

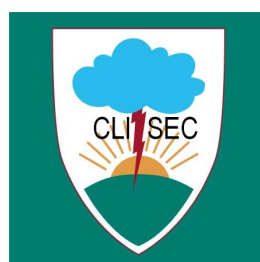


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*Local Adaptation and National Climate Change Policy in Kenya:
Discrepancies, Options, and the Way Forward*

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Local Adaptation and National Climate Change Policy in Kenya: Discrepancies, Options, and the Way Forward

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Abstract

Droughts are not a recent phenomenon in Kenya. For centuries, pastoralists and farmers have adjusted their livelihoods to periods of resource scarcity. However, the combination of unsustainable resources use, inadequate national policies and intensifying climate change threaten to overwhelm the existing adaptive capabilities. This paper focuses on local adaptation, national climate change policy and their interaction. The following three questions are addressed. First, what adaptation options do pastoralists and agro-pastoralists have and which do they actually adopt? Second, do state policies strengthen local adaptation or do they cause the opposite? Third, how can discrepancies between national and local adaptation strategies be overcome in theory and what is actually feasible?

Local options of adaptation strongly depend on the specific socio economic, cultural and geographical context. While the engagement into tourism can be an attractive source of (additional) income for the Masai in Kajiado (southern Kenya), this would be an unfeasible change of lifestyle for the Turkana in northern Kenya. The paper discusses such options, based on own field research conducted in one pastoral and one agro-pastoral community in Kenya. These findings are compared with the effects of national policies. In the past, pastoral communities – already socially vulnerably – have been disadvantaged by the government giving privilege to farming communities and wildlife conservation.

Keywords: Climate Change, Adaptation, Policy, Pastoralism, Kenya

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1. Introduction

“Across Kenya, the effects of climate change are wreaking havoc” (MEMR 2009b:3). The prolonged droughts of the past decade have threatened food security and societal stability, especially in vulnerable pastoral areas (Economist 2009; GoK 2007b; Jha 2009; UNDP 2007). There is “a critical need [...] for adaptive measures to be undertaken” (MEMR 2009a). This paper discusses local adaptation and the national climate change policy and their interaction. The paper first attempts to understand the reasons for and the degree of Kenya’s vulnerability towards climate change (chapter 2). Against this background we discuss which adaptation options pastoralists and agro-pastoralists have and which they actually adopt. For this purpose we choose two distinct research areas based on climatic conditions, livelihood orientation, proximity to urban centres and degree of development (Figure 1). The first research area is Kajiado district which borders the capital district of Nairobi to the north and Tanzania to the south. Kajiado is characterized by a temperate to semi arid climate, a medium level of development and a large population of pastoral and agro-pastoral Masai (GoK 2007b; Masai Chief 2011; Masai Elder 2011). The second research area is the arid and politically and economically marginalized district of Turkana, located in northwest Kenya (Daniel 2011; GoK 2007b; Kiplagat 2011). Here, pure pastoralism is the central type of livelihood (ibid.). In both research areas and Nairobi, 28 experts from governmental and non-governmental organizations as well as pastoralists and agro-pastoralists, local chiefs and other community members were interviewed in March 2011 (chapter 3). The second central question of this paper is: do state policies strengthen local adaptation or do they cause the opposite? To explore this question an additional number of 14 experts from governmental and non-governmental organizations were interviewed in Nairobi between March and April 2011 (chapter 4). Based on the findings from chapter 3 and 4, we identify discrepancies between national and local adaptation strategies and discuss how they can be overcome in theory and practice (chapter 5). Chapter 6 summarizes the findings and draws conclusions on local and national adaptation in Kenya.

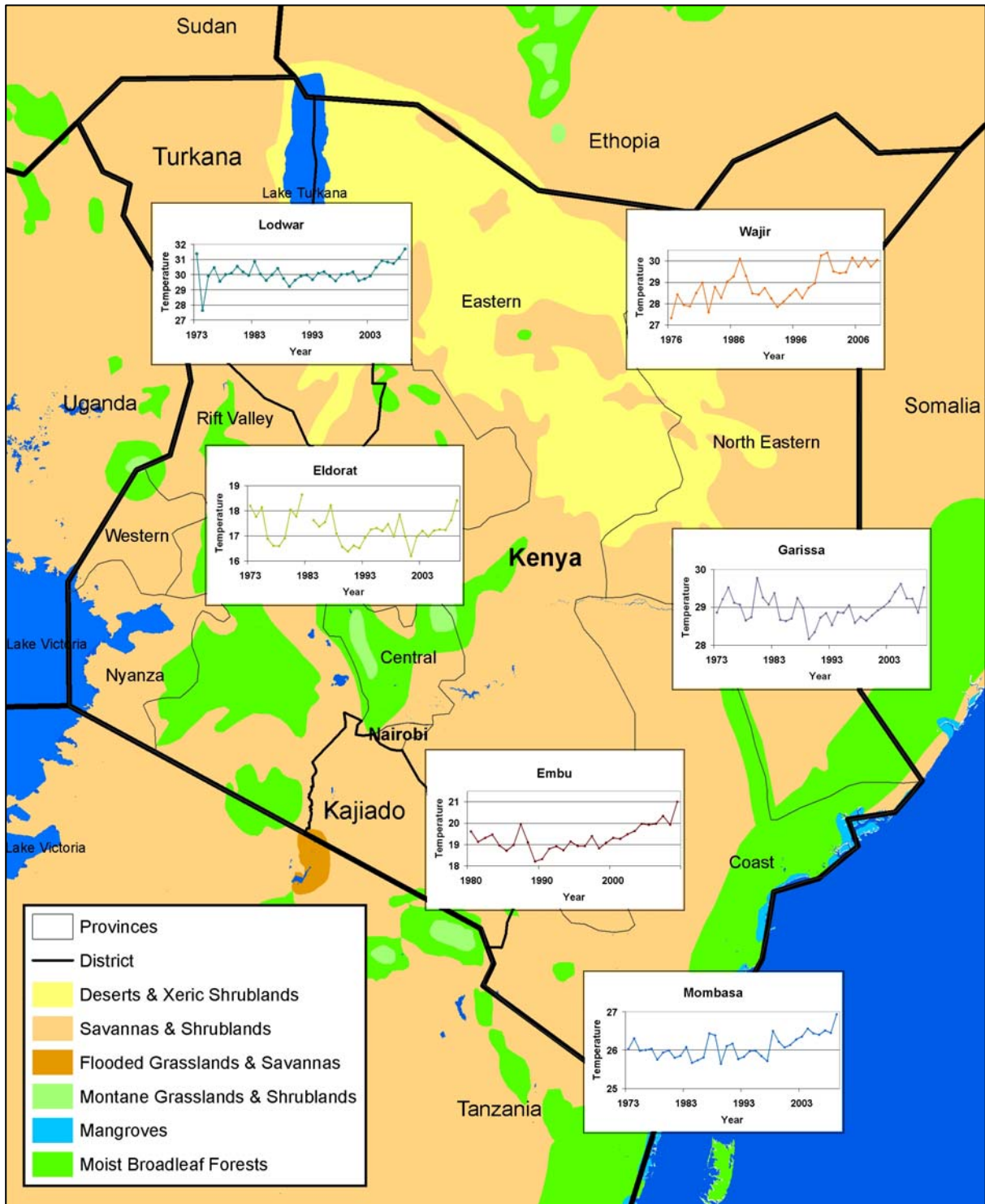


Figure 1 Temperature, vegetation and research districts in Kenya (own representation based on FAO 2010c; Kenya Meterological Departement 2006).

2. Vulnerability to Climate Change and Impacts

The concept of vulnerability lacks a universally accepted and precise definition (see Cutter 2003; Füssel 2007; Scheffran 2010; Vincent 2004). Yet, three elements of vulnerability can be identified as consistent throughout the literature: i) exposure to climate change, ii)

sensitivity to climate change, and iii) adaptive capacity (Adger 2006; Heltberg et al. 2009; Smit/Wandel 2006). These elements are reflected by the definition of the IPCC: “vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity” (IPCC 2007:883). The following sections give an overview of the elements of vulnerability with emphasis on the adaptive capacity (Figure 2). The last section highlights impacts that past climatic changes had on the country.

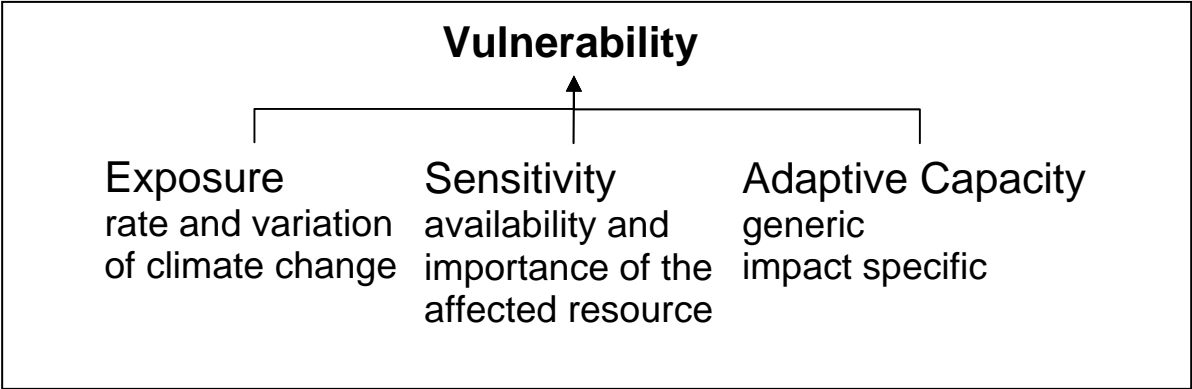


Figure 2 Elements of vulnerability (own representation based on IPCC 2007).

2.1 Exposure and Sensitivity

Kenya, located on the equator, has a mostly temperate climate in the inland, a semi arid to arid climate in the northern part and a tropical climate along the coast (Ambenje 2011). The average annual mean temperature (between 1970 and 1999) is 23.9 °C with little variation throughout the year. The highest temperatures of about 35 °C are reached in North Kenya, while the lowest values of 10 °C and below are mostly found in the central-western parts of the country. Most of the annual rainfall of about 687 mm falls during the long rains from March to May and the short rains from October to December (McSweeney et al. 2008). According to the IPCC temperatures in Kenya have risen by 1°C over the past 50 years (Christensen et al. 2007). Looking particularly at highlands Pascual et al. (2006) find a significant warming trend of 0.5°C since the end of the 1970s. This trend is in line with on the ground measurements. Figure 1 shows temperature curves from six weather stations in Kenya. The country is warming at a rate roughly 1.5 times the global average (Christensen et al. 2007). Currently, the Kenya Meterological Department operates 37 weather stations. Most stations record data since the 1960s (Ambenje 2011).

As for precipitation no statistically significant trend can be observed since 1960. Yet, the proportion of rain falling in heavy rainfall events has increased. These events are projected to occur more often, resulting in a higher total amount of rainfall and an increase of rainfall variability (Christensen et al. 2007; McSweeney et al. 2008).

Temperatures are projected to increase up to 2.8°C until 2060 and up to 4.5°C until 2090 (IPCC 2007). In general, it has to be noted that climate models (REMO, AOGCM) for the eastern African region lack reliability and accuracy (Christensen et al. 2007; Klehmet 2009). Still, the trend of increasing temperatures for eastern Africa is consistent throughout the models (ibid.).

The projected trend of increasing temperatures and less reliable rainfall increases the likelihood of floods and droughts in Kenya (Few et al. 2006; WBGU 2007). In arid and semi arid lands (ASALs), which make up 80% of Kenya’s land area, droughts are a common phenomenon (GoK 2007b).¹ In northern Kenya, where the dryness is most pronounced, 28 major droughts have been recorded in the past 100 years. The drought frequency has increased as 4 of the 28 droughts occurred in the last 10 years (Mude et al. 2009). Pastoralists and farmers relying on sufficient rain report a sharply contracting drought cycle. According to them rains used to fail every nine or ten years, while they now experience drought every two or three years (Akeru 2011; Daniel 2011). This trend is not only perceived in northern Kenya but also at the southern border to Tanzania (Masai Chief 2011; Masai Elder 2011; Masai Woman 2011).

Nationwide, Kenya is very sensitive to the described climatic change. Water as the primary resource affected by climate change is already stressed to scarce (FAO 2010a; World Resources Institute 2008). In addition, Kenya’s economy highly dependants on reliable rain for agriculture and electricity generation (FAO 2010b; KenGen 2011). The purely rain fed agricultural sector contributes 23% to the national GDP (World Bank 2010). The importance of the agricultural sector is even stronger when measured in terms of employment as three quarters of the labor force are employed in this sector (see Figure 3).

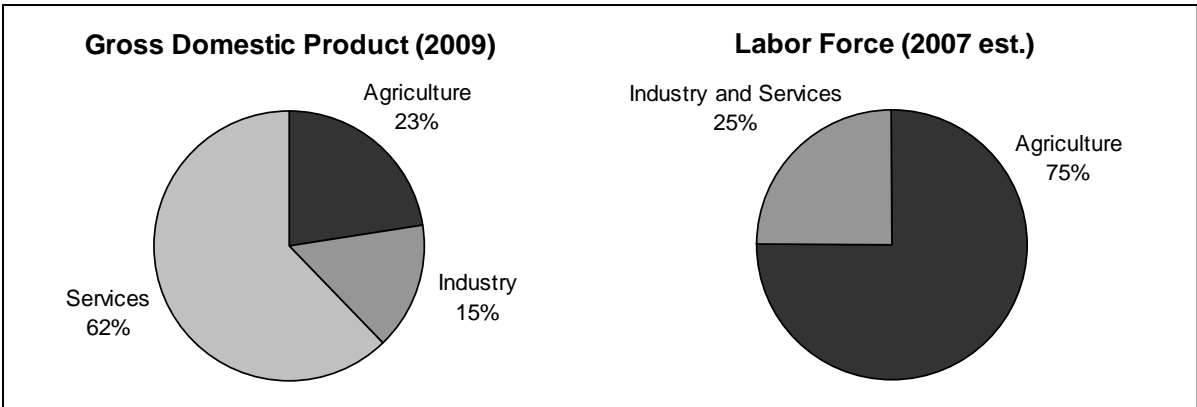


Figure 3 Importance of agriculture for GDP and labor force (CIA 2010; World Bank 2010).

¹ ASALs are characterized by an annual rainfall amount of up to 500 mm (ibid.).

2.2 Adaptive Capacity

Adaptive capacity can be characterized as “the ability or potential of a system to respond successfully to climate variability and change” (IPCC 2007:727). This very broad concept can be further broken down into generic indicators such as income/economy, education and health as well as into impact specific indicators such as institutions, knowledge and technology (Adger/Vincent 2005; IPCC 2007).

Using the most relevant and widely accepted indicators, the following sections briefly review each of these factors to identify weaknesses and to set the general background for the further discussion of impacts and (local) options for adaptation.

Generic Adaptive Capacity

Kenya’s economy faces significant challenges. Among the most significant are a high unemployment rate of 40% (65% among the youth) and a low income level (UNDP 2010). The GDP per capita of 783 USD is low even compared to the average of Sub-Saharan Africa (Table 1). In addition, the wealth is very unevenly distributed (Gini Index of 47.7), causing half of the population to live below the poverty line (CIA 2010; UNDP 2010).² Despite the process made here, the public debt still sums up to more than 50% of the national GDP (CIA 2010). The annual GDP growth rate is slowly recovering from the 2007/2008 post election crises but only reached 2.6% in 2009 (World Bank 2010).³

Table 1 Adaptive Capacity (Schwab 2010; Transparency International 2010; UNDP 2010; USAIDS 2010; World Bank 2009, 2011)

	Generic indicators			Impact specific indicators		
	GDP ^[1] per capita in PPP ^[2] USD (2009)	HIV/AIDS- adult prevalence rate (2009 est.)	Inequality-adjusted education index (2010)	Corruption perceptions index (2010)	Knowledge index (2009)	Technological readiness index (2010)
Kenya	739	6,3%	0.369	2.1	2.69	3.1
Sub-Saharan Africa	1,225	5.0%	0.254	-	-	-
Index range	-	-	0.0 - 1.0	0 - 10	0 - 10	0 - 7

[1] GDP: gross domestic product, [2] PPP: purchasing power parity. Indexes: higher values indicate a higher level of development / lower level of corruption.

Little et al. (2009) have shown that formal education of pastoralists can reduce their risk towards droughts. Kenya’s education ranges above the average of Sub-Saharan Africa, according to the inequality-adjusted education index which combines adult literacy rates and gross enrolment ratios (see Table 1 and UNDP 2010). In theory the primary education is free of charge (GoK 2005). However, several interviewees stated that most primary schools

² The Gini index lies between 0 and 100. A value of 0 represents absolute equality and 100 absolute inequality.

³ For a discussion of the effects of the post election violence see Chege (2008).

receive insufficient government funding and therefore rely on school fees (Kiplagat 2011; Masai Chief 2011; Ukelu 2011). The Government of Kenya (GoK) has made efforts to increase the number of schools (GoK 2005). Yet, especially in rural northern Kenya the density of schools is too low to offer the local population sufficient access to education (Johannes 2010).

The disparity between urban and rural parts of Kenya is also evident when the health of the population is concerned. While 83% of the population in cities have access to improved drinking water sources, this value drops to 59% in rural areas. In terms of life expectancy at birth (for both sexes), Kenya reaches a value of 54 years and hence slightly exceeds the continent's average of 53 years (WHO 2010). Closely connected to the life expectancy and by far the most critical health figure is the HIV/AIDS rate among adults (aged 15-49). Officially 6,3% of the adult population in Kenya were estimated to live with HIV/AIDS in 2009 (CIA 2010). 1.5 million people (both adults and children) live with HIV/AIDS. That is the 5th highest number in the world (ibid.).

Impact Specific Adaptive Capacity

The indicators available to measure the performance of institutions and the level of knowledge and technology are aggregated ones and hence do not allow for a detailed assessment of a country's impact specific adaptive capacity. However, it is possible to point to some strengths and weaknesses.

A critical indicator to characterize the performance of institutions is the level of corruption. Here, the Corruption Perceptions Index which measures the perceived level of public-sector corruption, is widely accepted. Kenya scores very poor on the index, ranging from 0 (highly corrupt) to 10 (very clean). The score of 2.1 and a country rank of 154 (out of 178 countries) reveal one of Kenya's major obstacles for development and efficient adaptation to climate change (Transparency International 2010, 2011). In our interviews the level of corruption in Kenya was mentioned and criticized by interviewees in different contexts (Bakonyi 2011; Kimani 2011; Kipkore 2011; Okoro 2011).

Knowledge is an important factor for adaptation (Galvin 2008; Lesorogol 2008). According to the World Bank Kenya's level of knowledge lies slightly below the continent's average (see Table 1). The index "measures a country's ability to generate, adopt and diffuse knowledge" (World Bank 2009). As the index draws on other scores characterizing the level of education, human resources, innovation and information and communication technology, it interlinks both with other impact specific and generic indicators (see prior section). While Kenya's score of 2.69 might seem low, it should be mentioned that the index hardly takes indigenous knowledge into account which has been identified by several studies to be critical in terms of

successful climate change adaptation (Ensor/Berger 2009; Folke et al. 2005; Pedersen/Benjaminsen 2008).

Closely interlinked with the level of knowledge is the level of technology. Based on the Technological Readiness index, Kenya is among the last third of all ranked countries (rank 101 of 139). The index combines several components such as foreign direct investment, availability of latest technologies and number of internet users (Schwab 2010). Especially the number of internet and cell phone users has significantly increased (CCK 2010), which increases the availability of information. This can strengthen mechanisms to cope with climate stresses (see chapter 3).

Overall, the limited adaptive capacity in combination with the strong climate change exposure and the high level of sensitivity make Kenya vulnerable to the impacts of climate change.

2.3 Impacts

The recent droughts had severe impacts on the country's agriculture and food security (Economist 2009; GoK 2008a; Jha 2009). For example, the droughts of 1999/2000 resulted in 4.7 million Kenyans facing starvation (GoK 2010). The Government of Kenya citing "unofficial reports" states that "the 2006-2009 successive drought episodes caused 10 million people - over a fourth of the country's population - to starve" (GoK 2010:101) . Major losses of cattle were reported in northern Kenya (Economist 2009). But not only the rural areas of Kenya were affected. As the country heavily relies on hydropower (see above) industries, businesses and private households had to cope with limited electricity supply (Economist 2009).

Besides droughts, floods pose a threat to food production and human and animal lives in Kenya. In early 2010 floods caused by heavy rainfall killed 15 to 20 people, aggravated the food situation and forced the Kenyan government to ask for international help (BBC 2010). In addition to the direct killing of people, floods also have medium to long term effects. As stagnant water serves as a breeding ground for mosquitoes, floods increase the spreading of diseases such as Malaria (Oluoko-Odingo 2010; Pascual et al. 2006; UNDP 2007; UNEP 2009) and hence the affect the health of the local populations. Heavy rains also increase the risk of landslides which can cause longer-lasting damages to the infrastructure. For example in 2008, the short rains caused several landslides, cutting off villages in western, rift valley and coast province (see UN 2008; UN 2010).

Especially, the media (Economist 2009; Jha 2009) and NGOs (Christian Aid 2006; Smith/Vivekananda 2009) often draw a connection between climatic impacts, the availability of resources (mostly food and water) and the occurrence of violence. The Economist warns "a catastrophe is looming - Governments are at their wits' end to keep their hungry people

alive” (2009). Smith and Vivekananda see “a high risk of political instability as a knock-on consequence of climate change” (2007:44) while the Guardian already proclaims “the first climate change conflicts” (Jha 2009) in northern Kenya.

Still, the proclaimed direct link between climate change and societal instability is far from empirically sound. A number of studies (Campbell et al. 2009; Mkuu 2008; Theisen 2010; Witsenburg/Adano 2009) come to a variety of different conclusions concerning the role of environmental factors as drivers for conflict in Kenya. None of the studies finds the simple causal links proclaimed by media and NGO reports.

Regardless of the uncertainty associated with climate change as a driver for violence, it is widely acknowledged that climate change negatively impacts the economy, food security and livelihoods in Kenya (Herrero et al. 2010; Lobell/Burke 2010; Oluoko-Odingo 2010). It is therefore important to understand and to strengthen local adaptation.

3. Local Adaptation

The previous sections have shown that droughts are not a recent phenomenon in Kenya. For centuries, pastoralists and farmers have adjusted their livelihoods to climate variability and periods of resource scarcity. However, the drought periods of the past decade have increasingly threatened to overwhelm the existing adaptive capabilities. This chapter discusses local options of adaptation, drawing on field research conducted in Kajiado (southern Kenya) and Turkana district (northern Kenya) between March and May 2011 (see Figure 1).

3.1 Adaptation in Kajiado

Kajiado is a semi arid district mostly inhabited by Masai (Nyariki et al. 2009). The Masai predominantly practice pastoralism and to some extent engage in subsistence farming (Osunga 2009). Sufficient availability of pasture and water is critical for the Masai to sustain their livelihood.⁴ Three main ways of adapting to resource scarcity caused by more frequent and prolonged drought were identified. First, expansion of grazing range, second diversifying income sources, and third migration to urban centres.

The expansion of grazing range together with the adjustment of wandering of herds is a traditional way of adaptation. It is an inherent feature of pastoralism to drive the livestock according to pasture and water ability and hence follow the seasonal pattern of rains (Butt et al. 2009; GoK 2007b). Yet, Masai in Namaga report that the traditional grazing areas are too dry to feed the herds making an expansion of grazing areas necessary. Especially

⁴ For an overview of livestock numbers see Worden et al. (2010).

movements to the south and north cause conflict with actors in the target areas. As Namanga is a border town, Kenyan Masai often cross the border to Tanzania where they are exposed to harassment and imprisonment by Tanzanian security forces. In addition the Kenyan Masai compete with the local Tanzanian Masai over pasture and watering points. The competition occasionally leads to smaller cattle raids and incidents of violence among the groups (Masai Chief 2011; Masai Elder 2011; Masai Woman 2011; Masai Youth 2011). The expansion of grazing areas to the north also implies conflict. Pastoralists in Namanga report that they drive their cattle as far as Nairobi or Nyeri to find pasture. It takes the Masai weeks to cover these distances of more than 150 kilometres (Figure 1) even if they use trucks for parts of the way. Many animals die before they reach their designated pasture which often lies within the territory of a national park (Masai Elder 2011). As park rangers fear that the pastoralists' livestock could bring diseases to the park and decrease the resource base, the Masai are not welcome there either (see also Sundstrom 2009). A Masai youth (2011) reported that armed rangers have used violence against pastoralists and their herds to drive them out of the park.⁵ A few parks such as Nairobi National Park and Amboseli National Park have been fenced off to prevent pastoralists from entering (Ellington 2007; Okello/D'Amour 2008).

Partly because of the downsides of the expansion (hostile receiving areas and cattle losses during transport) of grazing areas, the Masai of Kajiado have started to diversify their income sources by producing and selling souvenirs (called "curios") to locals and tourists. Compared to other areas such as Mombasa and Nairobi tourism in Namanga is underdeveloped (Kibicho 2006; Talle 2000). But due to the town's border traffic with Tanzania and infrastructural connection to Nairobi, some touristic activity has emerged. The income generated by the selling of souvenirs is yet volatile as on one day a bus of tourists may stop in Namanga followed by weeks without a single sale (Masai Woman 2011).

For male Masai the production and selling of souvenirs seems to be an unattractive option of generating (additional) income. If men cannot sustain a living as pastoralists, migration to smaller towns such as Kajiado or Nairobi is an option of adaptation. Given the high unemployment rate, especially among the youth (see 2.2), finding a job in an urbanized area is challenging. Male interviewees mentioned that most men who left Namanga now work as security personnel (Masai Youth 2011). As the number of gated communities and protected compounds in Nairobi is increasing (Business Daily 2010; Olima 2007), the security sector indeed seems promising in terms of job opportunities.

⁵ Conflicts between wildlife service and Masai are common in Kenya (Chege 2000; Homewood et al. 2009a; Okello 2005).

3.2 Adaptation in Turkana

The socio-economic setting and the climate conditions in Turkana are very different from the ones in Kajiado. Turkana is located in the northwest of Kenya sharing international borders with Uganda, Sudan and Ethiopia (see Figure 1). On average the central plains around Lodwar receive less than 120 mm of annual precipitation resulting in an arid to semi arid climate and a landscape characterized by shrubland, savanna and desert (Figure 1 and GoK 2008a). The only significant source of water is Lake Turkana which suffers from decreasing water levels and continuing salinization (Kloos et al. 2010).⁶

In addition to the limited resource basis, Turkana has experienced significant political marginalization by the central government in Nairobi which failed to provide the region with basic services such as access to education and health services (GoK 2007b; McSherry/Brass 2008 see also 2.2 and chapter 5). As climate conditions make farming impossible and a shift in livestock is seen in East Pokot (Oesterle 2008) unfeasible, the population in Turkana almost purely relies on pastoralism (GoK 2008a, 2007b). Even though the pastoralists of Turkana have coped with droughts for many centuries, the recent droughts have lead to significant decreases in the number of livestock (GoK 2008a, 2007b; Meier et al. 2007), overstressing the traditional adaptive capacity of the pastoralists and contributing to extended periods of food insecurity (Economist 2009; UNOCHA 2010a, 2011a). In addition to the effects of drought, other factors such as general poverty, political instrumentalization, land policy, ethnic tensions and the availability of small arms have lead to a deterioration of the security situation (Campbell et al. 2009; Mkutu 2008; Njiru 2011; Pkalya et al. 2003; UNOCHA 2011b, 2010b).

Against this background, options for adaptation to changing climate conditions, namely increased dryness and less reliable rainfall, are limited compared to the options available for example in southern Kenya. Engaging in tourism can be considered unfeasible as very few tourists find their way to Turkana mainly because of the unreliable security situation, the lack of sufficient roads and the underdevelopment of touristic infrastructure (hotels, services and attractions). Likewise, the migration to urban agglomerations is impracticable simply because there are very few. Within Turkana, Lodwar is the only town of significant size. Here the largest employer is the relief sector consisting of predominately international non-governmental (aid) organizations (Owiti 2007).⁷

Therefore, most pastoralists retain their traditional life style and expand their grazing range to find sufficient pasture and water for their livestock. These movements have lead to resource related conflicts long before the phenomenon of climate change was known (McCabe 2004). However, climate change altering the resource availability seems to play a role in the

⁶ For more information on Turkana see Omolo (2010).

⁷ Among the non-governmental organizations are USAID, Merlin, International Rescue Committee UK, Practical Action.

occurrence of violence in the region (Campbell et al 2009; Theisen 2010; Witsenburg 2009; Witsenburg/Adano 2009). Violence mostly occurs in the form of raiding which refers to the theft of livestock from one group by another. Raiding can be seen as a form of adaptation to changing climate conditions (de Vries et al. 2006; Dupont 2008; Eaton 2008a, b; McCabe 2004).

There is a difference between the type of raiding during dry and during rainy season. During dry season when resources are scarce, raiding is a means to secure or gain control over watering points and pasture. This type of raiding can be observed between and partly among different ethnic groups. The Turkana entering Uganda engage in violent conflict with the local Karamojong. Within Turkana raiding has been reported between the Toposa of Sudan and the Desenaach of Ethiopia (Akeru 2011; Akoule 2011; Daniel 2011; Ekiyeyes 2011; Elim/Imana 2011; Ikaal 2011; Kimani 2011; Limaris 2011a; Limaris 2011b; Locham 2011; Muchai 2011; Renson 2011; Ukelu 2011).

In contrast, the raiding during rainy season (March through May/June and October/November) mainly serves the purpose of restocking the herds (Daniel 2011). The two types of raiding are connected: the higher the losses of livestock, due to the level of dryness and the intensity of raiding during dry season, the higher is the pressure to compensate the losses through raiding during the following rainy season. As livestock is healthier during the rainy season, it is more likely to survive the journey to the raider's destination. During rainy season pastoralists are also less occupied with keeping their own livestock alive and therefore have the opportunity to engage in raiding (Witsenburg/Adano 2009). The raiding is not only intended to increase the herd size but also to diversify its composition. After extended periods of dryness, most herds consist of more drought resistant goats, sheep and camels while the death toll among cattle is usually the highest (Akoule 2011; Huho et al. 2011).

A pastoralist's livestock does not solemnly serve as a basis for livelihood, it also plays a central role in the cultural identity of a community (Galvin 2010; Homewood et al. 2009b; Igoe 2006; McCabe 2004). Hence, the theft of livestock is seen as an attack on the community (Akeru 2011). While identity and ethnic tensions seem to intensify the raiding, the aforementioned availability of small arms (mostly AK47 and G3 rifles) makes the conflicts more deadly (Mkutu 2008, 2006). The expansion of grazing areas beyond the borders which are well-established by grazing arrangements with neighbouring communities, therefore is a risky way of adaptation.

For young men raiding also plays an important role in reaching adulthood (Eaton 2008; Witsenburg/Adano 2009). A recent development makes use of the young men's ambition to show their potency and to generate own income. It is the development of commercialization of raids. This type of raiding involves many actors who are connected through a, what can be

called “multi-actor operation chain”. A business man, mostly located in an urban center, “places an order” on how many and what kind of cattle he needs. Local coordinators organize the actual raid, deciding on the actors, area and timing of the raid. Then young men, called “morans”, carry out the raid, assisted by watchers and informants. Sometimes local authorities are involved who are bribed prior or after a raid. After a successful raid logisticians provide trucks to transport the livestock to formal and informal meat markets for example in Nairobi, Garissa or Juba (Sudan). The raiders get to keep part of the stolen animals or they are paid with money or weapons. In any case, a successful raid increases the social status of young Turkana men. When developing alternative strategies of adaptation for this specific group, the attractiveness of (especially commercial) raiding needs to be taken into account (see chapter 5). Turkana women usually do not engage directly in raids. They have a more indirect role as informants, coordinators and watchers but also profit from the acquisitions (livestock, financial assets, weapons) made (Akeru 2011; Akoule 2011; Ikaal 2011; Kimani 2011; Locham 2011).

Alternative ways of adaptation for women in Turkana exist. In most Turkana societies, the women are traditionally in charge of donkeys which are not used as a food source (milk or meat) but as a means of transportation (Ensor/Berger 2009; Twerda et al. 1997). Women usually do not move with the livestock, instead they stay with the young children in smaller villages (Njiru 2011). Here, water, food and fire wood are needed on a daily basis but often not available in close proximity, thus keeping a donkey alleviates the daily chores the women are left in charge with. There is even a potential for women to start a small business based on the transport capacity of donkeys (see Fernando 2002; Ochieng/Wanja 2008). Villagers seeking to transport goods can pay donkey owners for accompanying them with their donkey. This type of small scale business seems promising in Turkana where the road infrastructure is poor and the use of motorized vehicles is limited. An illegal version of the business is already in place, facilitating the trafficking of small arms and other (illegal) goods across the porous borders to Uganda, Ethiopia and Sudan (Mkutu 2006).

3.3 Overview of Adaptation Options

Figure 4 gives a general overview of adaptation options for pastoralists and farmers in Arid and Semiarid Lands (ASAL) and their interaction with the government. The figure shows that (agro-) pastoralists in Kajiado and Turkana (options highlighted in bold) do not use the full spectrum of adaptation options.⁸ The options used in Kajiado and Turkana are mostly

⁸ The option of donkey based services is included in „social networks to buffer income shocks“. Raiding is excluded from the figure as this is a very different means of adaptation which is addressed separately in chapter 5. For more options of adaptation see Morton (2007).

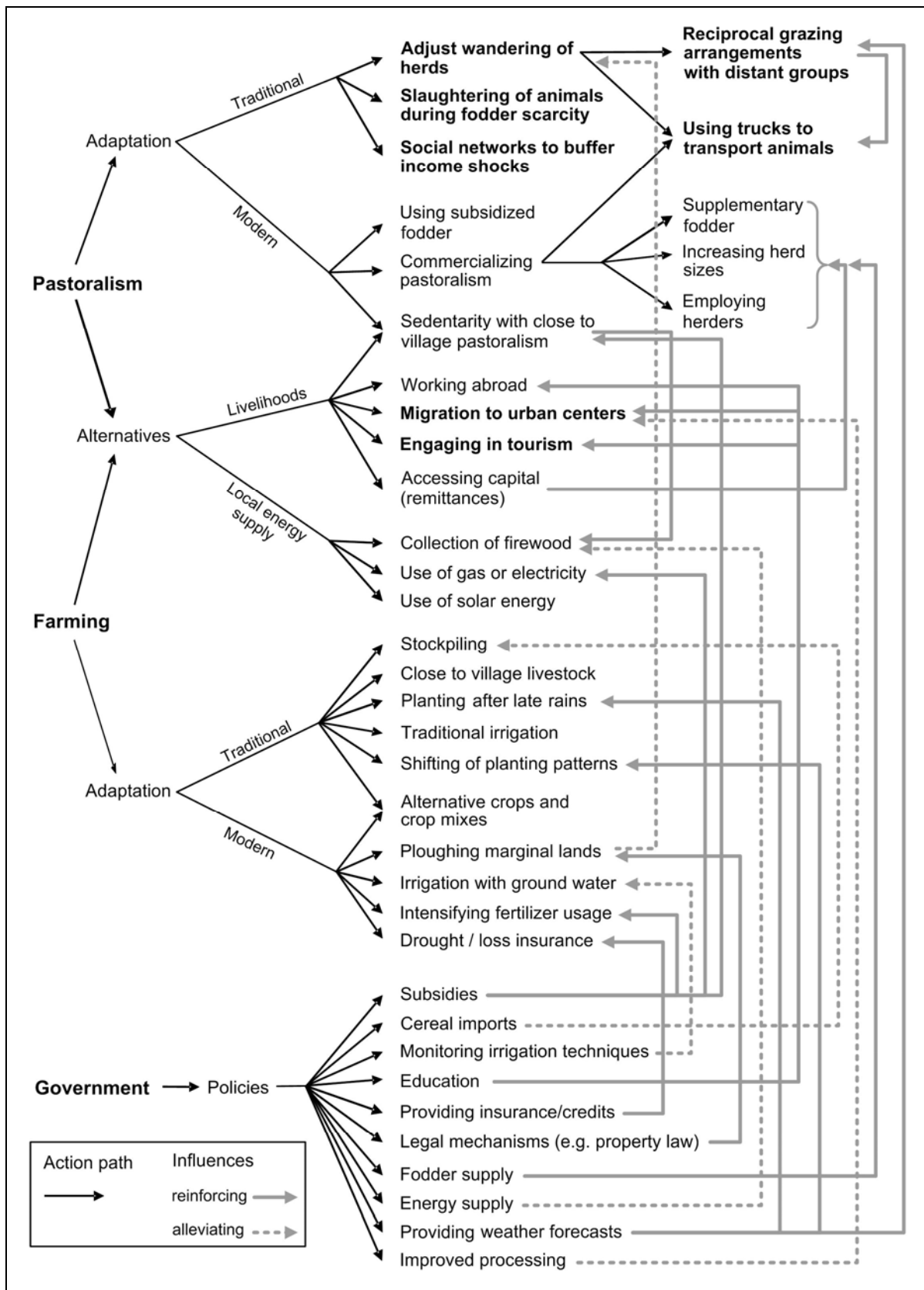


Figure 4 Adaptation options and action paths of pastoralists, farmers and the government in arid and semi arid lands of Kenya. Adaptation options used in Kajiado and Turkana are show in bold (adopted from Schilling et al. 2011, submitted).

traditional, meaning they have evolved over hundreds of years. As part of the livestock is sold on markets, one could argue that pastoralism in the discussed regions shows elements of commercialization. Yet, the majority of livestock products (milk and meat) are still used in a subsistence manner (Njanja et al. 2003).

Besides the traditional and modern ways of adaptation, pastoralists can choose a different or modified livelihood (termed “alternatives”). For example the engagement in tourism does not necessarily imply to entirely give up pastoralism. In contrast, seeking paid labor in an urban centre requires a fundamental change in livelihood.

Another feature which becomes visible in figure 4 is that more arrows from government policies end at farming than at pastoralism, which points to the general difficulty of the government to address the mobile lifestyle of the pastoralists. For instance it has been argued that it is more difficult to provide schooling for pastoralists (Johannes 2010; Krätli/Dyer 2009; Little et al. 2009). In addition, pastoralists usually do not have bank

accounts and are therefore unable to receive financial support (credits, compensations, et cetera). Yet, with the introduction of banking via mobile phones this obstacle can be overcome (Financial Times 2010).

Overall, the figure shows that pastoralists and farmers have several adaptation options. To what extent they can utilize these options largely depends on factors which are beyond their scope. Here, the government is in demand to provide an environment which supports and enables suitable adaptation options.

4. Policies and Actors

Governmental policies have major influences on local adaptation (Figure 4). This chapter identifies the key actors (4.1) and policies (4.2) to discuss their effects on local adaptation (4.3).

4.1 State and Non-state Actors

Ministries

Two government Ministries are directly involved in current climate change related activities, namely the Ministry of Environment and Mineral Recourse (MEMR) and the Ministry of Forests and Wildlife.⁹ Under the MEMR, the National Environment Authority (NEMA) is in

⁹ Other ministries indirectly involved include the Ministry of Land, Ministry of Water and Irrigation, the Ministry of Northern Kenya and other arid lands, the Ministry of Fisheries, the Ministry of Tourism, the Ministry of Public Health and Sanitation, the Ministry of Agriculture and the Ministry of Energy (HBF 2010).

charge of coordinating and supervising all policies related to the environment in Kenya (HBF 2010). Another government affiliated body is the Kenya Meteorological Department (KMD) in charge of collecting, analysing and disseminating weather data and climate related information (GoK 2009). To initiate and coordinate climate change related activities the National Climate Change Activities Coordinating Committee (NCCACC) was established. It consists of 25 members from the listed ministries as well as from universities, the private sector and local authorities. The NCCACC does not have any legislative powers (HBF 2010).

Climate Change Coordination Unit (CCCU)

Similar to the role of the NCCACC, the purpose of the Climate Change Coordination Unit (CCCU) is to “coordinate [...] national effort that will ensure that the country is prepared for climate change” (Embassy of Denmark 2010). The CCCU was established in 2008 under the office of the prime minister of Kenya with support from the Danish embassy in Nairobi. The establishment of the CCCU caused ambivalent effects. On the one hand the CCCU has increased pressure on the Ministry of Environment and Mineral Resource’s (MEMR) to make climate change a priority. On the other hand the overlapping purposes of the CCCU and the National Climate Change Secretariat of the MEMR have led to disagreement between the two governmental bodies. The disagreement mostly concerns issues of competence, leadership and the distribution of financial resources. Especially the latter is critical as international donors and development partners increasingly provide financial assets to initiate and support measures of adaptation and mitigation (Ouma 2011).

Kenya Climate Change Working Group (KCCWG)

An important non-governmental actor is the Kenya Climate Change Working Group (KCCWG) founded in 2009 by a number of civil society organization as well as donor groups (Ngondi 2011). The impacts of changed weather patterns observed in various sectors of the country’s economy called for urgent action. Founding partners realized that people were acting on their own rather than pooling knowledge and intervening in a joint manner. Government negotiators went to international meetings without sufficient knowledge of global and local impacts of climate change. There was a lack of communication between the local and the national level (Mwenda 2011; Ngondi 2011). Today the KCCWG can be described as Kenya’s central roundtable for climate change related issues in the country, bringing together about 250 member organizations and thereby acting as a pillar of advocacy at national level. Further, the KCCWG bridges the gap between actions at international and national level as well as between the civil society, private sector and the government. Regarding state participation, only two government related bodies actively support the group, namely the Kenya Meteorological Department and the Multi-lateral Environmental

Agreements Division of the MEMR. There has been some cooperation and networking with the Parliamentarian's Network on Renewable Energy and Climate Change and the Office of the Prime Minister (Mwenda 2011; Ngondi 2011). The KCCWG aims to advocate and campaign "for a positive policy and legislative framework that takes into account the effects of climate change on human development" (Ngondi 2011). For that purpose the KCCWG and its supporters have developed a climate change bill (see 4.2).

Pan African Climate Justice Alliance (PACJA)

The Pan African Climate Justice Alliance (PACJA) is another relevant non-governmental actor in the climate change discourse which is pushing for government action in Kenya. PACJA, based in Nairobi, is a coalition of around 300 diverse organizations from 45 African countries. Its members seek to advocate and lobby for an integration of climate change policies, practices and laws into sustainable development and poverty reduction strategies in Africa. PACJA regularly takes part in international meetings and conferences, such as the Conference of Parties or United Nations Climate Change Conferences (Mwenda 2011; Ngondi 2011).

Development Community

The development community including Norwegian Church Aid and Oxfam have identified climate change adaptation as a key priority for their work (Mutiso 2011; Norwegian Church Aid 2011; Oxfam 2011). Realizing that their core humanitarian and development efforts were being challenged by the dynamics of climate change, issues of climate change adaptation made it to the top of their agenda (see Orlove 2009). Many of these organizations are involved in advocacy work on the national level, for example when developing climate change bills and on the international level, when attending Conferences of Parties (Mbole 2011; Mutiso 2011; Orlove 2009).

4.2 State Strategies and Policies

National Climate Change Response Strategy (NCCRS)

In April 2010 the National Climate Change Response Strategy (NCCRS) was presented by the Government of Kenya, whose vision "is for a prosperous and climate change resilient Kenya" (GoK 2010:5). The strategy is Kenya's key document for a climate change agenda (2010-2030) with the aim to inform nationwide climate change programmes and activities, "[...] ensuring that adaptation and mitigation measures are integrated in all government planning and development objectives" (GoK 2010:44). The strategy lists eight objectives that the government will be pursuing. These include enhancing the understanding of physical climate change and climate change negotiations; promoting international agreements and

policies; assessing evidence and impacts of climate change as well as the vulnerabilities present in Kenya; the recommendation of robust adaptation and mitigation measures and providing an action plan coupled with a resource mobilisation plan. Spearheaded by the MEMR, the strategy is grounded on a participatory process involving “two national workshops, nine regional workshops as well as workshops with parliamentarians and clusters of stakeholders including the Government, private sector, civil society organisations, development partners, youth groups, women’s groups, faith based organisations and the media, among others” (GoK 2010:3). The strategy promotes a program of action, divided into two steps. The first step is to address the limited climate change awareness among the Kenyan public by establishing education programmes and information campaigns. The second step is to develop an institutional framework which includes the public and all stakeholders (private sector, civil society organisations, development partners, youth groups, women’s groups, faith based organisations, and the media amongst others) to clarify competences and responsibilities of different sectors and actors and to “combat impacts of climate change” (GoK 2010:44). Surprisingly, the NCCRS does not seem to consider the CCCU of the Prime Minister’s office a relevant player in governing climate change as the NCCRS only mentions the existence of the CCCU without further elaboration (GoK 2010:90).

Climate Change Bill

Organizations under the KCCWG attempt to set up a legal framework addressing issues of climate change. For that purpose a climate change bill has been developed which is currently in the 4th revising process.¹⁰ The development started with desk studies analyzing the current acts and laws related to the environment. From there a first legal framework and bill were drafted. The bill is expected to be presented to parliament until October 2011 (Ngondi 2011; Wamae 2011). The coalition behind the bill is currently looking for a member of parliament to sponsor the bill. However, until now there has been little support by the government (Gikanga 2011; Mutunga 2011; Ngondi 2011).

Kenya Vision 2030

The Kenya Vision 2030, a blueprint for long-term national planning, is often referred to when issues are raised concerning the country’s future (for example in Gikanga 2011; Mutunga 2011; Ngondi 2011). Agreed upon in 2007, it draws the line of approach for Kenya’s development from 2008 onwards to 2030. Yet, neither the vision itself (GoK 2007a) nor the First Medium Plan (GoK 2008b) contain a detailed discussion of climate change impacts on Kenya. This is surprising as the paper does address issues of macroeconomic stability, enhanced equity and wealth creation opportunities for the poor, infrastructure, energy, land

¹⁰ Within the African context only South Africa and Nigeria have developed a legal framework with regard to climate change so far (Mwenda 2011; Ngondi 2011).

reform, human resources development and security, all of which will be severely impacted by climatic changes (HBF 2010; SEI 2009; UNDP 2007). The above described National Climate Change Response Strategy (NCCRS) acknowledges that the Vision 2030 does not address “climate change adequately” (GoK 2010:47). Further the NCCRS recognizes that the aims of the Vision 2030 will be difficult to accomplish without taking the impacts of climate change into account. Hence, the NCCRS suggests to revise the vision, as well as other strategic development plans to be streamlined with the NCCRS (GoK 2010).

New Constitution

The new constitution, enacted in August 2010, has mainly been received well by international institutions as a significant step towards more democracy (see Jansen/Lerch 2010; Oesterdiekhoff 2010). The new structures intend to intensify the supervision of the executive branch and to increase the autonomy of the judicial branch (Oesterdiekhoff 2010). Basic human rights will be strengthened and extended. However, concerns have been raised about the implementation that is currently underway and the technical challenges (e.g. the transformation of nine provinces into 47 counties) that have to be overcome (Jansen/Lerch 2010; Oesterdiekhoff 2010). The decentralized character of the new constitution could have two effects. On the one hand it could help to decrease the discrepancies between national and local adaptation strategies (see next chapter), on the other hand the new constitution has the potential to become a “gateway for corruption” (Bakonyi 2011).

Policy on Arid and Semi Arid Lands

In 2007 the Government of Kenya (GoK) presented its National Policy for the Sustainable Development of Arid and Semi Arid Lands which is highly relevant for climate change adaptation (GoK 2007b). The document criticizes that policies have led to an extensive marginalization of Arid and Semi Arid Lands (ASALs). “Previous policies aimed at revitalising ASALs were drafted with a degree of bias against pastoralism as a viable sustainable way of life. Emphasis was put on sedentarization of nomadic pastoralists with a strong focus toward crop farming. Because such policies were mainly top-down, discriminative and unconsultative, they often failed” (GoK 2007b:ii). The new policy acknowledges pastoralism as a legitimate and productive livelihood and aims to develop ASAL in a coherent way. A broad variety of measures is suggested, ranging from provision of basic services (health, education, infrastructure) and decentralization of planning to diversification of livelihoods, community participation and drought early warning systems. To implement these measures the policy recommends to spend 308 billion KSH (about 3.4 billion USD) between 2006 and 2015 (GoK 2007b).

4.3 Implications for Local Adaptation

Climate change has made it to the political agenda of Kenya. Several governmental bodies are addressing the issue. Competences have been built to understand and to tackle the effects of climate change. Assisted by international partners, the GoK has produced several policy documents directly or indirectly related to climate change. Concurrently, non governmental organizations have started to pool resources to address the issue.

However, so far state policies have done little to strengthen local adaptation. The policies have not caused mal-adaptation either, but they have significantly limited adaptation options, especially for pastoral communities. For decades pastoralists in Kenya have faced political, economical and social marginalization. The GoK attempts to integrate the marginalized regions into the national context and to promote adaptation. Yet, there is a lack of successful implementation which can be attributed to three major reasons. First, Kenya is missing a legal framework that deals directly and explicitly with climate change. In addition, several government bodies concerned with issues of climate change have none or insufficient legislative power. Second, a lack of cooperation not only among governmental bodies but also between the government, the private sector and the civil society hinders utilization of all competences and perspectives. Third, measures to strengthen climate change adaptation are promoted by individual actors¹¹ rather than being supported by a unified consensus (HBF 2010). The following chapter discusses possible linkages between national policy and local adaptation.

5. Linking National Policy to Local Adaptation

The question on how to link national policy to local adaptation raises two further questions. First, which measures, actions and developments are needed and desirable, and second, which of these measures, actions and developments are actually feasible and most urgent giving the specific adaptation context. With respect to the first question, the government should strengthen the generic adaptive capacities nationwide and especially in the marginalized areas. This includes significant investment in education, health and infrastructure. Further, the impact specific adaptive capacities need to be increased. Here it is important to reduce the level of corruption which has prevented an efficient and effective use of resources in Kenya for decades. Neither is the call for these steps new, nor can their full implementation be expected in the near future. It is therefore important to identify the most urgent needs of the concerned groups and to suggest measures which are feasible for a timely implementation. Concerning the Masai of Kajiado this would mean that the Kenya

¹¹ These being mostly well know high profile personalities such as Hon. Raila Odinga (Prime Minister), Prof. Wangari Maathai (awarded the Nobel Peace Prize in 2004), Prof. Richard Odingo (former Vice-president of the IPCC) amongst others (HBF 2010).

Wildlife Service engages in a dialog with the representatives of the pastoral groups who are trying to use resources of national parks. Specific agreements on the point and time of entering the parks as well as rules to manage the interaction between wildlife and livestock should be jointly developed and implemented. Successful examples of such agreements exist (see Distefano 2005; Treves et al. 2006).

As for the movement of the Kenyan Masai across the border to Tanzania, the governments of both countries should come to agreements which legalize the pastoral movement across borders. Such an agreement additionally needs to regulate the grazing of livestock between the different groups to decrease the potential for harassment and conflict. To diversify the sources of income, the National Policy for the Sustainable Development of Arid and Semi Arid Lands should be merged or at least closely harmonized with the Tourism Strategic Plan. This implies a close cooperation between the Office of the President for Special Programmes and the Ministry of Tourism. Masai should not only benefit from tourism as sellers of souvenirs. It is also possible to train and employ Masai as guides for touristic tours (Homewood et al. 2009b). So far, Masai interviewees have complained about being used as a tourist attraction when watering their livestock, without benefitting from the revenues made by tourism companies (see also Homewood et al. 2009a). A closer cooperation with the pastoralists embedded in a comprehensive tourism strategy would be a feasible step to reach the government's goal to decrease the marginalization of pastoral communities.¹² This is especially urgent in Turkana where the perception of being neglected by the government is widespread.

The government needs to engage directly with local chiefs to build trust. An expansion of health services not only for the inhabitants of Turkana but also for their livestock is needed. So far, attempts made by the government were mostly limited to buying weak livestock from pastoralist communities and to provide food aid during times of drought (GoK 2007b; Rice 2009). The prevention of food shortages needs to be strengthened. One feasible way would be to make use of early drought warning systems. The Meteorological Department of Kenya provides early drought warning reports in short intervals, which are published in newspapers and broadcasted on the radio. However, they often do not reach the pastoralists in remote areas such as Turkana (Daniel 2011). Considering that pastoralists are usually many kilometres away from the next village or town, investment into the cell phone and radio network of northern Kenya is urgently needed. Another problem concerning the distribution of drought warning is the lack of trust (Markakis 1999). Little is achieved if the pastoralists get the weather information but do not trust them and hence ignore them (Luseno et al. 2003).

A successful linkage between governmental and local adaptation strategies in northern parts of Kenya also needs to address the ongoing conflicts which put pressure on communities

¹² For a model approach see Reid et al. (2009).

and pose a significant obstacle to successful adaptation (Eriksen/Lind 2005). As people are preoccupied with their safety and the security of their herds, they do not have the capacity to pursue adaptation measures. Therefore, peace meetings which bring together all conflict parties are important especially to decrease raiding activities. Serving as an example peace meetings coordinated by Rescue Committee UK, Practical Action and Reconcile within the European Instrument for Democracy & Human Rights (EIDHR) show first progress in reducing raiding (Elim/Imana 2011; Ikaal 2011; Locham 2011). Similar initiatives such as Security in Mobility (SIM) led by United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) have also achieved to address pastoralist livelihood and security needs in northern Kenya (see UNOCHA 2010).

6. Conclusion

In a country where arid and semi arid areas make up 80% of the land area, droughts are a common phenomenon. Adaptation to periods of resource scarcity and harsh living conditions has a long history in Kenya. Yet, recent floods and especially droughts have increasingly overwhelmed the existing adaptive capabilities contributing to food insecurity and social instability. The drought cycle has contracted from ten to about two years. The trend of increasing temperature which could cause a warming of up to 4.5°C until 2090 and less reliable rainfall are likely to further increase the occurrence of droughts. In addition, floods become more likely as an increased number of heavy rainfall events is projected. Kenya is vulnerable to these climate effects, mainly because of her high dependence on water for electricity generation and agriculture respectively economic output. Against this background, it is important to strengthen local adaptation. For that purpose the paper gave an overview of existing and conceivable adaptation options focusing on one pastoral and one agro-pastoral region. Preliminary results from field research in Kajiado and Turkana show that options for adaptation to changing climate conditions vary significantly, depending on the socio economic, cultural and geographical context. Pastoralists in Kajiado have several options, namely an expansion of grazing range, a diversification of livelihood and migration to urban centres, while the Turkana face challenges which limit options for adaptation. The major challenges are a lack of access to health services, education, economic assets, and infrastructure as well as a high level of insecurity.

So far, these challenges have not been addressed adequately by the Government of Kenya. Yet, the government has acknowledged and attempts to decrease the political, economical and infrastructural marginalization of pastoral communities. The success of the attempt will depend mainly on the degree to which policies for pastoral areas make use of the expertise on climate change assembled in Kenya. Especially, the non-governmental sector has built up

expertise on issues of climate change. On the governmental level, a legal framework and policy are needed which clearly define competences and responsibilities among state bodies involved in the management of national adaptation to climate change.

National and local adaptation strategies can be linked through several channels effective on different time horizons. On short term, government promoted agreements between pastoralists and representatives of the receiving area are a feasible instrument to improve the security of pastoral movements. On long term, the government needs to strengthen the adaptive capacities and remove obstacles preventing adequate local adaptation, especially in marginalized areas of the country. In North Kenya, the trust in governmental authorities and conflict mitigation needs to be improved. Throughout the country, a reduction of corruption is of importance.

The example of Turkana has shown that while more research is needed on climate change as a potential driver for conflict, climate change already has severe negative impacts on local food and livelihood security. It is therefore important to understand and to strengthen local adaptation not only to improve local conditions but to avoid destabilization of the country itself.

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AOGCM	Atmosphere-Ocean General Circulation Model
ASAL	Arid and Semi Arid Land
CCK	Communications Commission Kenya
CCCU	Climate Change Coordination Unit
CIA	Central Intelligence Agency
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GoK	Government of Kenya
HBF	Heinrich Böll Foundation
HIV	Human Immunodeficiency Virus
IPCC	Intergovernmental Panel on Climate Change
KCCWG	Kenya Climate Change Working Group
KMD	Kenya Meteorological Department

KSH	Kenyan Shilling
MEMR	Ministry of Environment and Mineral Resources
NCCACC	National Climate Change Activities Coordinating Committee
NCCRS	National Climate Change Response Strategy
NEMA	National Environment Management Agency
NGO	Non-Governmental Organisation
SIM	Security in Mobility Initiative
PACJA	Pan African Climate Justice Alliance
REMO	REgional MOdel
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WBGU	German Advisory Council on Global Change
WHO	World Health Organization

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