currently active. As informants explain, women wake up in the morning and let the young animals out of the fence, if they have any. Then they make tea if milk and tea is available in the house, and wash laundry and utensils. Afterwards women need to assure there is water for the households and animals when they return from the field, which she goes to collect herself or ask one of the children if they are not at school. A few women also explained that firewood needs to be collected to be able to cook later on that day. If there is any repairs that needs to be done to the fence or houses, a woman explains she collects branches and palm leaves and fixes what was damaged. If food is available in the house for lunch or dinner, women cook food for when the ones that went to the field come home. Moreover, local people said that women milk the animals before the young ones go to drink and in the evening, and make sure that the animals are safely in their enclosure. Informants explained that men on the other hand, wake up in the morning, and let the animals out to look for pasture until the evening when they come home to eat. The men are also responsible to sell goats by bringing them to the market in Kerio or Lodwar or selling them to a “boda-boda” driver. A couple of informants explained that if the man is not present in the household, the women must take over the man’s responsibilities with the livestock. However, this arrangement is not reciprocal, and men will not assist with cooking and fetching wood, explained a man while laughing.

The increased drought and poverty impacted women’s and men’s traditional roles in different ways. Informants explain how traditionally, women are responsible for taking care of the house and children by mainly providing food, water and a house to live in. During the field research, men referred to women by calling them “mamas”, confirming women’s role to take care of their children. Men on the other hand are responsible for providing for his family by taking charge of security and the main livelihood source, livestock. All informants explained that drought and increased poverty forced women to add on their long list of responsibilities and started to gather income through diverse livelihoods to be able to procure food for their family. A couple of women said that if you depend on charcoal burning, you have to go to collect wood and burn charcoal which is put in a bag and sold. The women that depend on income of mats collect straw from palm trees, and weave mats which is almost a week’s long process. A couple of women explained that the mats and bags of charcoal are sold next to the road in Kambi Lore or to a person with a motorbike who trades charcoal in

Kerio or Lodwar. An informant explained how women from Nangorchoto will have to bring their goods to Kambi Lore, which then will be sold by the shop owner next to the road. After a week, a group of women from Nangorchoto will go back to the shop and collect funds if something is sold. A few women have also started farming in flooding areas of Nangorchoto or selling the local brew to be able to provide food for their household. Women's adaptive attitude to the changing climate stands in contrast to men's behavioural reaction on the new climate. Due to decreased amount of livestock, for some men even to the point where they only have a handful of animals, herding livestock cannot provide for their families any longer. Though, some men have embraced trading between Lorengelup and Lodwar or Kerio, many men seemed to have given up waiting for aid to come and support them. A 28-year-old woman explained how her husband gathers men and plays games under a tree to prevent boredom. Another 55-year-old woman explains how her husband just wakes up, gets drunk and comes home to get food. She said that "...in Kambi Lore's setup men are just like watchmen, they just patrol around and at some time comes by to get food" (woman, 55). A couple of women confirmed that women have to initiative to ensure that their family is fed. The increased drought and diminished livestock have put strain on both women's and men's responsibilities, testing their mental wellbeing. A new phenomenon has started to take place where men's and women's responsibility become too hard to bear forcing them to end their lives. As mentioned earlier, an informant explained how a few women have killed themselves because of increased poverty due to drought and consequently the lack of money to send their children to school. On the other hand, a 27-year-old man explained how a few men killed themselves because of loss of the main livelihood and lack of capacity to provide a living for his family. This shows how the clear division of men's and women's traditional roles differentiate climate change impacts of local people in Kambi Lore and Nangorchoto.

The clear divided roles between men and women translate in division of power or authority. As mentioned before, men's role in pastoral populations such as Kambi Lore and Nangorchoto traditionally entails carrying responsibility of the livestock, which is the most important livelihood for pastoral populations. A woman explains that even if no water is coming out of the borehole, the livestock of the man that can repair the borehole has to take precedence. The latter example demonstrates the importance of livestock within the local population. Men's responsibility to take care of the most important livelihood is linked to men's powerful position in pastoral populations such as Kambi Lore and Nangorchoto. A 65-year-old woman explains how as long as the husband is alive, he is the one making the decisions. Several informants explained that the wife is supposed to signal to the husband that

there is no food for the household, while the husband has the authority to decide if an animal has to be sold or slaughtered to be able to buy some food. Furthermore, a 55-year-old woman said that if visitors come by, women are allowed to invite them in the compound and talk to them. However, women have to report to the husband who came by and what was discussed. A couple of informants also referred to men's power to decide when he will migrate, merely informing the wife that he is leaving and can be sent for if there is a matter that needs his attention. A 31-year-old woman can merely decide herself on how to do her normal household chores and borrowing food from neighbours. Even the female assistant chief explained how except for chief's duties, her husband is the one in charge of the household. A 55-year-old man explained very clearly how he sees his position in comparison to his wife's: "The woman is supposed to implement what her husband said", making clear that women's position is inferior to men.

Though local people of both villages illustrated a patriarchal structure, Kambi Lore has over the years become more urbanised with many citizens that do not have livestock, causing for a more modernised view of women's role. Many informants explained that in Kambi Lore a selected group of women have positioned themselves in more important roles such as assistant chief, elder of the chief's elder circle, taking charge of table banking... A 65-year-old female informant had the role of chief's elder which used to be a man's job, she explained. Informants explain that lately the government and NGO's try to create gender balance, demanding the chief's elders to exist out of one man and one woman. Because of that, a couple of women said that women's voices are being heard in local meetings. On the other hand, in Nangorchoto most of the people still live with traditional pastoralist lifestyle trying to survive with their livestock. Due to the continuously upheld traditional systems, women in Nangorchoto have not been able to raise their voice as much. A 40-year-old woman explained that elders in Nangorchoto once said, "What is it the government is seeing in women that we are not seeing women are now able to?". In addition, almost all women in Kambi Lore and in Nangorchoto describe how on a household level, they still have to answer to their husbands. Even this study observed men's high position within the households when a man asked in a meeting why he is not allowed to hit his wife. He referred to an occasion whereby his wife did not give water to the livestock. The man said "if I am not allowed to hit her, how will she listen otherwise?" The latter argument demonstrates the persistent unequal distribution of power between men and women, even though women are slowly able to have more influence on decision-making.

To summarize, the intersectionality between the gender-based roles and power division causes differentiated experience of socio-environmental shifts and social inequality. The clearly defined gender roles and power imbalances shape differentiated climate change impacts. The depleting number of animals caused a shift in men's responsibility to provide for the household by herding livestock. Some men embraced trading as alternative livelihood, though many men were left empowered, merely playing games or drinking alcohol to fill the void. Consequently, women's responsibility to provide food for the households forced them to embrace different livelihoods such as selling charcoal, mats, or alcohol. Imbalances in carrying responsibility for climate change adaptation and inequality of power demand for a gender sensitive perspective on climate change resilience, explained a 27-year-old man who grew up in Kambi Lore.

5.1.3.2 Clan Relations

In addition to the patriarchal power relations, clans define authority relations. Many local people expressed that being part of a clan does not influence their individual power. Though this statement seemed to be universal amongst all interviews, a couple of local people explained the significance of clans is more subtle. Analysis of all interviews highlighted how clans indirectly define power due to their influence on the electoral political position and their hierarchical elder structure.

Clans define power relations due to their influence on the election of political positions. Many villagers confirmed that political positions are recognized as powerful positions. A woman explains how the increased development and urbanisation which took place categorized Lorengelup as a "location" with its own chief. The chief is put in charge by the national government to voice their policies on a local scale, explained a couple of informants. With devolution in 2010, Turkana county government was created with a county assembly that consists of representatives from each ward. Next to that, the county government also has a ward administrator to voice their policies on a local scale. Informants explained how these political positions give people the power to influence decision making and allocation of funds. Some informants explained how they prefer to have "one of their own" or someone from their own clan, these positions in the hope that their challenges are heard, and needs fulfilled. The chief explained that the major clan in Kambi Lore and Nangorchoto is Bochoros. This clan can further be divided in sub clans such as "Ng'isiger", "Ng'ipucho" and "Meturana". Informants explained that those sub clans are the largest in Kambi Lore and Nangorchoto. In general, most of the informants referred to Ngisigir being the largest sub-clan in both

Nangorchoto and Kambi Lore. They explained that being part of a large sub-clan influences political positions because people will only vote for their own sub-clan. Nevertheless, all informants explain that no real struggle over power between sub clans exists. A 72-year-old man explained how there cannot be any struggle between sub-clans because traditional marriage can only happen with people from different clans. The informants explained that most importantly a Bochoros needs to be selected for political positions such as the chief or the county assembly representative. The desire to have one of their own, a member of their clan, in a political position demonstrates how clans define power.

Secondly, clans influence power because of their hierarchical elder structure. Almost all informants explained how clans have clear hierarchical systems, defining a person's individual power. Several women explained that a sub-clan is important for people because it organizes their way of living - such as branding livestock, traditional marriages, and rite of passages - and it gives identity for example with different hairstyles. The sub-clan is tied to the family. Informants explained that each family is part of one sub-clan and has an elder who is part of the clan's steering organs. This elder position is passed on to the firstborn's. Several informants confirmed that generally the matters within family are dealt by the elder in the family. A 41-year-old woman gave an example of two brothers fighting over who would inherit their father's livestock following his death. The decision on who would take over livestock was ultimately made by the elders within the family. If further consultation is necessary, some elders of the same clan in the neighbourhood gather to give their judgement, explained a couple of other informants. Matters that involve the entire local population are dealt with differently in Kambi Lore and Nangorchoto. Two informants said that in Nangorchoto a more traditional setup of a community elder group decides on matters that affect the whole village. In this community elder group, all clans from Nangorchoto are represented, they explained. Because Nangorchoto is led by an elder group, the elder hierarchy plays a bigger role in people's individual power. On the other hands, a couple of informants explained that Kambi Lore is more urbanised and has a larger diversity in clans. Therefore, the chief decides on village matters together with the entire local population. That is why Nangorchoto is influenced more by sub-clans' hierarchical elder system than Kambi Lore.

5.1.3.3 Family and Kinship Relations

Next to the clans, a person's individual power is influenced by the family, wealth, and personal character within Kambi Lore and Nangorchoto. Certain families are considered more

important than others in Kambi Lore and Nangorchoto. For example, a 27-year-old man explained that the family of the seer or rainmaker has much power and influence in decision making than all Lorengelup. Other families have been powerful throughout the past, resulting in ownership of large pieces of land within Nangorchoto. Often linked to the authority of a family is the wealth. A couple of informants explained that people with more wealth are able to have more authority. Informants explain that wealth is usually counted by the number of livestock, wives, and children. With mass poverty in both Nangorchoto and Kambi Lore, a 42-year-old man explains that people follow the wealthy person because he has knowledge safeguarding him from poverty. In addition, local people hope to get a share of this man's wealth. Due to Kambi Lore's more urbanised and modernised setting also personal character influences a person's power. Informants explained how doing good for the local population, helping people, and championing for other people's interests, makes others in the local population compelled to follow you. Though character might play a role, mass poverty limits the chance of many people in Kambi Lore and Nangorchoto to take a powerful position.

A key aspect to the intersectionality of these diverse power relations is how those marginalized in those relations are given little voice, such as being allowed to raise their voice in village meetings. Many informants explained how a democracy takes place in both Nangorchoto and Kambi Lore where the whole local population decides together on matters that affect the whole village. Nevertheless, an informant explains how particular people with the authority, are able to open and close a meeting. "Certain people are more powerful than others, if one of these people have spoken, the meeting is closed", he explains (Man, 27). He gave an example where the government wanted to fence of land for an agriculture project. An older powerful man supported the project, with most people in the village following his vision. One young man tried to stand up for his beliefs opposing the project, resulting in the local population shunning him. Though other local people neglected to mention how particular people have the authority to raise their voice, a couple of informants did mention that nobody can contest when decisions are made. A woman explained that disabling contestations and following authority systems is crucial to keeping peace in Kambi Lore and Nangorchoto. Even I observed how power relations manifest during interviews of small groups, taking away the capacity of some local people to answer. The culturally defined power relations are at the core of Kambi Lore's and Nangorchoto's everyday practices and do not tolerate contestation, generating inveterate power imbalances.

5.1.4 Local Knowledge and Shifting Knowledge Relations

Knowledges and related vulnerability problem understanding legitimizes particular actors and their actions such as the government and NGOs. The socio-environmental shifts such as unpredictable climate conditions and increased presence of development organisations shift the traditionally strong position of indigenous knowledge. People have a lot of local knowledge about the changing climate, such as decrease of rain, more frequently occurring drought and increased heat. Many informants explained how rains have decreased consistently and have become unpredictable. A 41-year-old woman explained that people used to live by calendar, but now the months that were earmarked for rainy months go by without rainfall. A 27-year-old man explained how even when he was herding, the landscape used to be very green and rain would come every 3 months. Informants explain that the amount of rain decreased, though when it does rain it is a substantial amount at once. A 60-year-old woman explains how the extreme amount of rain causes flooding that challenges access to Kambi Lore and Nangorchoto, as this study experienced during the second week of field. In addition, people also suffer loss of animal and human life during flash floods, explains a woman. The biggest problem however is the dry spell or drought that follows after the rain, explained many informants. A 55-year-old man said that “rain might come for 1 month but the other months you are living in a dry spell for at least 8 months”. All informants referred to drought as the largest challenge because drought takes place more frequently and last for longer time. In addition, temperatures have increased. Many informants explained how earlier days the temperatures would be lower, whereas now the heat often is too much. A couple of women explained how the children under five usually cry a lot during the night due to the heat. As a consequence of the extreme heat animals are giving birth early often ending in death of the young ones and the mother, explained many informants.

The continuous increase of droughts changed the environment drastically. Many informants discussed that grass has disappeared, trees are drying up, and even shrubs turn brown red during dry spells and consequently are unable to feed the livestock. Some leaves remain on the trees though many informants explain how the tree cover decreased over the years with every drought. A young man explained that drought is not the only threat for the survival of trees, but also human activity causing a large decrease in the numbers of trees. Some informants explained how they cut down live trees for charcoal even though they know the government prohibits it. Many informants remember how Nangorchoto and Kambi Lore used to be very bushy, whereas now there is some trees and shrubs here and there, but surrounded by sand. A couple of local people expressed that in a fight against deforestation,

people have been stimulated by NGOs and the government to plant fast-growing “neem” trees. Because of the high demand of water for these trees, a young man explained the neem trees can only be found close to the borehole in the centre of Kambi Lore. Next to the decrease of trees, wildlife has diminished to the point where most species have disappeared completely. Some informants explained that there used to be a lot of wild animals, such as chimpanzees, monkeys, foxes, hyenas, antelopes, elephants, and warthogs, however, nowadays none of these animals are found in Kambi Lore or Nangorchoto. Both young and older informants were able to recall better environmental conditions for their pastoral livelihoods before the increased drought hit them.

In addition to their knowledge of the changing climate, many informants of Kambi Lore and Nangorchoto had rich indigenous knowledge informing on rain or drought. Most of the informants referred to reading of goat intestines, a method that tells people in Kambi Lore and Nangorchoto if rain or drought is coming, when it is coming, and where it is falling. Though not all readings are accurate. Informants explained how some elders’ predictions are more trusted than others. Therefore, more methods are used such as the dreamers or seers who have visions on weather and other events, advising people on necessary rituals induce rainfall. However, a 40-year-old woman stated that the trustworthiness has decreased because they are not as accurate as earlier days. A couple of informants also say they no longer believe in dreamers because of their change of faith to Christianity which talks about dreamers as “heathens”. Next to that, two men mentioned a bird called “Elele” which can only be heard when rain is coming. Rain is also coming when young goats are drinking milk from their mothers while sitting down, explains a woman. Another woman says she looks at the moon to know when rain will come, stating that rain is coming if a ring is covering the moon or sun. Though previous examples prove people in Kambi Lore and Nangorchoto make use of rich indigenous knowledge, many informants themselves could only refer to the formation of the clouds as the best predictor - with bigger or grey clouds showing the potential of rain. Next to indigenous knowledge, some informants of Kambi Lore explained that they listen to the weather station on the radio at somebody’s shop. Informants listening to the radio explain how they trust the prediction because of its consistency. Though, many people living outside of the Kambi Lore’s centre cannot access this information due to the lack of radio signal, explained a couple of women. Though indigenous knowledge on weather prediction is rich, socio-environmental shifts decreased local people’s trust, causing for people to prefer diverse amount of methods based on availability and faith.

Though indigenous knowledge is rich, it remains unable to explain the changing climate. Many informants say they don't know what happened when asked about the source of the observed changing climate. Even an assistant chief did not know what happened, despite many people believing that governmental employees have more knowledge. The assistant chief acknowledges that nowadays the rains have diminished, sometimes passing a year without rain. A chief said "those days God was near to them, that is why there was a lot of rain". The leaders often gather and ask: "What was it that God used to love us those years that he was able to give us a lot of rains, but now what have we done that even God has decided to go away and leave us? Maybe this is some sort of punishment?" (woman, 41). Many other informants think the changing climate is a punishment from God. A 65-year-old woman asked herself if God left them. Another man said God has given much sun nowadays while it used to give a lot of rain, with his wife explaining how she believes God sends rains. "Maybe he has forgotten us for a longer period which causes drought" (Woman, 70). Another 65-year-old woman explains how the rains were there when God was still alive. With the lack of any other explanation for the changing climate, many informants remain in confusion or fear of God's abandonment.

Though many informants do not know why the changing climate is taking place, most have a lot of knowledge about coping mechanisms. Next to diversifying livelihoods, people implement certain strategies to be able to cope in times of drought. Accordingly, a 31-year-old woman explained that slaughtering animals is seen as a last resort, to ensure that when rain returns you will find animals alive. A couple of informants explain the survival of livestock is important to manage nutritional needs, such as drinking milk. Though, many informants explained that during drought animals are too weak to produce sufficient amount of milk, forcing local people to drink blood from camels and goats. A 42-year-old man explains that he cooks blood until it clods and supplements fat of the animals. Sometimes he just pours the raw blood in milk, and drinks it. In addition to consuming blood, women explained they search for palm fruits which can be eaten in many ways. Because the fruit is dry, some make powder which is mixed with milk or blood from the animals, others just chew on it. Also seeds from the "acacia" and "esegon" trees are an important nutrition source for animals and people, explained many informants. Women take these seeds down by pulling on branches that are hanging down, also dropping some leaves which are necessary food supplement for animals. However, most interviewed local people explained that lack of rains and more frequent recurring droughts over the years decreased production of seeds and wild

fruits. The changing climate challenges indigenous knowledge's coping mechanisms in Kambi Lore and Nangorchoto.

The changing climate and related socio-environmental shifts caused indigenous knowledge's coping mechanisms to be insufficient. A 52-year-old woman stated she has exhausted all strategies she knows but still feels like she will not make it. Other informants have said similar things pointing towards their lack of pulling themselves out of their "survival" stage and have no source to acquire more knowledge. A 55-year-old man says he does not have anybody to ask for other coping strategies, so waits for a well-wisher with relieve. A few women have said, if a well-wisher wants to teach them their knowledge, they are ready to learn. The later argument demonstrates that people in Kambi Lore and Nangorchoto feel like they lack knowledge but are eager to learn from an outsider that has knowledges such as humanitarian aid workers. Similarly, a 30-year-old man said that only the government is the one that is knowledgeable. Moreover, many other informants looked at me, one of the "white people" from the North, as the person who will solve their problems. Socio-environmental shifts challenge indigenous knowledge's coping mechanisms, positioning "modern knowledge" from governmental and non-governmental organisations as superior and consequently disempowering local populations.

5.1.5 Migration and security

The changing climate and related socio-environmental shift, such as reducing livestock, increasing aid provision, and livelihood diversification, reduced the nomadic lifestyle and migration. Many informants said that whole family's used to migrate together in search for pasture and water. Though, as mentioned before, during the drought of 1992 a lot of livestock was lost making people dependent on aid. A couple of informants explained many families settled down permanently to access services such as healthcare, education, and food aid in Kambi Lore. Nevertheless, many informants said that migration in search of pasture still takes place, though only men and boys nowadays only go with the livestock. Women, children and elderly stay behind. Consequently, informants said that men usually do not go far from the settlements, to be able to assist their families in times of need such as illness or hunger, decreasing migration distances. Next to the migration in search of pasture, people also started migrating in search of jobs. As mentioned earlier, drought caused loss of livestock and poverty, forcing people to look for alternative livelihoods. Some informants explained how a couple of the youth started migrating to city's such as Kerio, Lodwar, Kakuma or even Eldoret or Nairobi. Some youth nowadays had the chance to get education

which can help them in getting a job. With no job opportunities in Kambi Lore or Nangorchoto, the youth is forced to migrate away from their homes. Though, many informants explained how only get have the opportunity to migrate for a job. The limited amount of local people that migrate out of Kambi Lore or Nangorchoto and increasing amount of local people that settled down in Kambi Lore or Nangorchoto, puts pressure on the scare resources.

The shift to settlements and increasing population within Kambi Lore might threaten insecurity. Kambi Lore and Nangorchoto are situated in Turkana Central. A young man said that Turkana central is sandwiched in the middle of the violent borders from Turkana, such as borders with Pokot, Ethiopia, South Sudan, and Uganda. The porous boundaries with the violent neighbour countries allow for easy access to weapons, which consequently accommodate violence in the area and livestock raids which result in loss of human lives, a couple of informants explained. Consequently, these areas usually accommodate a lot of violence and livestock raids with loss of human lives. Fortunately, a 27-year-old man explains that these areas function as a buffer zone with this type of violence not being able to reach Lorengelup. Other informants corroborated that Kambi Lore and Nangorchoto are very secure. A 52-year-old woman said she could fall asleep under a tree in the evening and nothing will happen apart from scorpion stings or snakebites. A young man explains that there is no conflict because everyone is fighting to survive and everyone is part of the same clan, i.e. “Bochoros”. Though people describe their place as secure, some informants explained how they fear that insecurity might come with further urbanisation. With more and more people settling down in Kambi Lore to access aid, a couple of informants fear that violence or thievery might increase. A 30-year-old young man talked about two men on a motorbike driving around stealing goats. Another lady explains how people nowadays are afraid of walking at night though no incidences have taken place. Even without evidence, informants fear that further urbanisation of Kambi Lore will bring insecurity.

5.1.6 How social and environmental shifts shape social inequality and vulnerability

The socio-environmental shifts demonstrate a key issue whereby livelihood diversification reinforces marginalization for many people in Kambi Lore and Nangorchoto, exacerbating vulnerability. The convergence of poverty, exacerbated by drought, and the governmental push to shift livelihoods led many pastoralists to shift from communal migration towards settled lives which sparked urbanisation. Accordingly, many pastoralists in Kambi Lore and Nangorchoto were forced to embrace livelihood diversification, though the

alternative livelihoods remain marginal. In addition, the diversified livelihoods altered socio-economic status and socio-relational shifts, marginalizing many people in the villages. Consequently, livelihood diversification did not strengthen the socio-economic position, but reinforced vulnerability. In addition, the infrastructural changes due to drought and related increase of humanitarian assistance reinforced livelihood diversification but did not decrease vulnerability. People in Kambi Lore and Nangorchoto internalized the governments' and NGOs top down modernisation discourse which reinforced settled lives and livelihood diversification. Many people in Kambi Lore and Nangorchoto take children to school instead of training them to herd, hoping for more job security. However, the schools remain poorly equipped and many children are not able to finish secondary school, which could force many people from Kambi Lore and Nangorchoto in marginal jobs. In addition, the governmental top down perspective that "sensitizes" people to use health services, made many people in Kambi Lore and Nangorchoto dependent on health services that are poor at best. Even though people embraced infrastructure, the poor condition reinforces the marginalization and vulnerability of people in Kambi Lore and Nangorchoto. In addition, livelihood diversification reinforced the unequal power relations whereby the intersectionality of gender, clans, family and kinship marginalizes many people, making them more vulnerable. More specifically the unequal gender relations burdened women to diversify livelihoods, exacerbating power inequality. Moreover, the combination of increased drought and the developmental institutions' top down discourse which stimulated the shift to diversified livelihoods went accompanied with the marginalization of local knowledge. The internalisation of top down modernisation discourse of developmental institutions positioned modern knowledge as superior, producing disempowerment and marginalization of people in Kambi Lore and Nangorchoto. To conclude, the shift towards livelihood diversification reinforces the marginal and vulnerable status of many people in Kambi Lore and Nangorchoto rather than addresses them.

5.2 Interventions' Transformative Capacity

In this second section of the findings, I attempted to distinguish the ways in which formal adaptation interventions either transform or reinforce the contextual factors and socio-environmental shifts generating vulnerabilities. This study defines transformative capacity as the extent to which measures address inequitable relations or socio-economic processes driving vulnerability. To analyse the transformative capacity of formal interventions, I identified the extent to which adaptation discourses of government and NGO staff include a contextual vulnerability approach. In addition, I pursued to determine whether the practical

interventions address contextual vulnerability as identified in the previous section 5.1. This study interviewed eight employees of NGOs and Kenyan national governmental authorities. Two of the employees are part of different national governmental authorities and six employees are part of five international NGOs. In this section, I will refer to them as practitioners in short. In addition, this study conducted interviews with three policymakers of Turkana County Government. All of these practitioners and policymakers bring about adaptation interventions to decrease vulnerability. To assess the interventions' transformative capacity, I look at the interventions' focus, the institutional structure, how interventions attempt to gain a vulnerability understanding, and how they engage the vulnerable groups.

5.2.1 Interventions

Developmental organisations' and governmental institutions' growing awareness concerning the adverse climate change impacts in Turkana heightened the interventions' attention on livelihood diversification, calling it adaptation of livelihoods. At the time of data collection, policymakers presented the Turkana County Climate Change Adaptation Action Plan aimed at reducing vulnerability. The climate change adaptation action plan is developed by a developmental organisation to inform a climate change policy in Turkana. Turkana county government needs to develop its own climate change policy specifically for its own context, following the climate change act of 2016. The interviews demonstrated some awareness concerning contextual variations, though policymakers highlighted climatic factors rather than social. A policymaker explains how Kenya has many different climatic conditions. That is why each county should make their own climate policy which represents their climatic conditions and challenges. In Turkana, we are suffering from high temperatures, drought and famine, said the policymaker. With the climate change policy, Turkana county will be able to access the Green Climate Fund of the UNFCCC to support local level adaptation, explained a couple of policymakers. The climate change adaptation action plan reflects a biophysical and techno-managerial adaptation discourse. The presented discourse suggests that adverse impacts of climate change threaten the pastoral and agro-pastoral livelihoods in Turkana and consequently causes vulnerability. This because, drought and floods harms agriculture, livestock (pastoralism), forestry, water sources, health, energy, rangelands, tourism, social infrastructure, and human settlement. Therefore, the climate change adaptation action plan suggests several adaptation measures to strengthen pastoral and agro-pastoral livelihoods. The interviewed practitioners and policymakers shared this vision, attributing poverty and hunger to the dependence of livestock and limited knowledge of other livelihoods. This reveals an

outcome vulnerability approach whereby drought is seen as the cause of vulnerability, including to the ignorance of the pastoralists to adapt new livelihoods. Some of the existing developmental interventions addressed livelihood diversification already, blurring the adaptation and developmental interventions on a local scale. Accordingly, the interviewed practitioners and policymakers implement diverse adaptation interventions guiding pastoralists to more diverse livelihoods, by providing cash transfers, livestock offtake, forestry and land rehabilitation, agricultural schemes and beehives, boreholes, and advocacy programs.

5.2.1.1 Assistance during drought

A practitioner presented drought interventions as climate change adaptation, providing food aid, water tracking, livestock off-take and cash transfers, ultimately to guide local populations away from the vulnerable pastoral livelihoods. One practitioner explains that his organisation responded during the drought of 2017, providing aid to Kambi Lore and Nangorchoto to decrease vulnerability to climate change impacts and therefore implemented adaptation. The organisation bought up the livestock, slaughtered them and then distributed the meat to the villagers to avoid loss of livestock without any benefits. In this way, "...they benefitted twice, the household benefitted from the money and in the same time the meat", explained the 38-year-old employee. Some of the meat was distributed to secondary schools to offset the student fees. Even though the livestock off take is meant to benefit local populations, the program has been met with resistance. The employee explains that for a pastoralist it is hard to slaughter livestock but experiences that with "sensitization" some pastoralists are beginning to see the benefit of livestock selling. This way of thinking reflects top-down knowledge discourse, whereby the pastoralist's ignorance leads to vulnerability. In addition to livestock offtake, the employee explained they spread food and water to some local populations and repaired crucial boreholes which usually suffer due to intensive utilization in times of drought.

The same organisation also supported many local populations with cash transfers. Their cash transfer is a long-term project which distributes cash every other month to the local populations struggling most. On the other hand, another practitioner explained they also supplied cash transfers, though he referred to it as short-term humanitarian aid. He explained that the cash transfers were meant to support villagers in Lorengelup for 6 months during the drought. Almost all of the informants that live in Kambi Lore and Nangorchoto referred to cash transfers as the project that really assists them to sustain their households. However,

most of them did acknowledge that cash aid is little and only assists people when they receive it rather than giving long-lasting impacts. A 60-year-old woman explains when the cash transfer does not come, people start suffering again immediately. Many local people therefore hoped to get more cash so they can invest in livestock, or even receive livestock instead of cash, to sustain their households in the longer term. However, the practitioners and policymakers attribute the drought vulnerability to the pastoral livelihoods and believe they can decrease local populations' vulnerability with cash transfers, food aid, water tracking, and livestock offtake. The tension between the practitioners' and policymakers' wish to diversify livelihoods, and the local populations' wish to increase their pastoral livelihoods, results in a dependence on transfers rather than decreasing vulnerability.

5.2.1.2 Environmental Rehabilitation

Rehabilitation of soils and the environment is another intervention that takes precedence in Turkana to decrease people's vulnerability in the face of climate variability and change. Many practitioners and policymakers of this study stated that the environment of Lorengelup is degrading. The informants explain that increased drought and human activity such as charcoal burning are having a visible negative impact on the environment of Kambi Lore and Nangorchoto. The degradation of trees, grasses, shrubs, wildlife, etc. challenges the livelihood of pastoralists. An employee of a national governmental authority even stated that overexploitation of trees directly impacts nutrition of local populations. He explained that local populations historically feed themselves with seeds of trees, however, the many pastoral local people are forced to burn charcoal due to need for income, consequently overexploiting trees and degrading the environment. This reasoning demonstrates a general discourse whereby the pastoralists' ignorance causes degradation of the environment, neglecting large scale economical and climate related causes.

These types of development discourses frame particular types of interventions labelled as adaptation by this study's practitioner and policymaker informants. To assist local populations with rehabilitation of the environment, one employee of a national governmental authority explained how his organisation has implemented projects such as pasture rehabilitation for local populations which introduced new grass combinations and fodder trees that produce seeds for human, livestock and soil nutrition. Furthermore, this employee and a policymaker introduced a program called management through utilization which makes use of "prosopis" for charcoal production. They explained that many areas in Turkana have a fast-growing invasive species called "prosopis". Even though an NGO caused the invasion, the

practitioner and policymaker described that the colonization of this invasive species can be limited if the pastoralist learn to use prosopis for livestock feed and charcoal burning. The employee explained how goats cannot feed on the leaves, though are able to get nutrition from the prosopis pods. Therefore, he implemented a program called “feedformulation”, which teaches local people how to dry and shred pods to feed directly to the goats or mix with other fodder. In this way, the shredded pods provide nutrition and decrease the chance of further germination. In addition, charcoal burning can be done in a more sustainable way by making use of metal kills and prosopis. With this thought in mind, the employee created a project that trains local people how to use metal kills, how to make metal kills, and training to make metal kills that burns charcoal for a longer time. This pilot project in Kakuma has assisted some women and youth to access income which they were never able to before, explained the employee. In this way, the interventions to address environmental problems fits into efforts to stimulate livelihood diversification.

In addition, many organisations explain how they invest in tree planting to decrease environmental degradation within their diverse programs such as agriculture and drilling of boreholes. Though a different strategy is used by different organisations. A couple of employees and policymakers focus on “neem” trees, which are imported to Turkana due to its fast-growing nature. Informants that live in Kambi Lore and Nangorchoto also referred to these trees as a sign of a good place. Because of the trees’ need for frequent waterflow, the villages with many neem trees were seen as places with sufficient water and therefore classified as good places. Four informants from Kambi Lore centre were even growing neem trees themselves. On the other hand, an employee of a national governmental authority explains that they focus on indigenous trees, because he learned from experience that local populations know what to do with their own tree species. Even though his program initially was meant for soil rehabilitation, he learned through community involvement that the trees are also causing for water purification, food and fodder. Though focussing on fast growing crops can rehabilitate the environment, the employee demonstrated a stronger method to decrease vulnerability whereby valuing indigenous knowledge and indigenous tree species also increased nutrition. The interventions interest in planting trees, sources from the hope that the rehabilitated soils will support agriculture or water provision.

5.2.1.3 Boreholes

Many organisations invested in drilling boreholes in their words intended to address vulnerability caused by the changing climate and increased drought. Several of the

practitioner informants attributed vulnerability to drought which increases water scarcity in many villages. An employee explained how a vulnerability assessment showed that people in Lorengelup really suffered from water scarcity. Furthermore, analysis showed that Lorengelup had availability of a stable aquifer that could support a borehole to the neighbouring villages. Therefore, an NGO with support of the county government and other international institutions constructed water supply system with taps in central locations in a couple of villages such as Nangorchoto and Kambi Lore. To secure flow of water, an employee of an NGO explains how his program also invested in planting of neem trees. “...Their rooting system also contributes to water infiltration in the ground as much as they also attract rains”, explained the 39-year-old employee. Though the program intended to also invest in agriculture by developing kitchen gardens, the employee explained that only a small amount of villagers has embraced kitchen gardening. During the field study, only the chief’s compound seemed to have a kitchen garden in Kambi Lore, which could illustrate that the alternative livelihood is not viable without outside support. The employee explains how food insecurity remains a big challenge. He believes that delegating a water structure to irrigate agriculture could enable local populations to produce their own foods, addressing the issue of food insecurity. Though, limited sources have left him unable to implement such a project. Constructing infrastructure such as boreholes to decrease the impact of drought is seen as a method to decrease vulnerability such as food insecurity. However, this approach represents a technical solution to addressing vulnerability and fails to understand or address the broader societal causes of vulnerability.

5.2.1.4 Agriculture

Many practitioners and policymakers believe that investment in agriculture is the key intervention that provides an alternative livelihood that strengthens the vulnerability. Almost all practitioners and policymakers explain how they think agriculture could help empower local populations. Many local populations are currently dependent on food aid and cash transfers. The practitioners argue that by actively engaging pastoralists and teaching them the farming techniques will reduce their dependence and feel empowered. One employee said, “they are being send from a situation where they are sitting and waiting to where they create their own food”. Another employee referred to this as bouncing back, giving an example of a woman that bounced back from being dependent on cash transfers, to selling vegetables that sustain the household during the next drought. One employee and a policymaker have invested in agriculture schemes in the area of Lorengelup. The practitioners explain that with

the farms they hope to eradicate hunger and poverty. Both employees stated that by providing a water reservoir or borehole, local populations can farm without depending on rainfall, direct access to rivers, or flooding zones. The policymaker refers to this technique as climate smart agriculture, whereby the use of drip irrigation minimizes water loss and tree planting increase water infiltration. He explains that he trusts this technique because Israel relies on drip irrigation, enabling them to export fruits and vegetables to the whole world with extremely dry conditions. This example illustrates the favouritism among policymakers and practitioners for external knowledge and solutions, rather than the local knowledge and strategies of pastoralists. Though, questions could be raised if Israel's highly subsidized agriculture is the right example¹. In addition, both projects focus on specific crops to enhance incomes or ensure harvest in dry climates. The employee explained he focusses on high value crops such as onions, watermelons, kale, spinach, squash and butternut. He explains that these crops have a high demand on the market and will be able to give earnings to the villagers working on the farm. The policymaker on the other hand invested in drought resistant and fast-growing crops. In this way the practitioners and policymakers hope to provide infrastructure that makes agriculture possible in the dry climatic conditions to encourage food security and livelihood diversification.

In addition to vegetable farming, many employees referred to beekeeping initiatives as another livelihood to decrease vulnerability. An employee explained that people in Lorengelup already knew how to do beekeeping though their technology was traditional. These traditional beehives were in the trees excluding women due to the cultural norms that do not allow women to climb in trees. By distributing a type of beehive that stands on the ground, beekeeping became a possible enterprise for women and men, he explained. Another employee of an NGO explains that they have started beekeeping in the area of Lorengelup and hopes to spread the knowledge until the point where slowly by slowly all local villagers can produce honey. By promoting new beehives, practitioners hope to harvest honey which could provide nutrition and income, thus decreasing vulnerability.

Though practitioners and policymakers believe agriculture schemes can exterminate hunger and provide income, very few villagers from Nangorchoto were able to refer to an agriculture project, raising questions about the impact. The agricultural interventions that are identified as adaptation to justify the organisations' existence and status within the political economy of aid in Turkana are smaller in practice, either due to inefficient funding, inefficient

¹ Tal, A. (2007). To make a desert bloom: The Israeli agricultural adventure and the quest for sustainability. *Agricultural History*, 228-257.

use of funding, or elite capture of funding. The elite capture of funding whereby the interventions go to few favoured people in the local population, has been observed elsewhere in Africa (Artur & Hilhorst, 2012; Omukuti, 2020). A couple of informants from Kambi Lore and Nangorchoto explain the small size of the farm only benefits a small amount of people, which the practitioners and policymaker admitted regrettably. Though many of the interviewees expressed the desire to receive support for livestock, many of the villagers from and Kambi Lore and Nangorchoto hope for an expansion of the agriculture project. Many of them have heard of the positive impacts of an agriculture project in a nearby village, hoping the interventions will also provide an alternative livelihood. Though an employee experienced that the lack of a local market and lack of transportation methods obstructed the capacity to sell produce. With the small sized farms and uncertainty regarding the revenue, agriculture interventions may not provide such a viable alternative livelihood.

Some of the pitfalls employees experienced with the interventions seeking to diversify livelihoods into agriculture were expounded by a practitioner who had a more critical perspective on agricultural schemes and their capacity to decrease vulnerability. He explained that many agriculture programs are misadvising the farmers and that the crops used in these schemes, such as maize and watermelons, demand far more input in Turkana and will not be able to compete with prices from Kitale or Uganda. In addition, from his experience many local populations do not take care of their farms because their main interest remains livestock. All employees and policymakers explain that projects may be challenged by the interests of pastoralists, though many of them believe that if the project involved local populations, they would gradually take ownership and responsibility over the farm. Nevertheless, an employee suggests that many of the agricultural projects are actually left abandoned or only utilized for 20%. During my time in Turkana, I have also observed abandoned or vandalized agriculture projects. One example whereby the large amount of rain washed away the irrigation channels of an agriculture project. Local people were waiting for an NGO to come and dig their channels again, even though these channels were made out of sand and could be dug by the local population. The example demonstrates resistance of the local populations towards the project. The employee said: “I am still shocked because every time they say this county is a pastoral county, but we don’t behave like it is in terms of our practices and our policies and investments as governments, as development partners” (Man, 36). “Why do we expect a pastoralist to change from something that they have been doing for 100 plus years instantly to crop farming?”, questioned the 36-year-old employee.

This employee advocates for the promotion of fodder agriculture to decrease vulnerability. He suggests that local populations would take better care of agricultural schemes if they include fodder production. He supports this idea with his experiment whereby trees in his fodder scheme are better cared for than trees in a vegetable farm. Furthermore, he believes that fodder agriculture strengthens local populations' economic position by feeding livestock to the point where they can be sold for premium price. The harvest can be stored so that during times of drought livestock would continuously be able to receive fodder, stabilizing livestock prizes throughout the year. Instead of previous described agriculture interventions whereby alternative livelihoods are provided, the employee advocates for engagement to decrease the vulnerability of pastoral livelihoods by investing in infrastructure for fodder agriculture.

5.2.1.5 Advocacy training

The way adaptation interventions reinforce top-down knowledge is also exemplified in well-intended efforts of advocacy training. In addition to the more infrastructural interventions, one organisation invested in advocacy training of local populations to strengthen climate change governance. The employee explained that climate change forces local populations to adapt to new livelihoods, though many of them lack sufficient knowledge or resources. For this reason, he trained local groups on climate change and public participation, such as a water association group and a beach management unit group. In this way, local people were taught in a simplistic way about climate change. The employee explained how climate change is a complicated scientific concept which is hard to grasp for the local populations in Turkana which are often uneducated and illiterate. Therefore, he chose to explain climate change in the local context by focussing on charcoal burning. He said to local populations:

“...when you cut trees, the place becomes bare and secondly you burn charcoal which makes the place hot, that is why you don't stand closer to the charcoal when it is burning. The same things that are happening down here, are happening up there, so everything becomes hot” (Man, 39).

However, this type of discourse demonstrates a top-down expert view of knowledge, neglecting the valuable local knowledge people have. In addition, the employee attributes climate change to the local degrading practices. In this way, he neglects the global scale whereby the wealthier populations' pollution and burning fossil fuels is the main cause climate change. Even though Turkana pastoralists barely contribute to the emissions, they are

placed in a position whereby they have to carry responsibility to transform into more sustainable methods.

With this discourse in mind, groups of local populations were trained in developing a community action plan based on the needs of the local population to support their fight for climate change adaptation. In this way these community action plans can form the basis of proposals for needed programs and request of funds. The organisation even arranged a setting where the groups could present their community action plans to governmental and non-governmental developmental organisations, asking their support in the future. He summarized the project as a software that trained local populations about governance and how to lobby for funds in the county government and NGOs. For example, a youth group was able to present their community adaptation plan to the county assembly, hoping their needs would be included in the next county integrated development plan. Instead of focussing on supporting local livelihoods, the employee implements adaptation by focussing on “sensitizing” local populations about advocacy in Turkana’s political economy of aid. Consequently, advocacy and empowerment become enrolled in the top-down knowledge and power relations, exacerbating rather than addressing relation vulnerability.

Another organisation also implemented a program that trains local populations in Lorengelup on policy and governance of climate change adaptation. The employee explained how their program developed a climate change community adaptation action plan based on the local populations’ prioritization of hazards and needs. To analyse the biggest challenges, the employee explained they made use of a participatory planning exercise used by a national governmental authority to reduce the risk of drought. Accordingly, the populations from Lorengelup defined drought as the biggest challenge and hazard and selected a borehole as possible solutions. Though, questions can be raised how much the participatory planning exercise influenced local populations to define drought as the main challenge. In addition to this session to develop an action plan, the organisation trained three local people on necessary actions to adapt and reduce the vulnerability to drought. These three trainees were supposed to disseminate the information and “sensitize” the local population to decrease their vulnerability to drought. Though, a trainee admitted that he struggled to spread the knowledge. This study also observed that villagers of Kambi Lore and Nangorchoto did not seem aware of any drought resilience strategies or the existence of a climate change community adaptation action plan. This illustrates that “sensitization” interventions and top-down knowledge approach in the governance trainings lack to understand and address the underlying causes of vulnerability.

To conclude, the practitioner and policymaker informants interpreted adaptation categorized in two different types of mechanisms, i.e. providing infrastructure and sensitizing or educating pastoralists. The approach whereby drought causes vulnerability is described as outcome vulnerability by O'Brien (2007). This approach neglects the underlying causes of vulnerability and consequently lacks to rise above technological solutions (Pelling, 2015; Jordan, 2019). The earlier described interventions demonstrated such a focus on outcome vulnerability consequently focussing on the environment and provision of infrastructure, such as agriculture, boreholes, and environmental rehabilitation. Consequently, these approaches may fail to decrease vulnerability of populations in Kambi Lore and Nangorchoto. Though some interventions rose above infrastructure by providing trainings and sensitization, the approaches lack acknowledgement of local knowledge marginalizes local populations. Many practitioners and policymakers attributed vulnerability to the pastoral livelihood, demanding sensitization and trainings on livelihood diversification to decrease vulnerability. However, this approach marginalizes the local knowledge and generates an asymmetric dependency between interventions and local populations, risking exacerbating vulnerability. Some interventions hereby raise questions on their intentions, implementing projects that exacerbate dependency and support the political economy of aid.

5.2.2 Institutional structures

In this section, I illustrate how adaptation becomes enrolled in the existing institutional structures and agendas of Turkana. Tanner and Allouche (2011) advocated for an acknowledgement of the political economy's influence on the conceptualisation of adaptation. Therefore, this study attempted to identify how the political economy of Turkana shapes how predominant conceptualisations of adaptation emerge among aid actors. Many practitioners and policy makers described Turkana as one of the Kenya's counties that receives the highest amount of development funding, national and international. They explained that historically many organisations came to Turkana to provide humanitarian aid during the drought that took place during the 90's, arising the Turkana's political economy of aid. This study characterizes a political economy of aid as a context that consists of competing more than collaborating relations between different government and non-governmental organisations that depend on international funding. Accordingly, the organisations shift their focus depending on funding opportunities. Though, the development discourses remain resistant to change, holding on to related problem understandings, top-down perception of pastoralists, and actual implemented

measures. Consequently, humanitarian assistance is continuously present in Turkana. During field research this study observed many types of humanitarian assistance in Turkana such as food aid, cash transfers, and water tracking. Most employees and policymakers referred to humanitarian aid as short term assistance during disasters. Interviews with practitioners and policy makers demonstrated that adaptation is generally implemented by those organisations that implement humanitarian aid for decades, integrating adaptation in Turkana's political economy of aid.

Though many organisations in Turkana provide humanitarian aid to pastoralists, many employees referred to their projects as climate change adaptation. An employee of a governmental authority stated that organisations shifted their focus over the years from humanitarian towards a combination of humanitarian programs and developmental programs such as climate change adaptation. One practitioner believes that vulnerability is caused by maladaptation to climate change, demanding for climate change adaptation. He believes that programs should decrease the impact of climate change to increase resilience of local populations. As example he said that the negative impact of flooding on local populations could be decreased if organisations plant trees. He even blamed humanitarian organisations for the continuous vulnerability of local populations because of their reluctance to embrace climate change adaptation. Though, recently he has observed a shift in institutional awareness concerning climate change that sparked a refocus of many organisations towards climate change adaptation.

Within existing development discourses, adaptation became another justification for transforming pastoral livelihoods. All the interviewed employees and policymakers attributed vulnerability to climate change's impact on the main livelihood of pastoralists. They explained that climate change caused prolonged droughts, diminishing pasture for livestock and consequently making pastoral populations vulnerable. To decrease vulnerability, they claimed to have started implementing climate change adaptation. An employee of an NGO said they have moved from implementing humanitarian aid to implementing programs that are developmental and also look into making local populations adapt to climate change effects, such as agri-nutrition and infrastructure that support the recharge, reuse and retention of water. As discussed in the previous section, other practitioners and policymakers generally referred to environmental rehabilitation programs as examples of climate change adaptation. With the goal of these programs being they to encourage livelihood diversification because of climate change's threat to their pastoral lifestyles. Though these interventions might be useful to some, many interventions may actually undermine local adaptive capacity by uncritically

shifting people into new livelihoods that exacerbating inequitable power relations and are unviable both economically and in the face of climate change.

In addition, to the focus on environmental science and livelihood diversification, many practitioners and policymakers explained that climate change adaptation programs are a method to reduce vulnerability in the long term. Practitioners said that implementing long term programs such as adaptation strengthens their capacity to decrease vulnerability, in comparison to the short term relieve given by humanitarian aid. An employee of an NGO explained that climate change adaptation and its long-term impact eradicates the dependency syndrome of local populations in Turkana, making programs more sustainable. “Teach a man how to fish and you feed him for a lifetime”, he said. The increasing climate change awareness of organisations in Turkana has generated a shift to adaptation in the hope to reduce the dependency on aid and decrease vulnerability in the long term. However, the findings of this study questions whether institutions that are part of a political economy of aid and caused dependency are actually able to reduce vulnerability in the long term?

Turkana’s political economy of aid limits collaboration despite organisations acknowledging the benefits of specialisation and collaboration to strengthen vulnerability reduction. All employees and policymakers state that humanitarian and adaptation organisation should collaborate to strengthen their capacity to reduce vulnerability. An employee of an NGO explained that all organisations in Turkana have the same goal: “targeting the community to uplift the standard of living of the community”. Many other employees and policymakers acknowledged that the main goal could form a basis for collaboration. Most of the practitioners and policymakers said collaboration allows for sharing of expertise, supplementing programs towards a more diverse approach, more efficient coordination and leverage of resources, and consequently strengthening resilience. Even though an employee of an NGO expressed the need for collaboration and was aware of other organisations’ activity in Lorengelup, he admitted no collaboration took place. Almost all practitioners and policymakers explained that the political economy of aid and associated competition over resources does not allow for organisations to work together. An employee of an NGO said that their funding streams dictate competition between organisations. He explained that organisations sometimes have the same donor and consequently compete between each other, trying to prove their unique excellence in hope of more resources. A 27-year-old young man of Lorengelup referred to this as an “eating competition” of stakeholders. He explained that Turkana has a higher number of NGOs than any other county in Kenya, though Turkana still remains one of the most vulnerable counties. He stated that the fight over

resources has caused organisations to cloud their intentions to increase resilience and merely claim credit for things they did not even execute in practice.

The competition's interference to collaboration generated preference to integrate both climate change adaptation and humanitarian programs within the same organisation. An employee of an NGO explained his organisation provides food aid and cash transfers during times of crisis but started to provide construction of wells and farms to be able to decrease vulnerability in long term. Another employee of a national governmental authority explained that he responds in times of crisis with humanitarian relieve, but one of his colleagues in the same organisation carries responsibility to implement adaptation programs to increase resilience of local populations. However, an employee of a NGO admitted that his organisation integrates both humanitarian aid and climate change adaptation because of the funding agencies preference for holistic programs. Though organisations claim to implement adaptation for long term vulnerability reduction, questions could be raised if organisations implemented adaptation merely to strengthen their position in the competition over funds.

With organisations integrating both climate change adaptation and humanitarian aid, some programs became hard to distinguish from one another. A couple of employees explain that integration of aid and adaptation in the same program could address both immediate relieve and adaptive needs, limiting the resistance of the local populations to implement climate change adaptation. He explained that many local people prefer humanitarian aid due to continuous struggle with drought and famine. Another employee of an NGO also stated that pastoralists prefer humanitarian aid because it fulfils the needs of the local population immediately, in contrast to the impact of climate change adaptation which demands perseverance. However, programs might not show long term and short-term impacts in practice as intended by integrating climate change adaptation and humanitarian aid in one program. An employee of a national governmental authority stated that he implemented a program that was both humanitarian and climate change adaptation in nature. Livestock off-take, water tracking, and other humanitarian aid addresses the climate change impacts and consequently can be classified as climate change adaptation, explained the employee of the national governmental authority. The later arguments show that the employee interprets climate change adaptation as a short-term program. In this way, integration of climate change adaptation and humanitarian aid might cause neglect of a program's long term impact, decreasing the capacity to reduce vulnerability.

The analysis above shows how climate change adaptation is enrolled in Turkana's political economy of aid. Consequently, key features of Turkana's political economy of aid

such as competition over funds, dependency, and focus on visible improvements or infrastructure shape the way organisations conceptualise adaptation. Interviews with employees and policymakers demonstrated that this undermined adaptation interventions' ability to effectively address vulnerability, instead perhaps reinforcing some of the processes generating vulnerability. Practitioners and policymakers admitted that the political economy of aid obstructs cooperation even though they are aware of the possible benefits of such cooperation. Instead, organisations integrate humanitarian aid and adaptation in one program, neglecting long-term vulnerability reduction. In addition, the "eating competition" takes precedence, clouding the intentions to decrease vulnerability. These findings suggest that it is very difficult for organisations to implement measures that are transformative, in terms of transforming the socio-political relations and processes generating vulnerability, since the political economy of aid is part of such socio-political relations.

5.2.3 Context analysis

The way that the vulnerability context is analysed forms a clear example of how the political economy of aid shapes discourses and directs vulnerability understandings. The political economy of aid and vulnerability understanding shapes to what extent adaptation can transform underlying problems. Literature stated the need to address and transform underlying problems to adequately reduce vulnerability (Pelling, 2015; Jordan, 2019). Similarly, Eriksen et al. (2015) suggests that a deeper knowledge of the contextual vulnerabilities is needed to contest predominant knowledges that extend asymmetric socio-political relations. To get an understanding of the underlying problems, O'Brien argues that a contextual analysis is needed (2007). Therefore, I will identify below to what extent interventions conducted a contextual analysis and how they shape vulnerability understandings.

Some of the employees explained how they conducted an analysis in the interventions specific context before implementing their projects, ensuring engagement of the local populations. The two farm experiments explain how they are based on the wishes of the farmer. The first project explains how a community liaison officer (CLO), often pastors, conveys the local populations' needs to the NGO. The employee of this NGO then goes to corroborate with the local population if the CLO communicated their actual needs. He explains that confirmation is needed to avoid conflict of interest because the CLO might be having own interests. During the village meeting, the employee explains the benefits of the project and what is needed from the local population to have successful results. After all, it will be the local population that have to put in the work in the farms, said the informant. If the

employee deems the local population to be committed to the project, the organisation will go forth with implementing farms. The other project explained they made use of what they call “community entry” before construction of climate smart agriculture. The policymaker explained that when you want to start a project, you will have to call their local leaders, tell them about the project and explain the importance. With local leaders this policymaker means the focal people such as the administrations in each place, the chiefs and ward administrators, and the elders. Next, the policymaker and the local leaders meet with the local population to explain the project. In this way, the leaders can make the local populations understand better the goal of the project when local people do not comprehend the need of the project, explains the policymaker. The policymaker explains that without conducting a “correct” “community entry”, the project will not be accepted and fail. In this way, the contextual analysis and hence the organisations’ vulnerability understanding is made dependent on local power relations, legitimizing the knowledge of those already in influential positions in the village rather than knowledge of the most marginalized. In addition, the knowledge is shaped by the organisation’s intent to carry out a particular type of intervention, rather than the local population’s potential need for a different type of intervention.

Another employee stated the need to conduct a participatory context analysis to verify actual vulnerabilities. An employee from national governmental authority explained his pilot projects are based on the participatory appraisals. Though, the employee explained he needs to conduct his own background work with data of the county government and pre verification in the village. He goes around the village and does an analysis of the interventions context on verifying water availability, health services, vegetation, interventions... The employee explains the importance of own verification because local populations often are smart enough to say they don’t have water, or any other projects so they would get even more assistance. Afterwards he goes to talk to the local populations to hear their challenges and needs. In this way a context analysis becomes a tool to verify the vulnerabilities suggested by the local populations, demonstrating a top-down knowledge approach.

An organisation also made use of a context analysis to assess who is most vulnerable and most in need of adaptation. An employee explained they conducted a vulnerability assessment based on the perennial water shortages in the area, showing the local populations who suffer most from lack of access to clean water. This analysis presented Lorengelup as most vulnerable area that has a stable aquifer which could support a borehole. In this way the context analysis became a tool to find the location for a particular predetermined intervention without any regard of the underlying problems.

One intervention utilized a participatory context analysis as core of the intervention, to decrease highlighted vulnerabilities with an action plan. The projects based on advocacy and trainings on climate change adaptation conducts a context analysis together with a group of local people to develop a community plan, improving their resilience. These plans analyse the existing resources, the challenges and hazards and the needs to address the challenges and decrease the community's vulnerability. In detail the analysis looks at natural hazards, water, health, education, economic position or the livelihoods, social protection programs, peace and security, and migration. With this analysis they suggested that more improved infrastructure such as classrooms, boreholes, and markets supported by upscaling of social protection such as the cash transfers will support the local populations' resilience. This analysis does conduct an analysis of socio-environmental challenges, though neglects analysis of the power relations that cause social inequality and vulnerability. The context analysis is conducted with as main goal to develop an action plan at the end of the group session, neglecting a thorough analysis of power relations and associated vulnerability differentiation.

Finally, one organisation described how they made use of a context analysis to assess the vulnerability status to a hazard and when intervention is needed. One employee of a national governmental authority explained they had a structured system whereby they analyse the drought status every month, which discloses them when to respond. This analysis looks at the environmental indicators of drought such as the water sources, the vegetation and rainfall. Next to that, the analysis looks at the socio-economic indicators of drought, such as livestock and rainfed crop production, access to milk, water and trade, and utilization of food sources by looking at the nutrition. The analysis also includes migratory status and security issues to assess the drought status and potential need for response. The same organisation uses a different analysing method to assess vulnerability and select recipients for the cash transfer. Each household has to participate in a questionnaire which looks at the economic position analysed by a proximity test. This test divides households in two groups, level 1 beneficiaries, who are most vulnerable and receive cash bimonthly, and level 2 beneficiaries who are less vulnerable and receive cash only as response during drought. The results of the proximity test are shared with the local population during a village meeting, in this way people from the village can speak up about errors, for example a wealthy person who was classified in level 1, explained the employee. Though, the earlier discussed power relations in Kambi Lore and Nangorchoto and cultural norm do not allow marginalized villagers to speak up. The way the organisation utilizes context analysis to provide predetermined aid neglects to analyse or address the underlying problems such as unequal power relations.

To conclude, interventions utilized contextual analysis in diverse ways. Though literature suggested a context analysis to identify the underlying problems and how to address them in a context, many employees utilized the context analysis for different reasons. Interviews with practitioners and policymakers revealed they conducted a context analysis to acquire acceptance of villagers for an intervention, to develop a plan which local populations can implement themselves to decrease vulnerability, to know when to provide aid, or to identify where a predetermined intervention is most needed. Only one employee utilized contextual analysis to analyse which interventions are needed. Though, he also utilized the analysis to verify vulnerabilities out of distrust of villagers. These intentions suggest the analysis may not adequately be able to identify underlying problems and provide transformative adaptation interventions.

5.2.3.1 Key aspects of the vulnerability context identified by policymakers and practitioners

Even though practitioners and policymakers claimed they conducted context analysis, most of them referred to wider Turkana culture when asked more in detail about contextual aspects for their programs' locality. This study asked employees and policymakers about power dynamics, gender relations, knowledge, socio-economic position, infrastructure, migration, and security of their programs' context. Many of them admitted they cannot unveil contextual challenges of their specific programs' locality. Most of the employees and policymakers explained they did not stay for a long time in a village, leaving them unable to observe contextual details. Even though an employee had a program that mainly focused on analysis of vulnerabilities and needs to develop a community action plan, he could not say with certainty that Lorengelup had permanent housing, showing the limited contextual knowledge. Some of the context analysis were done during one village meeting, which does not allow for a thorough context analysis that can uncover underlying problems. A policymaker said, "I have just been passing, I have not been staying to see how power has been shared". Therefore, he could only refer to the general power dynamics in the Turkana culture. The practitioners and policy makers lack of detailed contextual dynamics raises questions about their capacity to uncover underlying issues and possible ways to address them.

Though contextual analysis might have been limited, all of the practitioners and policymakers described the socio-economic position of people in Lorengelup as very low, attributing poverty to climate change. Practitioners and policymakers described the economic position of people in Lorengelup as very low based on their observations or their knowledge

of Turkana culture. Both employees of national governmental authorities said the villagers in Lorengelup have very little livestock due to drought, which is the main livelihood for men. The decrease of livestock leaves very little economic activity for them, they said. Women get money from all these interventions such as cash transfers and charcoal burning or weaving mats, described one of the employees. Nevertheless, most of the practitioners and policymakers said that people living in Lorengelup have a low economic position. An employee of an NGO said, “most people live below two dollars a day”, with one policymaker even stating that most of the families live below one dollar a day. Another employee of an NGO explained that most local populations cannot even afford two meals a day. Another employee of an NGO refers to Lorengelup’s economic position as below average; explaining that the items local people can buy are very limited, like only 100 grams of sugar, or tealeaves instead of a whole bag. Moreover, he explains that only few shops and permanent structures are present which does not reflect the population and consequently shows the low economic level of the area.

In addition to the climate change employees attributed poverty to social factors such as lack of education, illiteracy, polygamy, the large number of children, and unequal power. Some employees argued that the lack of education and exposure to more urban developed areas for many of the households in Lorengelup is the biggest cause of poverty. A couple of them referred to illiteracy as another cause of poverty. An employee of an NGO said that almost 84% of Turkana are illiterate which brings about vulnerability. Furthermore, he explained that polygamy and the large number of children puts a strain on the limited resources and increases poverty. The people who are employed by the governments or the organisations have a higher economic position, but those are few in Lorengelup, he explains. One policymaker that was born in the environment of Lorengelup explained that the seers and their families are also wealthy because local people have to share their wealth, such as livestock and bride prices, with the seer’s family. Mostly local people share their wealth with the seer out of fear for the bad consequences the superstition dictates. These wealthy local people suffer less from drought and are less vulnerable, explains an employee. To decrease vulnerability of many poor households, an employee of an NGO said, “there needs to be some engagement on livelihood interventions that will spur the economic growth for those communities”. The suggested livelihood intervention demonstrates an outcome vulnerability approach, neglecting the underlying causes of poverty generating vulnerability differentiation such as the illustrated social causes and unequal power relations.

Practitioners and policymakers identify lack of infrastructure as a key feature of the vulnerability context. Many employees and policymakers explained that infrastructure has really improved with the establishment of the county government. Lorengelup specifically has received a dispensary, improved roads, handpumps and boreholes, ECD's and a primary school, explained a couple of practitioners and policymakers. Most of the practitioners and policymakers argue that these infrastructural changes have improved healthcare, education, and access to vehicles which have extended access to services. In addition, communication has improved due to the extension of phone signal which allows for phone calls and mobile money services. An employee of a national governmental authority states that infrastructure has gone together with economic development. He explains that more and more households build semi-permanent structures with iron sheets, showing a difference in terms of their economical position. A policymaker and a couple of employees explained that the changes in infrastructure has caused a change from traditional nomadic lifestyles to a life in settlements for many pastoralists. Though changes are happening, an employee of a national governmental authority stated that infrastructural changes are still to low compared to what is required to decrease vulnerability. He explains that development often takes the upper hand, neglecting the recurrent supply such as medicine and medical professional. For example, the government built an ECD, which is now used for storage because the government didn't employ a teacher to teach children. An employee of an NGO said that infrastructure will need to be strengthened. He explained that Lorengelup's population increases continuously, putting gradually more and more pressure on infrastructure and services. He said that the school and dispensary must be upgraded to make sure that sufficient education and healthcare is provided. Practitioners and policymakers believe expansion of infrastructure will decrease vulnerability, even though the current infrastructural changes and associated change to settled lifestyles did not provide significant changes in vulnerability.

Practitioners and policymakers illustrated that in all of Turkana, patriarchal structures generate unequal distribution of labour and power. A policymaker explains that roles are traditionally defined and remain strictly divided between men and women in rural populations. Men are defined culturally as more powerful and usually take leadership in the county. An employee of a national governmental authority explained that women cannot lead a group of men. Nevertheless, "these communities are women heavy", he said. Women's power is passive because they are the ones who are doing all the labour but have no say, explained the employee. Women are making sure the children are cared for and the household has food to eat, water to drink, a house to sleep in, and clean clothes to wear. Initially, men's

job was to secure the household and take care of the livestock. Men would gather under a tree and discuss politics and security. Though lately, an employee of a NGO explained that men often just sit under a tree playing games and at the end of the day expect something to eat when they get home. These men no longer have livestock to take care of or have send their sons to look after the animals, leaving them without daily responsibilities. Nevertheless, men have a higher status than women in Turkana. A policymaker who comes from the area of Lorengelup, said that he cannot give any further explanation for this power inequity, it just is what it is.

Practitioners and policymakers have different interpretations about how gender inequality affects adaptation and climate change vulnerability. An employee of a national governmental authority said, men are less vulnerable to drought or other hazards because of the clear division of labour. “They would have moved to a site that had food before a drought would service at this other site”, he said. On the other hand, an employee of an NGO explained that women are more resilient because of their proven adaptivity skills, explaining that women have taken charge to find ways to cope with climate change. Women will find a way to provide food for their children when they are hungry, by getting wild fruits, burning charcoal and buying some food, or asking from a neighbour, he said. Men on the other hand hold on to their traditional practices and remain focussed on livestock even though many of the animals are lost. Though, this discourse neglects how the responsibility to adapt is unequally distributed which makes women vulnerable. In addition, this discourse demonstrates how vulnerability is attributed to the pastoralists’ ignorance of other lifestyles, disregarding the underlying problems such as the unequal power and gender relations that generate vulnerability.

All practitioner informants recognized how cultural defined power structures make elders, particular families, political positions, and definers most powerful in Turkana, though could not explain in detail how power is distributed in Lorengelup. An employee of a national governmental authority said that in Turkana populations often one specific elder control the whole village. This elder might not speak up during the village meetings but will control what others say or do. Next to elders, he also explained that some specific families have more power than other villagers. Usually these families are one of the first ones that settled in the area, he said. Though, he believes these families cannot overpower the governmental positions such as the chief. He believes the chief keeps the absolute power during village meetings and cannot be overruled. Nevertheless, powerful elders often acquire the position of “chief elder” which allows them to influence the chief’s decision making. Interviews with a

chief in Lorengelup however demonstrated that the power does not reach to the surrounding villages, where traditional elder structures hold the highest power. Next to that, other employees referred to the political positions as powerful. An employee of an NGO referred to the influence of policies on the local populations; that if politicians make good policies with the interest of the local population at heart, the local population will benefit. After all, the local politicians like the Turkana county assembly representatives can speak up about the allocation of money. In addition, most of the employees explain that clans do not have a big influence on power in Turkana. They explain that all of the people in the rural areas usually are part of one tribe, the Turkana. Within this tribe, clans do not take a role, they are weak structures, explained an employee of an NGO. Though, a clan has influence on power during election of political positions, explains some employees and policymakers. Mostly one clan is mainly situated in an area which gives them the majority in the election, giving them the power to select people for political positions. Furthermore, many employees and policymakers that are more familiar with Lorengelup explain that the definers are most powerful in Lorengelup. Lorengelup is known for their definers explained a couple of policymakers and employees. Most of the populations in Turkana still believe in superstition, making the definers very influential, explained an employee. Local people go and seek the definers intervention in terms of drought and sickness. Another employee of a national authority explained that the definers safeguard the culture. In case of any issues, the definers decide on how to implement correction or how to solve a case, demonstrating their powerful position. Many of these powerful villagers' word cannot be questioned due to the illiteracy and low education level of many of the other villagers. An employee of an NGO said that illiteracy level of many local people leaves them defenceless and vulnerable to abuse of power. Though practitioners and policymakers acknowledge the hierarchical culture in Turkana, they did not analyse thoroughly how power relations take place in Lorengelup. In addition, the lack of consideration to address power inequality due to its intrinsic link to vulnerability, raises questions about adaptation interventions' transformative capacity.

There was little consciousness among informants regarding the way that knowledge and power are interlinked, that is, reflexivity regarding how their own knowledge forms part of power relations and also shape their relations with pastoralists. Though most of the employees and policymakers explain that local populations are aware of the changing climate, they believe the knowledge on the causes of climate change and the necessary adaptation measures remain limited. A policymaker explained that only recently policymakers have embraced and directed their attention towards climate change and have not yet been able to

sufficiently spread their information towards the local populations. An employee of an NGO explained that populations in Turkana observed a change in the climate but details about climate change are missing. An employee from the national authority explained that cultural knowledge of Turkana pastoralists is rain centred. “They know how to look for rain, so they don’t know how to adapt to drought”, he said. He explains that the knowledge they have has helped them survive for 600 plus years, but with the changing climate their knowledge is no longer effective. He believes the knowledge could be more effective with better technology. Furthermore, he thinks local populations need further spread of information on weather events such as drought or flood awareness. Now local populations are often dependent during times of drought and floods, explained the employee of a national governmental authority. For example, extreme rains and flash floods causes pneumonia and other diseases because their houses are mainly built for shade, not for rain. Another employee of an NGO believes people in Lorengelup have very little, to no knowledge of climate change, considering the education level of most of the local populations. Even people who are educated remain ignorant of climate change, he said. A couple of employees believe that the leaders, such as the chief and other villagers that have gone to school do have knowledge. The employees hope the knowledgeable local people could serve as role models and train their fellow villagers for example by planting trees as chief. Therefore, many employees and policymakers believe that education of some local people could further bring awareness in the entire village and assist to their resilience. One employee explained they tried to spread knowledge on climate change through educating three local people. However, they are unable to follow up and merely hope on further spread of the information due to the projects limited time. He admitted that more climate change programs are needed to adequately uplift the knowledge of local populations and empower them to actually increase their resilience. Most of the practitioners and policymakers illustrated a top-down knowledge approach whereby scientific knowledge is prioritized and local knowledge marginalized, further exacerbating power inequality.

On the other hand, a couple of practitioners did believe people in Lorengelup had a sufficient amount of knowledge, though seemed to be misinformed. One employee believes that local populations’ awareness on climate change increased, which caused most of the local populations to no longer engage in deforestation. He explained that women or people who are burning charcoal only use dead wood from fallen trees. He believes that awareness of the impact of charcoal burning on the changing climate decreased the amount of deforestation over the years. Though, the employee was misinformed, because the field research observed pastoralists burning charcoal from life trees. In addition, this discourse still represents a top

down approach, whereby pastoralists are unjustified presented as cause of climate change. Another employee of a national governmental authority believes that villagers in Lorengelup have a “satisfactory” level of knowledge about climate change and explain that they are trying to adapt to climate change. Furthermore, local populations carry responsibility to bring successful results to projects, such as the maintenance of the boreholes and water structures, indicating a satisfactory level of awareness according to the employee. Though some employees believe pastoralists have sufficient knowledge, they refer to the scientific knowledge provided by the organisation, rather than acknowledging the rich local knowledge.

All practitioners and policymakers acknowledged that increased settlements altered migration and security, though attribute the shift to increasing drought and climate change, neglecting their own role. More and more pastoralists have settled down in Lorengelup, causing for expansion of the town since 1990’s, explained a couple of employees. One employee of an NGO expressed his concern about the increased settlements and consequently boundaries, and the risk of increased violence over resources. In earlier days, all land would be owned by Turkana pastoralists which were freely moving around. The decrease of resources and the increase of settlements could cause an entitlement of the resources and conflict over land, the employee explained. As for now, Lorengelup is very secure other than stealing some crops from the farms such as watermelons explained all policymakers and employees. Furthermore, settlements changed migration to short distances and periods, staying within reach of the household in case of emergencies. Though, the changing climate and extreme drought forces the few men and youth with some livestock to leave their family far behind, migrating for longer distances than before. The settlements and the changing climate caused for a change in pastoral routes increasing the risk of violence and vulnerability. Next to migration in search for pasture, rural urban migration has started to take place. An employee of an NGO explained that few elites or educated villagers migrated to the bigger towns such as Lodwar or Eldoret, in search of further schooling or employment opportunities. The employee said, “those who can go anywhere will not stay in the village”. Though another employee explained only very few are able to leave the village. Mostly men are the ones migrating, because women are often getting married limiting their chance on further schooling or employment. As a consequence of the migration, only villagers with the same thinking are left behind, stagnating the possibility of development for the local population, explained one employee of an NGO. “Those who could have developed the village, left to the urban area”, said the employee. Another employee of a national governmental authority said temporary migration limits aid’s capacity to target the right

amount of local people. Moreover, this employee explained that children sometimes have to join the migration, standing in the way of their education. Another employee states that migration has caused for social disintegration when men are marrying other women and starting new families, leaving the previous wife and children behind without livestock or source of nutrition and income. Employees and policymakers have observed change in migration which stands in the way of development and increases the vulnerability. Practitioners and policymakers highlighted how increased settlements did not bring reduction of vulnerability, though do not seem to be aware of humanitarian aids role and responsibility for this shift.

Though many employees and policymakers were aware of many contextual challenges, it remains unclear how much of the analysis has actually directed the program. Many of the employees and policymakers had an idea of the contextual challenges in Turkana even though many of the programs only did a limited context analysis. Nevertheless, when employees and policymakers were asked who they defined as vulnerable in the program, most of them used the widely used and standardized answer of pregnant and lactating women, children under five, and elderly. One policymaker even said that all the local populations they are serving are vulnerable, which does not reflect his knowledge on the complexity of contextual challenges. Only one employee of a national governmental authority integrated the contextual knowledge a little bit more by saying that poor people are categorized as the vulnerable group because their livelihood source disappeared. Though even in this perspective a outcome approach was used whereby climate change caused for reduction of pastoral livelihood which generated poverty. Consequently, this study observed that practitioners and policymakers do not utilize contextual vulnerability understandings to any great extent to inform intervention on the underlying issues that need to be addressed to decrease vulnerability.

5.2.4 Local population involvement

Though interventions have little contextual analysis, all practitioners and policymakers claimed that involving local populations ensures that interventions address vulnerability by transforming livelihoods. Policymakers and employees claim to involve local populations in their programs to ensure the populations' vulnerability decreases. A policymaker explained how receiving local populations need to have the feeling they own the project to make sure that they take responsibility to make the program successful. To ensure the local populations'

sense of ownership, the policymaker explains that populations need to be actively involved in the program. Therefore, a policymaker explained they employed local people to construct a farm. He explained that there are technical jobs that require engineers and cannot be given to local people. Though, the policymaker said that local people can do the manual work such as digging holes and raising plateaus, marginalizing local populations. An employee from a national governmental authority explained he also employs local people for the more manual jobs such as clearing sights. An employee from a national governmental authority explained that they involve their villagers through participatory training approach. Local people learn step by step through this technique how to farm while they are working in a farm. The employee experienced that the participatory training approach gives better success in the pastoral populations than classical training. The program does not pay the trainees, but describes that volunteers take part knowing they will benefit indirectly, for example by selling crops. In addition, many interventions also make use of committees while implementing a project. An employee of an NGO explained that they established a water committee with trained members to manage the water utilization and maintenance or even do some small repairs. An employee of a national governmental authority explained they create a project community committee for each program such as the slaughter offtake. This committee is in charge of the distribution, implementation of the project and addressing complaints. Practitioners and policymakers incorporate local people in the interventions to ensure that they embrace the “modern” problem understanding and solutions to decrease vulnerability, demonstrating a top-down knowledge approach that marginalizes local populations.

Many practitioners and policymakers guided the selection of local people to be involved in the project, hoping to decrease gender inequality and distribute the benefits better over the households. Most of the programs can only involve a small group of local people in an active way, demanding a selection process. Informants of Kambi Lore and Nangorchoto described that they select themselves who becomes part of for example a committee through some type of democratic process. Though, practitioners and policymakers explained they guide the local populations to make sure diverse groups of people get the chance to become part of the committee. Due to awareness concerning the gender gap in Turkana, most of the interventions guide the selection process of committee members to be gender equal, anticipating uplifting women’s position in the local populations. In addition to gender equality, some employees and policymakers explained they focus on women involvement due to the nature of the activity and women’s accountability. Most of the organisations that implement programs regarding agriculture and charcoal burning focus on women due to their

gendered task such as ensuring food for the household. Though questions could be raised about this strategy and its impact which could reinforce gendered roles and associated power distribution, rather than decrease vulnerability. An employee from a national governmental authority explains that his projects mainly succeed because of women, consequently making him focus on women. “Men disintegrate, I have pilot groups of just men, only one or two men will stay the rest goes to do other things”, he says. An employee of an NGO also explained that the program struggles to get men invested in agricultural programs. On the other hand, the employees explain that women push each other in the group, forcing each other to take responsibility and ensure good harvest. Though many programs are invested in involving women, an employee admitted that they did not fully achieve gender equality in his program. Only 3 of the 3 out of the 12 committees were led by women. Next to gender equality, programs try to achieve equality by including a diverse group of households. An employee of an NGO explained they try to involve women from different families to work on the farm. Many men in Turkana have several wives explains the employee. To make sure that a larger amount of families benefits from the farm, the program tries to guide the selection process of workers in a way that not more than one wife of one man will be working in the same farm. A policymaker explains his program attempts to have workers on the farm from different villages. In this way the programs try to distribute the benefits more equally and increase the resilience of a larger number of local people.

Even though programs try to distribute participatory benefits, many citizens of Kambi Lore and Nangorchoto explained they do not have equal chance to take active part in the programs. Some informants from Kambi Lore and Nangorchoto explained they prefer becoming part of the committees though often the same prominent people get selected for the positions. Many informants explained that when you are part of a committee, participants can get some money. The positions are very sought-after because of possible earning, but mostly taken by the same people, because they can speak and write or are older than the other villagers. A lady explains she would like to get education so she can learn how to write and become a secretary in the committees. Another lady explains that when organisations come to select committee members in a village meeting, she is not “allowed” to stand up because of cultural values that elder women or men are more in their right to take these positions. Nevertheless, the process of selection in the village meetings is seen as democratic. Therefore, villagers that might contest the selected committee members will be downcast by the local population and leave that person no chance to further express his or her grievances. An employee from an NGO explained he is aware of power dynamics playing a role in the

selection of committees. He explained there was a case where a prominent family found out that the committee had access to funds. Therefore, this family tried to claim access to the committee and their funds. Though the employee showed awareness concerning power dynamics, he explained that the program trained the committee members on conflict resolution, making him believe that the conflict was resolved together with the chief in a democratic way. The latter reasoning stands in contrast to local people's explanation that they are unable to contest selection processes due to the power dynamics in Kambi Lore and Nangorchoto. In this way, the practitioners' and policymakers' disregard of the unequal power dynamics stands in the way for equal distribution of benefits, exacerbating social inequality and vulnerability.

In addition, interventions' lack of explanation, insufficient influence of local people, and skewed intentions demonstrate a top down approach further exacerbating dependency and power inequality in Turkana's political economy of aid. A policymaker who comes from the area of Lorengelup explained that merely involving the local populations does not guarantee a program's success. He explained that local people might not see the need for the program as long as they don't know the knowledge and thinking behind the program. Local people have little knowledge on climate change, he says. Therefore, the local populations might not see the need of the project as long as they are not properly explained what climate change is and how the project will help decrease their vulnerability. He admitted regrettably that in his experience programs often neglect this step in the process. A couple of practitioners even admitted they prefer to focus on local populations that request the interventions instead of teaching or explaining local populations why the program increases their resilience. They said that the local population understands the need for the project when the request comes from themselves, ensuring a better chance of success to decrease vulnerability. Furthermore, local populations feel they do not have the possibility to influence the programs even though programs focus on involving local populations. A couple of prominent leaders of Kambi Lore and Nangorchoto explained that programs only involve local populations for implementation of the program, not during the planning process. A 31-year-old woman from Nangorchoto said "the government does not ask for knowledge of people, what they do is just bring their own project". These statements show the programs' limited space for involvement of local populations, questioning the capacity for participation to create a feeling of ownership and increase resilience. During the field research, this study learned from local leaders and other villagers that most of the committees are no longer active, demonstrating that involving local populations with a top-down knowledge approach does not significantly reduce vulnerability.

On the other hand, the programs might not involve local populations with the intention to increase their resilience. An employee of a national governmental authority admitted they also need to make use of committees due to the limited resources. “The resources are not enough so the communities also need to actually participate”, said the employee. The observed top down approach in Turkana’s political economy of aid causes for an unequal involvement of local people, marginalizing their knowledge and increasing vulnerability.

To conclude, the analysis of the interventions’ focus, institutional structure, context analysis, and local population involvement illustrated how adaptation is integrated within Turkana’s political economy of aid and its discourses, limiting transformative capacity. Interventions in Turkana have historically focussed on aid and incorporated adaptation into ongoing efforts and approaches. The outcome vulnerability approach generates adaptation interventions that mostly entail providing infrastructure and “sensitizing” pastoralists to “embrace” diverse livelihoods. Infrastructural changes provided necessary services, such as potable water or healthcare, though remain elementary and neglect the underlying problems that cause vulnerability. In addition, interventions mission to “sensitize” pastoralists about climate change and provide new livelihoods prioritizes scientific knowledge, demonstrating a top-down knowledge approach. This discourse accordingly provokes a neglect of context analysis to identify underlying problems, merely utilizing the analysis to implement a predetermined intervention. Moreover, the involvement of local people illustrates a top down approach, neglecting the unequal power relations and local knowledge. Consequently, the discourse used to implement adaptation interventions marginalizes pastoral livelihoods and local knowledge, limiting the adaptations’ transformative capacity.

6 CONCLUSION

This qualitative master thesis research intended to identify how global questions of climate change adaptation manifest in Turkana’s local political economy of aid and how that affects vulnerability reduction. Growing awareness concerning the unequal distribution of adverse climate change impacts generated an increase in climate change adaptation interventions to decrease vulnerability in the Global South (S. Eriksen et al., 2014; Nightingale et al., 2019). However, global questions arose when research and evaluations repetitively demonstrated the lack of many adaptation interventions to rise above the technical solutions, questioning if and how adaptation can decrease vulnerability. Pelling et al. (2015) and Jordan (2019) argue that the general natural science precedence in adaptation neglects the

underlying problems causing for vulnerability, demanding an integration of social science perspective. Scoville-Simonds (2015) and Tschakert et al. (2016) argued for acknowledgement of socio-political aspect in adaptation, because depoliticizing adaptation risks reinforcing power imbalances and exacerbating vulnerability. Tanner and Allouche (2011) advocate for increasing awareness of political economy in adaptation, highlighting how ideas, power and resources are conceptualised negotiated and implemented within adaptation. Multiple researchers such as O'Brien (2018), Pelling (2015), Few et al., (2017) also demonstrated the need for a more transformative approach of climate change adaptation to decrease vulnerability. Even though research repetitively called for adaptation that acknowledges the socio-political aspects of adaptation and transforms the underlying problems, adaptation seems to lack to rise above technical solutions. Therefore, Nightingale et al. (2019) argues with their theory “co-production of knowledge” that knowledge demands a critical approach, recognizing how the problems are also products of knowledge and the power relations it represents, demanding for a plurality of knowledge. These critiques or concepts shape the global discussion of climate change adaptation. This study looked into how global questions of adaptation’s ability to decrease vulnerability manifests in Turkana’s local political economy of aid by identifying the socio-environmental shifts that are shaping social inequality and vulnerability in Kambi Lore and Nangorchoto. In addition, this study analysed to what extent the formal adaptation interventions transform or reinforce the processes creating vulnerability in Lorengelup.

Semi-structured interviews with local populations of Kambi Lore and Nangorchoto highlighted the importance to conduct a context analysis that looks at socio-environmental shifts and underlying structures causing vulnerability, as O'Brien et al. (2007) and Nightingale et al. (2019) suggested. Analysis demonstrated how the convergence of poverty, exacerbated by drought, and increasing humanitarian aid forced pastoralists to diversify their livelihoods in Kambi Lore and Nangorchoto. Though, the alternative livelihoods remain marginal, affecting socio-economic status and producing a dependency on humanitarian aid which exacerbates vulnerability. The modernisation discourse of the government and developmental organisations improved infrastructure further pushing local populations away from the nomadic pastoralist lifestyles, settling down and sparking “urbanisation” of Kambi Lore. Though the decrease of migration and access to services was supposed to reduce vulnerability, the dependency on poorly equipped infrastructure reinforced the marginal position of many people in Kambi Lore and even more in Nangorchoto. In addition, the intersection of gender, clans, and family relations remain inveterate and produces unequal

power relations with little to no room for contestation. The shift prioritizing “modern” knowledge legitimized authority of certain actors such as the government and NGOs, further exacerbating unequal relations that marginalize many people in Kambi Lore and Nangorchoto. These underlying problems illustrate how the push away from pastoral livelihoods is interlinked with authority that subjectifies pastoralists as vulnerable and their knowledge as insufficient. Accordingly, there is a need for a transformative approach that recognizes the socio-political aspects in adaptation as Few et al. (2017) and Scoville-Simonds (2015) describe.

However, analysis of the interventions demonstrated that adaptation is emerged in the discourses of the political economy of aid that blocks transformation of the vulnerabilities, exemplifying the need to acknowledge the political economy in adaptation as Tanner and Allouche argued. Many of the organisations in Turkana initially had a humanitarian focus but also incorporated adaptation. Though practitioners and policy makers claim to implement adaptation because they attribute vulnerability to adverse climate change impacts, this study also observed that organisations implement adaptation to strengthen their position in the political economy of aid. Consequently, adaptation interventions mostly entail providing infrastructure and “sensitizing” pastoralists about alternative livelihoods. These interventions represent a top-down knowledge discourse that neglects analysis of the underlying problems producing vulnerability and marginalizes the local populations and their knowledge. Accordingly involving local populations is utilized as a tool to ensure that local populations “embrace” the practitioners’ or policy makers’ problem understanding and solutions. This demonstrates that even though organisations demonstrated a shift by embracing climate change adaptation, the development discourses in Turkana’s political economy of aid remains resistant to change. Consequently, the organisations in Turkana’s political economy of aid hold on to the problem understanding that condemns pastoral lifestyles, top-down perception of pastoralists, and actual implemented measures when realizing adaptation interventions. This suggests that is very difficult for organisations to implement adaptation that transforms unequal socio-political relations and processes driving vulnerability, because it entails transforming the political economy of aid that they are part of.

To conclude, Turkana’s political economy of aid is shaping the co-productive knowledge processes, undermining vulnerability reduction. Nightingale et al. (2019) raises attention to the way knowledge and problems coevolve, demanding a plurality of knowledge. This study observed knowledges in Turkana’s political economy of aid that shape the way that vulnerability problem is framed. The data analysis highlighted a key development

discourse whereby climate change and pastoral livelihoods are framed as the cause of vulnerability. This knowledge produces depoliticization of adaptation, neglecting outside factors and making the pastoralists responsible for their own vulnerability. In addition, the discourse categorizes the pastoralist as unknowledgeable, demanding “sensitization” that informs local population about the “modern” knowledges. Consequently, the vulnerability discourse in Turkana’s political economy of aid marginalizes local knowledge and undermines vulnerability reduction. Consequently, this study proposes a critical approach is needed of discourses in Turkana’s political economy of aid, ensuring the acknowledgement of local knowledge in line with Nightingales’ appeal for an ontological plurality (2019).

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8 APPENDIX

8.1 Interview Guide - Villagers Kambi Lore and Nangorchoto

First I would like to thank you for making time to speak to us. My name is Pauline Rutten and I am a student from the Norwegian University of Life Sciences. In short the university NMBU will be responsible for the research project. This interview will be part of my master thesis research focussing on strengthening drought resilience in Lorengelup.

Thanks to your participation I will be able to learn more about daily challenges citizens of Lorengelup have to face and how they manage to cope and provide a living for their households. The interview will be a type of conversation where I will be asking questions but I welcome you to give me any additional insides about how it is to live in Lorengelup. I am here to learn from you.

I will be interviewing many in Lorengelup to get an overall idea of the situation in Lorengelup but personal information and opinions will not be shared with others. The information you give will be anonymous, so nobody except for you, the translator and me will know, who gave me the information you will provide. You are also free to stop the interview, ask to erase

the given information or not answer a question whenever you want during the interview. The interview will be recorded and stored anonymously on my personal device and will solely be listened to by me for data analysis/research purposes. After the data analysis/research, the recordings will be erased and collected data will be presented in my master thesis in the month Mai.

Your participation is voluntary and you may withdraw your consent to participate without giving a reason, as long as we process your personal data, which will be until Mai. Furthermore you have the right to request access to your personal data, request that your personal data is deleted and request that incorrect personal data about you is corrected. You can also ask for a copy of your personal data.

If you have any complaints you can contact me or my supervisor of the university. My email is: prutten@nmbu.no, my advisor is called Siri Eriksen and you can reach her through email: siri.eriksen@nmbu.no. Or you can contact the Norwegian Centre for Research Data AS (NSD) on the following email: personverntjenester@nsd.no. I will equally give this information to the chief who can assist you further in case of any issues.

Do you have any further questions? Do you allow us to process your personal data until the end date of the project (Mai)? Are you happy to participate and continue this interview?

1. How old are you?/ When were you born?/ In which year were you born/Around which event were you born? (presidential change, a certain drought,...)
2. Where were you born, and where did you grow up?
3. What was it like to grow up in Lorengelup (or other) at that time?
4. What has changed since / How had life changed? (animal husbandry/ animal livelihoods: fewer livestock, why? ; invasive species and grazing)
 - a. According to your experience, what is the largest change in your village/ Lorengelup, or living in Lorengelup, since you grew up?"
 - b. Why do you think this happened?
5. What are your daily activities and how are they different at other times of the year? (long rains, vs short rains, vs drought periods)?
6. How are these activities different of your husbands or other men in town? (GENDER DYNAMICS)
 - a. Are these activities the same for everyone in town? Do other men/women have different activities from you?
 - b. Which decisions do you make in the household? Which decisions does your husband make in the household?
 - c. Which clan do you belong to? Were you born in this clan or married into this clan?
 - d. Who makes decisions in your clan? What types of decisions can clan elders make? Can women in the clan approach clan elders directly with a problem or to seek advice? Can you give an example?

7. How would you describe your own power to influence or make change in Lorengelup? (POWER)
 - a. Who has most power to make change in Lorengelup?
 - b. Have you experienced any struggles or conflicts over power between clans, or between clan elders and other leaders?
 - c. How are conflicts solved?
 - d. Who do you go to to seek advice or assistance if there is a problem or conflict? Can you give an example?

8. Can you explain to me some of the key seasons in this area, and key weather conditions or events that are important to your livelihoods? (KNOWLEDGE)
 - a. Can you describe particular signs that the rains are coming, or other weather signs?
 - b. Who in the community has most knowledge about the weather? Do you also get information about the weather from other sources, such as the weather forecast or the government? Is this information useful?
 - c. Think back to when you grew up in (or first moved to) this area. What was the environment like? How has the weather and the environment changed in Lorengelup in comparison to your childhood?
 - d. How knowledgeable would you consider yourself about what to do with these changes?
 - e. From whom do you seek advice and knowledge about what to do with changed environment?
 - f. Do you feel that people listen to and respect the knowledge you have, for example people working for the government or development organisations?

9. Think back to when you grew up in this area, and what the roads, schools, clinics etc were like then. How has infrastructure changed in Lorengelup in comparison to when you were a child? (INFRASTRUCTURE)
 - a. How has the change in infrastructure impacted you and others?
 - b. Would you consider the change in infrastructure positive?
 - i. How did it help you or how did it not help you?

10. Do you think that your village/ Lorengelup is a safe place to live? How about Turkana in general, is it a safe place to live, herd animals and travel? (SECURITY)
 - a. Think back to when you were a child. Has security changed since then? Who do you rely on for security? What are the main security issues? Who do you think is responsible for violence?
 - b. Who is more vulnerable to conflict and who is more safe in Lorengelup, Why?
 - c. Can you recount any experience of conflict or violence in Lorengelup? What happened? How was the situation solved? Who assisted?

11. How would you describe the migration in Lorengelup? (MIGRATION)
 - a. Why do people migrate? Do people migrate with cattle for grazing? Do people also migrate for other reasons, such as employment, education?
 - b. Where do people migrate to for cattle grazing? How far is the migration distance? Does this alter during different times of the year (wet, dry season)?
 - c. Who decides where people migrate to with their livestock?
 - d. Do people take their livestock to the same areas as before or has this changed in comparison to when you were growing up? Why?

- e. Where do people migrate to for work/employment/schooling?
 - f. Who from the community migrates? (Men/women/young/older?) What sort of jobs do they do?
 - g. What are the consequences of people migrating?
12. How do you make a living, how do you provide (food, schoolfees, medicine,...) for your family? (SOCIO ECONOMIC POSITION)
- a. How do others in Lorengelup provide for their families, is it similar?
 - b. How is this different from the way your parents provided a living? Why do you think this has changed?
13. What are the biggest challenges with living in Lorengelup?
- a. What are the key events in history of Lorengelup since you have lived here? When was the most recent significant event?
 - i. Who suffered most from that? Was there a particular group of people who suffered most?
 - b. Why do you still live here anyway?
14. Which organisations or organisations have tried to help with problems in Lorengelup?
- a. How did they try to help?
 - b. Which challenges did they try to decrease? Do you think they were successful? Why/Why not?
 - c. Who in the community did they work with?
 - d. From whom did they seek advice on what measures to implement?
 - e. Are leaders or local people directly involved in making decisions or in implementing the project? (such as being employed by the project or being part of development committees?)
15. Did the organisations make a difference or cause for change?
- a. What did they change?
 - b. How did they (not) cause for change?
16. Who did the project help most?
- a. Were there some people that the project did not reach successfully?
 - b. How could they have helped you even more?
17. In your opinion, did the project do a good job with helping you and others in Lorengelup?
- a. How could the project have been more successful?

8.2 Interview Guide - Policymakers

First I would like to express my gratitude for making time to talk with us. My name is Pauline Rutten and I am a student at the Norwegian university of life sciences. In short the university NMBU will be responsible for the research project. This interview will be part of my master thesis research, focussing on strengthening drought resilience in Lorengelup.

Your participation will give me the chance to learn from your expertise and perspective on how drought resilience can be strengthened. The interview will be part of a qualitative

research to get a better understanding of challenges and possible solutions to increase drought resilience. Therefore I would like to welcome you to give any additional insides next to my questions.

The interview will be anonymous, and you are free to stop the interview, erase given information or not answer a question at any time. The interview will be recorded and stored anonymously on my personal device and will solely be listened to by me for data analysis purposes. After the data analysis, the recordings will be erased and collected data will be presented in my master thesis in the month Mai.

Your participation is voluntary and you may withdraw your consent to participate without giving a reason, as long as we process your personal data, which will be until Mai. Furthermore you have the right to the right to request access to your personal data, request that your personal data is deleted and request that incorrect personal data about you is corrected. You can also ask for a copy of your personal data.

If you have any complaints you can contact me or my supervisor of the university. My email is: prutten@nmbu.no, my advisor is called Siri Eriksen and you can reach her through email: siri.eriksen@nmbu.no. Or you can contact the Norwegian Centre for Research Data AS (NSD) on the following email: personvern@nsd.no. I will equally give this information to the chief who can assist you further in case of any issues.

Do you have any further questions? Do you allow us to process your personal data until the end date of the project (Mai)? Are you happy to participate and continue this interview?

1. May I ask how old you are?
2. Where were you born? (When did you move here?)
3. What does your job entail?
 - a. I would like you to think back to when you first started this job (which year?)
What aspect of the job was most surprising or unexpected?
 - b. How has the job changed since, in terms of how challenges for example?
4. If you think back to when you first moved here (or childhood/youth if she/he was born here), how has Turkana/Lodwar changed?
 - a. Do you think these changes of Turkana/Lodwar are similar to changes in Lorengelup? How?
5. What initiatives are taken in Lorengelup/Turkana to increase drought resilience?
 - a. Why these specific initiatives, and this specific location?
 - b. What are the most important initiatives or projects in your opinion, why?
 - c. Who is reached by the projects?
 - d. How did the initiative change in comparison to when you started working here (or grew up in Turkana)? Why do you think that is?
 - e. Would you consider the initiatives to be climate change adaptation or humanitarian aid?
 - f. Have you heard of the county adaptation action plan?
 - i. Have you been involved in developing the plan or providing advice? In what way?

- ii. How do you think the initiatives contribute to the adaptation action plan?
- 6. What role do you play in ensuring drought resilience in Lorengelup/Turkana?
 - a. Which initiatives or projects do you implement, or take responsibility for?
 - b. What are the goals of the project?
 - c. In what way do you achieve the goals?
 - i. What has been the most important factor, in your opinion, that has enabled you to implement the project?
 - d. What are the most important challenges to achieving the goals?
 - i. Who do you consult, or from whom do you seek advice, to overcome these challenges?
 - e. Who do you reach with the initiatives, who are defined as vulnerable?
 - f. Who within the community is involved in the project, such as making decisions regarding which measures to take, or in the practical implementation? Is anyone in the local community employed in the project? How do you select people who are appropriate to have such roles in the project?
- 7. Have you visited Lorengelup during the implementation of the project, what was your impression?
 - a. What do you think are the main stressors/challenges of Lorengelup? (if not visited, what are the main stressors of Turkana)
 - b. Who suffers most from the main stressors?
 - c. How do you think these challenges can be resolved?
- 8. While you were in Lorengelup/In Turkana, how did/do you experience the power dynamics?
 - a. Who do you feel is most and least powerfull in Lorengelup/Turkana?
 - b. Who are the most influential or important families or clans?
 - c. Have you experienced any struggles or conflict over power (between clans, clan elders or other leaders)?
 - d. How were the conflicts resolved? Who do you go to to seek advice or assistance if there is a conflict? Can you give an example?
- 9. How much knowledge do you feel people in Lorengelup/Turkana have about the changing climate and how to respond?
 - a. Who within the community has most knowledge? Is this knowledge useful? Why do you think that is? How would this knowledge be able to help them, or not help them?
 - b. What other knowledge are they in need of, and where can this knowledge be sourced?
- 10. Have you observed any differences between the roles and activities of men and women in Lorengelup/Turkana? Which are other key differences between men and women and their status in society?
 - a. How do these differences affect the project/initiatives?
 - b. How do the differences between men and women impact the way they cope with the changing climate?
- 11. How would you describe the economic position of people living in Lorengelup/Turkana?

- a. Who has the lowest and who has the highest socio economic position in Lorengelup/Turkana?
 - b. What are the differences between the lowest economic position and the highest in Lorengelup/Turkana? (is it a big difference, small, how does it influence their way of living, ...)
 - c. What are the main factors that influence people's socio-economic position?
12. What are the different ethnic groups present in Lorengelup/Turkana?
- a. How does people's ethnic background influence their position in society, their roles and activities?
 - b. What do you think is the largest cause for diversity in ethnic groups?
 - c. How has migration in Lorengelup/Turkana changed in comparison to when you started working?
 - i. Why do people migrate? (employment/livestock)
 - ii. Who decides where people migrate to for grazing? How far is the migration distance (for people in Lorengelup)? How has this changed in comparison to when you started working?
 - iii. Where do people migrate to for employment/schooling?
 - iv. Who mostly migrates? Why do you think that is?
 - v. What are the consequences of migration in Lorengelup/Turkana?
13. How has the infrastructure changed in since you started working?
- a. How has the change impacted Lorengelup/Turkana?
 - b. What are the main challenges with infrastructure in Lorengelup/Turkana?
14. How did you experience/How do you experience security in Lorengelup/Turkana, did/do you feel safe?
- a. Were there any issues with security that limited the functioning of your project?
How do you think security problems could best be solved? Who is responsible for the violence? And who is responsible (or should be responsible) for making sure there is security?
15. When you think of security, infrastructure, migration, socio economic, gender, knowledge, and power dynamics, which ones do your initiatives/job try to address and how?
- a. In what way was the initiative implemented?
 - b. How did it impact one of the previous stressors?
16. What do you consider to be the differences between humanitarian and adaptation projects?
- a. What are the main focuses of humanitarian and adaptation initiatives in Turkana/Lorengelup?
 - b. Could you give any examples in Turkana/ Lorengelup?
 - c. How do you in practice implement, or establish humanitarian and adaptation initiatives? Are these projects very different? Do these in practice united into one initiative?
17. Have there been any efforts within your job or initiatives to collaborate with other adaptation projects/humanitarian projects? In what way? Could you give any examples?
- a. Do you know of any other organisations that collaborate?

18. In your opinion, why should adaptation and humanitarian initiatives be, or not be, collaborating?
- a. What might be the benefits? (examples)
 - b. What might be difficult when they collaborate? (examples)

8.3 Interview Guide - Practitioners

First I would like to express my gratitude for making time to talk with us. My name is Pauline Rutten and I am a student at the Norwegian university of life sciences. In short the university NMBU will be responsible for the research project. This interview will be part of my master thesis research, focussing on strengthening drought resilience in Lorengelup.

Your participation will give me the chance to learn from your expertise and perspective on how drought resilience can be strengthened. The interview will be part of a qualitative research to get a better understanding of challenges and possible solutions to increase drought resilience. Therefore I would like to welcome you to give any additional insides next to my questions.

The interview will be anonymous, and you are free to stop the interview, erase given information or not answer a question at any time. The interview will be recorded and stored anonymously on my personal device and will solely be listened to by me for data analysis purposes. After the data analysis, the recordings will be erased and collected data will be presented in my master thesis in the month Mai.

Your participation is voluntary and you may withdraw your consent to participate without giving a reason, as long as we process your personal data, which will be until Mai. Furthermore you have the right to the right to request access to your personal data, request that your personal data is deleted and request that incorrect personal data about you is corrected. You can also ask for a copy of your personal data.

If you have any complaints you can contact me or my supervisor of the university. My email is: prutten@nmbu.no, my advisor is called Siri Eriksen and you can reach her through email: siri.eriksen@nmbu.no. Or you can contact the Norwegian Centre for Research Data AS (NSD) on the following email: personvern@nsd.no. I will equally give this information to the chief who can assist you further in case of any issues.

Do you have any further questions? Do you allow us to process your personal data until the end date of the project (Mai)? Are you happy to participate and continue this interview?

19. May I ask how old you are?
20. Where were you born? (When did you move here?)
21. What does the organisation/ project do?
- a. What is the goal?
 - b. Would you consider it to be climate change adaptation or humanitarian aid?
22. What does your job entail?
- a. I would like you to think back to when you first started this job (which year?)
What aspect of the job was most surprising or unexpected?

- b. How has the job changed since, in terms of how challenges have changed for example?
- 23. If you think back to when you first moved here (or childhood/youth if s/he was born here), how has Turkana/Lodwar changed?
 - a. Do you think these changes of Turkana/Lodwar are similar to changes in Lorengelup? How?
- 24. What projects do you work on? When did you start working in the project?
 - a. What was most surprising when you started work on the project?
 - b. How did the project changed since you started working here? Why (Challenges)?
- 25. Which projects have been implemented in Lorengelup?
 - a. Why these/this specific project, and this specific location?
 - b. What is/are the goals of the projects?
 - c. In what way do you achieve the goals?
 - i. What has been the most important factor, in your opinion, that has enabled you to implement the project?
 - d. What are the most important challenges to achieving the goals?
 - i. Who do you consult, or from whom do you seek advice, to overcome these challenges?
 - e. Who do you reach with the project, who is defined as vulnerable?
 - f. Who within the community is involved in the project, such as making decisions regarding which measures to take, or in the practical implementation? Is anyone in the local community employed in the project? How do you select people who are appropriate to have such roles in the project?
- 26. When you went to implement the project, what was your impression of Lorengelup?
 - a. What do you think are the main stressors/challenges of Lorengelup?
 - b. How do you think these challenges can be resolved?
- 27. While you were in Lorengelup, how did you experience the power dynamics?
 - a. Who do you feel is most and least powerfull in Lorengelup?
 - b. Who are the most influential or important families or clans?
 - c. Have you experienced any struggles or conflict over power, between clans, clan elders or other leaders?
 - d. How were the conflicts resolved? Who do you go to to seek advice or assistance if there is a conflict? Can you give an example?
- 28. How much knowledge do you feel people in Lorengelup have about the changing climate and how to respond?
 - a. Who within the community has most knowledge? Is this knowledge useful?
 - b. Why do you think that is?
 - c. How would this knowledge be able to help them, or not help them?
 - d. What other knowledge are they in need of, and where can this knowledge be sourced?
- 29. Have you observed any differences between the roles and activities of men and women in Lorengelup? Which are other key differences between men and women and their status in society?

- a. How do these differences affect the project?
 - b. How do the differences between men and women impact the way they cope with the changing climate?
30. How would you describe the economic position of people living in Lorengelup?
- a. Who has the lowest and who has the highest socio economic position in Lorengelup?
 - b. What are the differences between the lowest economic position and the highest in Lorengelup? (is it a big difference, small, how does it influence their way of living, ...)
 - c. What are the main factors that influence people's socio-economic position in Lorengelup?
31. What are the different ethnic groups present in Lorengelup?
- a. How does people's ethnic background influence their position in society, their roles and activities?
 - b. What do you think is the largest cause for diversity in ethnic groups?
 - c. How has migration in Lorengelup/ Turkana changed in comparison to when you started working?
 - i. Why do people migrate? (employment/livestock)
 - ii. Who decides where people migrate to for grazing? How far is the migration distance (for people in Lorengelup)? How has this changed in comparison to when you started working?
 - iii. Where do people migrate to for employment/schooling?
 - iv. Who mostly migrates? Why do you think that is?
 - v. What are the consequences of migration in Lorengelup?
32. What are problems with infrastructure in Lorengelup?
- a. How has the infrastructure changed in since you started working?
 - b. How has the change impacted Lorengelup?
33. How did you experience security in Lorengelup, did you feel safe?
- a. Were there any issues with security that limited the functioning of your project?
How do you think security problems could best be solved? Who is responsible for the violence? And who is responsible (or should be responsible) for making sure there is security?
34. When you think of security, infrastructure, migration, socio economic, gender, knowledge, and power dynamics, which ones does your project try to address and how?
- a. In what way was the project implemented?
 - b. How did it impact one of the previous stressors?
35. For employees of adaptation projects:
- a. Have you heard of the county adaptation action plan?
 - i. Have you been involved in developing the plan or providing advice? In what way?
 - ii. How do you think your project contributes to the adaptation action plan?
 - b. Do you know of any humanitarian projects in Lorengelup? If yes, which ones?
 - c. What do these projects mainly do?

- d. Are there particular people within these projects that you coordinate with in your project?
- e. What do you learn from their project that is useful for your project?
- f. Do they learn from your project in a way that helps them in their implementation of humanitarian projects?

For employees of human aid organisations:

- g. Do you know of any adaptation projects in Turkana? If yes, which ones?
- h. What do these projects mainly do?
- i. Are there particular people within these projects that you coordinate with in your project?
- j. What do you learn from their project that is useful for your project?
- k. Do they learn from your project in a way that helps them in their implementation of climate change adaptation projects?

36. Have there been any efforts within your project to collaborate with other adaptation projects/humanitarian projects? In what way? (example)

- a. Do you know of any other organisations that collaborate?

37. In your opinion, why should adaptation and humanitarian organisations/ projects be, or not be, collaborating?

- a. What might be the benefits? (examples)
- b. What might be difficult when they collaborate? (examples)



Norges miljø- og biovitenskapelige universitet
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Norwegian University of Life Sciences

Postboks 5003
NO-1432 Ås
Norway