Surviving pastoral decline: pastoral sedentarisation, natural resource management and livelihood diversification in Marsabit District, Northern Kenya Deel: "Vol. I"

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Citation for published version (APA):

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Download date: 06 Feb 2020
Dynamics in pastoral livelihoods: sedentarisation, agro-pastoralism and changes in natural resource management in Northern Kenya

'Instability is an inherent characteristic of the pastoral way of life'
(De Bruijn & Van Dijk 1995: 16).

Before and during the colonial time, the peoples of Northern Kenya had a considerable level of autonomy and wealth. However, since independence there has been a continuous decline in pastoral wealth that has put the livelihood of pastoralists in jeopardy. Many started to live a settled way of life, being victims of war and drought. In their struggle to survive, impoverished pastoral families started farming on the fertile slopes of Marsabit Mountain. The presence of the montane forest on the peaks is both responsible for, and a result of, a wetter climate, a continuous flow of water and an attractive ecology where rain-fed farming is possible. This increasingly attracted large numbers of impoverished families from different origins. Some managed to build up a prosperous farm, some managed to reinvest in animals, but many stayed poor and chronically food insecure.

This situation motivated us to address the question of how the transition from a pastoral to a more diversified livelihood profile resulted in different ways of resource use. At the start we assumed that the problems among livestock keeping communities, like increased poverty, livestock losses and insecurity were the reasons why people settled and that, as a consequence of this, the population in our study area (Marsabit Mountain) was rapidly increasing. We assumed that resource depletion would be occurring because of a rapidly increasing population pressure which would undermine the livelihood in the settlements and result in violent competition for scarce natural resources which would, in turn, have a negative effect on the overall development of the region.

We also assumed that increasing population densities in a high-potential area like Marsabit Mountain that is surrounded by a semi-desert-like environment would result in environmental change and new arrangements between resource users on the one hand, and increasing poverty and pressurised relationships between ethnic groups on the other. Given the trends in decreasing livestock numbers per capita in the district and an increasing population density on the fertile slopes of Marsabit Mountain, what would be the impact on the natural resources in this area? Can
we estimate whether increasing population densities in the Marsabit Mountain area will pose threats to the natural resource endowment and networks that govern them? Are the social institutions capable of adjusting to new situations and accommodating increasing numbers of resource users? These questions form the basic themes of this study, which are:

1. What are the trends in livestock populations over time in the region?
2. What are household responses to changes in livestock resources?
3. Why did people settle in the Marsabit Mountain area and what were the socio-economic implications for resource use on the mountain?
4. What are the changes in social institutions that govern the resource base?
5. How do resource availability and access rules influence livelihood options?

This chapter starts by explaining the objectives of this study. We then continue with the different views on sedentarisation and the mobility of pastoralists and their herds as expressed in the existing literature. Several accounts on settlement projects show a negative attitude towards sedentarisation, while herd mobility presently features as an answer to development issues. In the third section, we dwell upon the definition of pastoralism. The chapter highlights the gap that exists in the literature on pastoral welfare and issues of poverty. The livelihood approach, outlined in the penultimate section, offers the possibility of refocusing on poverty issues, as well as a more diverse approach to problems in risk-prone pastoral areas. We summarise this chapter and the outline of this book.

Objectives of the study

The study aims to examine how ecological, economic and social changes in the course of time affect the livelihoods of households in northern Kenya. The main goals of the study can be summarised as: how are water, forest, agricultural land and livestock resources used and managed, and how does this change over time. Scarcity of resources, its social consequences, and especially its threat to the livelihood of people in the region is an important theme of this study.

More specifically, this study aimed:

1. To establish the dynamics of the livestock population vis-à-vis changes in human population at national and district levels over time.
2. To examine the effects of droughts and other shock factors on livestock populations and human welfare.
3. To explore the potential of the livestock sector to meet the food needs of pastoral households, to examine how households diversify their sources of income and what the external sources of food transfers are into the pastoral households.
4. To examine how the livestock markets function in the areas and what the terms were of trade between livestock and non-livestock items.
5. To find out the migration background of the first generation of households in the Marsabit Mountain area, their motives for migrating and the problems they encountered in access to land and water.
6. To assess the availability, use and management of water and farmland resources over time and the arrangements that emerged once people settled.
7. To assess the productivity of farming and to find out whether farming and livestock holding are linked.
8. To investigate the economics and the importance of the conservation of Marsabit forest ecosystem for the local economy.
9. To investigate the probable effects of the cropland area expansion and human activities on the mountain for the forest ecosystem functions and the policy implications of such activities for conservation efforts in the region.
10. To portray the current status of livestock holding and livestock wealth differentiation at household level and to assess the importance of the animal trust system for social networks and insurance mechanisms.
11. To assess the relationship between armed violence and scarcity of resources in the district.
12. To contribute to future development efforts in order to enhance livelihood options in the region as a whole.

This book addresses these objectives by examining the diverse options open to people from pastoral backgrounds for improving their livelihoods. These options may include livestock marketing, arable farming and restocking, petty trade, sale of livestock produce and natural products such as firewood, charcoal, poles, grass for fodder and wage employment outside or complementary to the mainstream of the pastoral lifestyle.

Attitudes towards pastoralists and their mobility

There have always been ardent opponents or proponents of sedentarisation of East African pastoralists. The arguments were often environmental in nature. In the 1970s, pastoralists received attention because they were partly held responsible for the desertification process as a result of overgrazing (Lamprey & Yussuf 1981; Lamprey 1983; Sinclair & Fryxell 1985). It was thought legitimate and viable to provide an alternative production system for pastoralists rather than to leave them ‘roaming about with unlimited numbers of poor quality herds’ (Brown 1963). Until 1980, most governments, NGOs and missionaries criticised pastoralism as an irrational, ecologically destructive and economically inefficient production system and encouraged sedentarisation as well as advocated the replacement of the traditional system (Helland 1980; Robert 1992; Galaty 1992; Homewood 1995; Nunow 2000). Numerous conferences and reports on desertification based on ‘tragedy of the commons’ (Hardin 1968: 1243-1248) arguments and carrying capacity models were used to advocate the settling down of nomadic pastoralists (Lamprey & Yussuf 1981). At the same time, nomadic pastoralists themselves underwent numerous setbacks in the period after the 1960s. Particularly in Kenya, pastoralists not only lost the relative autonomy they had enjoyed in the colonial time (Dietz & Mohamed Salih 1997), they were further marginalised by warfare, droughts, livestock diseases and loss of wetlands to agriculture. There was an increase in the number of projects in which impoverished nomadic pastoralists enrolled in programmes providing alternative production systems. Examples are the
fishery and irrigation projects in Turkana (Hogg 1988; Galaty 1992) and group ranching projects in Maasai areas (Helland 1980; Rutten 1992). None of these projects was as successful as initially anticipated and evaluation reports showed a depressing state of affairs. A number of writers have shown that settlement projects for wealthy nomads also failed. In most cases, these projects targeted nomadic pastoralists who were meant to reduce their movements and restrict their animals to a smaller territory. Such projects largely failed (Oxby 1984). According to Legesse (1989) the small-scale settlement schemes on Marsabit Mountain did not look promising either. Whether this is still the case today will be addressed later in this book.

After 1980, a new attitude towards nomadic pastoralism emerged, marked by a conference entitled 'The future of pastoral peoples' (Dietz 1987: 13) held in Nairobi in 1980. Some scholars, among them anthropologists and range ecologists, successfully influenced the perception of pastoralism as being a rational and efficient production system in its adaptation to risks and uncertainties in a disequilibrium environment (Baxter 1975; Salzman 1980; Galaty 1981; Fratkin 1997, Behnke, Scoones & Kervern 1993; Scoones 1995; Oba 1996 among others). Since 1980, the almost rhetoric question ‘Must nomads settle?’ (Aronson 1980) has become relevant now that scholars and extension officers doubt the rationale of settlement policies. This period indeed witnessed broader advocacy on pastoral development (Mohamed Salih 1991).

It seems evident that among scholars and extension workers the perception of the viability of pastoralism is inspired by the rangeland debate. When desertification of the range was not as obvious as hypothesised and degradation could no longer exclusively be explained by excessive livestock numbers, restocking projects and livestock programmes became popular (Mace 1989; Hogg 1992). Localised environmental degradation around permanent water points and human settlements in the drylands (Oba 1996), apparently due to decreased mobility, are now being used as an argument to discourage sedentarisation. ‘Keep nomads mobile’ seems the answer to ecological problems in the drylands.

However, despite the initial efforts to encourage settlement prior to 1980 and the later efforts to discourage settlement after 1980, the situation in Marsabit District and in the arid and semi-arid lands (ASALs) in general is one of decreased mobility and increased sedentarisation due to internal and external problems relating to the pastoral production system. Even though settled people involuntarily diversified their production system and incorporated non-pastoral activities, some now perceive a sedentary life to be advantageous, not least because of improved access to a market, education, health and relief services. In addition, especially for the impoverished pastoralists, a settled existence in agricultural areas provides new opportunities to become economically independent, which is widely felt as an important factor in restoring self-respect. This means that not only observers (politicians, scholars and extension workers) have changed their ideas on sedentarisation but also that pastoralists’ opinions on sedentarisation have changed. This change went in an opposite direction; the attitude among pastoralists towards sedentarisation is not as negative any more as in the past.

Encouraging sedentarisation
The successful dissemination of the views resulting from ‘the new ecology’ approaches (Scoones 1995) and the ‘mobility paradigm’ (Niamir-Fuller 1999), backed by new insights on indigenous knowledge and skills of pastoralists, was partly evoked by negative accounts of external
development interventions deploying sedentarisation efforts. These accounts show how (colonial) government policies, missionaries or NGOs have deliberately encouraged the settlement of nomadic people and in doing so disrupted the traditional pastoral setting, causing more poverty, dependency and environmental degradation.

‘The church missions, like the Kenyan Government as a whole, would like to see most nomads settle down, despite the fact that they would lose their animals and livelihood if they continue to do so’ (Fratkin 1998: 111).

About the colonial government, Nunow writes:

‘It was difficult to enforce grazing and movement controls when pastoralists were nomadic- which led to sedentarisation efforts being undertaken as a prerequisite for effective grazing and movement controls (Nunow 2000: 43).

After Kenya’s independence, partly as a reaction to the Somali secessionist war (also called the shifta war), sedentarisation was encouraged to control those whom the government thought were inclined to join the secessionists and to provide better security to those whose lives were threatened (and whose livestock were killed) by Somali if they did not want to join. The undeclared war of the Kenyan government against Borana and Sakuy pastoralists, as they were suspected of collaboration with the secessionists, impoverished almost all pastoral households in the Uaso area (near Isiolo) and drove them out of the pastoral economy (Baxter 1993: 146). Sedentarisation and village life, supported with modern education, health and communication facilities was believed to be the best development paradigm since colonial time (Niamir-Fuller & Turner 1999: 20). Generally it was thought in the 1970s and 1980s that settled households would be easier to administer for government officials and that it would encourage the dissemination of the Christian message. In addition, NGOs thought it would be easier to provide services to pastoralists, like health care, education, sanitation and agricultural services, once they had settled. As Straight writes:

‘Throughout the 1980s, IFSP [a German-sponsored Integrated Food Security Programme] and the Kenyan government held in common the intention of achieving this aim by discouraging nomadic pastoralism in favour of ranching schemes, supporting the resulting sedentarisation by improved livestock production and marketing, and providing additional means for generating income’ (Straight 2000: 231).

However, it would be wrong to generalise all external interventions. Unlike efforts by the colonial government to reduce mobility in other parts of Kenya, the colonial government in Marsabit did not always encourage this process. On the contrary, they sent people away from Marsabit Mountain more often than they settled them there (see also Chapter 5). The Catholic Mission in Marsabit also had a clear view on the ‘mission being mobile’.

‘A lot of good could be done among the Borana.... But the mission should be nomadic. As the people are nomads, the missionary should move with them.’ (Fr. Dal Canton 1915, cited in Tablino 1999: 11).
Efforts by Catholic priests who had lived for years in nomadic camps in Northern Kenya, the training of mobile catechists along with a deep and clearly expressed respect for, and an appreciation of the nomadic way of life, customs and beliefs (Tablini 1999), are hard to rhyme with an active settlement policy. However, the large settlements around the Catholic missions, in Korr, Kargi, Maikona and North Horr for instance, which consist of destitute pastoralists who depend on relief food and employment by the mission, and the assistance to the settlement schemes on Marsabit Mountain, gave the impression that the mission did not discourage the growth of settlements either.

The kind of external intervention that directly contributed to sedentarisation consisted of aggressive destocking activities by the military. This was commonplace, for instance against the Sakuye in the shifta war (which lasted from 1964 to 1967), and against the Pokot in 1984 (Dietz 1987). As Boran herdsmen often relate, the Ethiopian militia have always tried to decrease the autonomy of the pastoralists by attacking and raiding them. The aim of such military actions was, however, not necessarily to make people settle but to disarm them and break their autonomy.

External agencies were not the only ones involved in sedentarisation. It is illuminating that some recent writers hint at local leaders of pastoral groups being actively involved in the settlement of pastoralists, as the following passage will show:

'... the policy of Rufa'a al Hoi leaders is to encourage their followers to settle. These leaders have come to realise that by settling, the pastoralist will come to enjoy some of the services that the villagers are receiving from the government. In handling the landownership problem, the leaders ask their followers to construct their huts anywhere and then they deal with the disputes with authorities later.... A pastoralist might settle down and after a while move again. However, to do so one has to have enough animals to be back in the system. Some succeed in doing this because originally when they settled they left some of their animals with relatives and friends and hence they did not have to build a new herd' (Abdel Ghaffar 2001: 183).

Nunow (2000) also describes how local Somali leaders have tried to increase the number of settlements for their own political gain:

'Political advancement by the elite, at both local and national levels, may be the most plausible explanation for the creation of the numerous settlements in the province, which in turn become islands of overgrazing and cause the permanent loss of that part of the range land to the pastoralists. Once a new location or sub-location is created, the different Somali clans compete against each other to secure the appointment of one of their own as the (sub-) chief with a view to establishing their own settlement to guarantee them continued access to the surrounding grazing lands (Nunow 2000: 55).

Within pastoralist societies, these ideas towards voluntary sedentarisation exist, but remain under-investigated topics. The issue that some households voluntarily chose to live a sedentary way of life has been raised by Salim El-Hassan, whose article is titled: 'What if the pastoralists chose not to be pastoralists?' (1996: 272). He shows how people's interest in education, agriculture and trade was raised and promoted and sedentarisation encouraged by local Islamic leaders among the Hadendawa in the Sudan.

As these examples show, the 'blame' for encouraging sedentarisation should not always be pointed towards government or church institutions. It is equally difficult to imagine that sedentarisation could have been successfully encouraged among herd-rich households. As Barth
already stated in 1961, sedentisation involves the wealthy and the poor at both extremes, but sedentisation by impoverishment is numerically the predominant form (Barth, 1961: 111). As will be shown in the next chapters, the number of people who settled because of herd losses widely surpassed the number of wealthy stockowners who were attracted by NGOs, missions or government activities.

The real issue that we should address is therefore not whether rangelands are degrading or who is to blame for this, but instead we should ask ourselves the question: if it is poverty that drives most herdiers out of pastoralism, why are they so poor that they have to settle and what else can they do to survive? Moreover, who are these people who decided to settle on Marsabit Mountain? How do they fare on after they have settled? These are the questions which have been asked during this study. The existing gap in the literature concerning the reasons, motivations and perceptions of sedentisation among pastoralists, as well as their background and their networks convinced us of the necessity to carry out such a study. There is, however, a need to re-focus the sedentisation debate away from a concern about environmental conditions of the rangelands to the socio-economic situation of impoverished pastoralists. Apart from the environmental considerations, other problems have been mentioned, of which we will give a brief overview below.

Possible negative consequences of sedentarisation
The reduced mobility of herds and households has various (positive and negative) consequences. Previous studies have explored the consequences arising from the adaptation of former nomads to their new livelihood. These studies elaborated issues on environmental consequences (for example Keya 1998; McPeak 2000; Bencherifa 1996; Nunow 2000) socio-political problems, land tenure problems and gender issues (for example Little 1985; Mohamed Salih 1985; Dahl 1987; Nathan, Fratkin and Roth 1996; Mitchell 1999; Ensminger 1987; Ensminger 1992; Smith 1998; Fratkin and Smith 1995; Nunow 2000; Nduma et al. 2001). The various problems of sedentarisation mentioned by these sources can briefly be summarised and classified as follows:

- Environmental consequences
Negative environmental consequences have frequently been mentioned. It is argued that sedentarisation causes localised environmental degradation because of overgrazing and the removal of wood vegetation for fuel, especially in arid and semi-arid lands.

- Socio-political problems
Sedentarisation would involve land use and tenure conflicts when communal land undergoes a process of privatisation, so the argument goes. In addition, sedentarisation has caused areas formerly used by pastoralists to be increasingly closed off and this in turn can reduce the herdiers’ accessibility to important resources like water and high-potential grazing. Settlements in pastoral areas would compete for space with mobile pastoralists. These arguments are often used to explain violent conflicts in areas where pastureland is transformed into farmland and where water resources are more difficult to reach by herdsmen because of increased sedentarisation around the water points.
- **Socio-economic, gender and health problems**

It is argued that living conditions in settlements are usually very poor and unhealthy and that there are more malnourished children. Women seem to face considerable problems in the settlements and work many more hours in settlements than women in pastoral villages. Other aspects referred to include a loss of status, lack of social cohesion, reduced social networks and increased violence against women in the settlements.

- **Problems of governance and ‘development’ efforts**

Agricultural settlement schemes often seem to fail because people reinvest in livestock and move away, abandoning settlement projects. However, the project could also be considered successful if people are able to restock and live a pastoral life again.

These problems seem to seriously undermine the livelihood of settled people and mobile pastoralists alike. Yet, we feel that settled households are sometimes unjustly blamed for degrading the environment with the very few animals they have. They are held responsible for the increasing problems mobile pastoralists face due to access to key resources being denied. In fact, in the settlements there are a few wealthy pastoralists who are able to keep their herds mobile by employing herdsmen, but it is the poor who have to graze their animals on poor pastures around the settlements. As soon as they can organise herding arrangements with herdsmen, their livestock becomes mobile again. For this step to take place, however, a social network is needed. Blaming the settlements for degradation is, in fact, the same as blaming the pastoral poor. Most settled people in pastoral areas, whether they live in spontaneous settlements or in planned settlement schemes, are usually the hardest hit victims of pastoral problems themselves. Loss of wealth is the same as the loss of livestock, which may inevitably lead to a more sedentarised lifestyle. However, modern writing on pastoral issues considers settlement schemes and the development of agro-pastoralism generally as ‘undesirable interventions’ (Mohamed Salih 2001: 17) while ignoring the fact that many development interventions were simply intended (but often failed) to help poor pastoralists and that poor pastoralists tried to restock through agriculture. It is not sedentarisation that makes people poor. Instead, poverty causes sedentarisation. It is hardly a surprise that households in the settlements are poorer than nomadic pastoral households. This is nothing new. Neither is it a phenomenon occurring in Kenya alone, as this example of the Basseri of South Persia shows:

‘Serious loss of wealth in a household thus has the result that the household is sloughed off for the tribe; or, to put it the other way around, the persistence of the present form of Basseri organisation depends on a continual process of sloughing-off of members who fail to retain the productive capital in herds which is required for an independent pastoral existence...’ (Barth 1961: 108).

Although one can question whether structural parallels can be constructed between pastoral groups as far apart as Kenya in 2000 and Iran in 1961 we think that this observation partly applies to present-day pastoral societies in Northern Kenya as well. This might have been different in the past. In 1972, Baxter observed a substantial difference between the Northern Kenyan pastoralists and the Basseri. Basseri social organisation (as Barth described in 1964) is characterised by atomistic, kin-based camps without political and economic ties with other
nomadic camps (Baxter 1975: 213). This, as Baxter observes, differs greatly from the Boran society of 1972, where people apparently had large social networks of dependency and reciprocity as their animals were dispersed over a maximum number of relatives.

Even though Boran villages at present are not as atomistic and isolated as Basseri villages were in 1964 (according to Barth’s description; see Barth 1964: 47 cited in Baxter 1975: 213), the increasing number of poor Boran households who have no such relationships for one reason or another, could indicate that this is changing in the Boran pastoral society. There is evidence that social relationships and herd sharing is indeed transforming towards a more individualised form of pastoralism, as will be shown in later chapters of our work. The fact that many settlements are of such recent date poses important questions. Does that imply that poverty is a recent phenomenon? Or did poor pastoralists have other options in the past in addition to settling? We think that it would be wrong to think that the traditional pastoral system had no poor households in the past, although this is sometimes suggested, as shown in the following example:

‘Thus, traditional Borana pastoralism maintained a relatively high socio-economic standard of living and general welfare. This (the traditional) system of resource use also explains why there were (in the past) no poor pastoral households’ (RANTCO 1997: 44).

Contrary to this remark, we think that poor pastoral households cannot remain in the system and therefore settle or move elsewhere to join other groups. That they are ‘sloughed off’ in Barth’s terminology (1961) is a better explanation of why there were no poor nomadic pastoral households (if that is true). This is in line with the thinking expressed in ‘The poor are not us’ (Anderson and Broch-Due 1999). As Iliffe has pointed out (Iliffe 1987: 65-67), there is no place for the pastoral poor in the East-African nomadic pastoral villages. The nomadic pastoral groups in East Africa are essentially egalitarian, not because there are no poor people, but because poor households are excluded from the nomadic society as soon as they do not possess livestock. The poor settle, or move elsewhere, and are perceived to be not only economically, but also ethnically excluded from the nomadic groups. This is well illustrated in Broch-Due’s study on the pastoral Turkana, who perceive the pastoral destitutes in the settlements as not being ‘one of them’. Pastoral Turkana view the town as a site of poverty and destitution, but which they use to slough off those they consider to be morally deviant and socially different (Broch-Due 1999: 88).

If it is true that the exclusion of the poor is an inherent feature of the nomadic pastoral society in Northern Kenya, one only wonders which options were open in the past and how poor pastoral households managed to survive crises before development aid existed. As oral histories suggest, during the crisis time from 1880 to 1900 when rinderpest, smallpox and malaria hit the area, most people in fact did not survive. This time was called *chin titte guracha* among Gabra and Boran.1 Some Boran cattle keepers were restocked by surviving Gabra camel keepers (Robinson, 1985; Tablino 1999: 179-229). Others survived by joining hunter-gatherer groups (like the Waata), or

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1 This can be translated as ‘the hard time of the black flies’. The black flies refer to the decaying cadavers that where spread all over, and that were covered with black flies.
farming groups like the Konso, and in fact lived a sedentary way of life while carrying different ethnic names.\(^2\)

Although the social structures and networks are changing, herd-sharing and restocking mechanisms still exist. Wealthy pastoralists in particular are quickly restocked by their clan members when hit by disaster. This restocking mechanism is usually mentioned to argue that pastoralists have their own social institutions to take care that the poor can remain in the mobile pastoral system. We think that not everyone has access to such institutions, and that a certain wealth level in a nomadic clan must exist to be able to restock a household struck by disaster. It is usually the responsibility of the clan to restock destitute clan members. If a whole clan or region (as in 1973) is hit by drought, disease and war the restocking capabilities become overburdened. In such situations, it is only rational if households then turn to wetter areas to start agriculture or to development agencies for help.

**Should nomads settle?**

As we outlined above, the question as to whether nomads should settle or not was answered positively by the development paradigm before 1980. The ‘mobility paradigm’ that was developed in the 1990s (see Niamir-Fueller 1999), however, would provide the opposite answer. One can question whether the development paradigm before 1980 was at congruence with (feelings of) pastoralist well-being. The mobility paradigm, however, is based on the range-land debate, where the ecology takes a centre stage in the argument. The mobility paradigm only looks at the rationality of optimal range use, but not at why pastoralists may decide not to use the range in an ecologically optimal way. We agree with Adriansen, who says:

‘The mobility paradigm argues that pastoral mobility should be ensured. However, the arguments are not based on the voices of African pastoralists, but on the 'needs of nature' (Adriansen 2003: 7).

The mobility paradigm therefore does not necessarily reflect what sort of life pastoralists might like to pursue. It is questionable whether nomads like to be mobile for ecological reasons. Nomads tend to say that they are mobile because their livestock needs to survive. In addition, pastoralist mobility may go hand in hand with livestock mobility, but nomad sedentarisation does not necessarily mean that animals do not migrate any more. We therefore need a more ‘diversified’ approach to pastoralism and not one that only assumes that mobility is now the answer to pastoral problems. What we need is an approach that combines insights from the mobility paradigm with a development paradigm that takes account of the commercialisation or diversification of the pastoral economy.

Ginat & Khazanov (1998) emphasise the phenomenon of increased sedentarisation. They foresee sedentarisation as an inevitable trend:

‘In principle, sedentarisation of at least part of the mobile pastoralists is inevitable and even desirable under modern conditions if it channels the surplus labour in the pastoralists sector into other

\(^2\) It might well be that once sloughed-off poor households restock and become nomadic again and that such households might be easily accepted as new members of the nomadic society. This has, however, not been studied yet.
occupational activities. It may even increase economic efficiency among those who remain involved in mobile pastoralism. Although this process may be spontaneous, it may be facilitated or hindered by different governmental policies' (Ginat & Khazanov, 1998: 4).

But if this is what they propose, future nomadic pastoralism is only possible for wealthy, specialised herders, their clients and their labourers. In addition, what happens if there are no other occupations where the surplus labour can be channelled to? Sedentarisation might not be an efficient way out. Poor pastoralists will, like poor peasants, join the urban unemployed. Another extreme statement on pastoralism is formulated here:

'It is obvious that in order to survive, mobile pastoralism should adjust to the contemporary economic climate. In particular, it should undergo a certain commercialisation and a market-oriented transformation. A mere conservation of its subsistence-oriented forms is neither desirable nor feasible and would only relegate it to a reservation-like way of life' (Ginat & Khazanov, 1998: 4).

Why a subsistence-oriented form of pastoralism is undesirable leaves a big question for us to answer. For whom is a subsistence-oriented form of pastoralism undesirable? And why? In countries under 'modern conditions' like adequately functioning markets and a nice infrastructure for trade, education and governance, sedentarisation might be a relevant or desirable option for some. In the contemporary Kenyan context, however, a form of pastoralism that provides adequate resources for subsistence is already very ambitious.

It is important to stress what Baxter has already said before: pastoralism in arid lands is an extremely specialised production system, requiring stamina and endurance which very few cultivators seem to be able to learn. Only a life-long apprenticeship from childhood onwards can pass on the knowledge and skills required for the present form of pastoral production systems. Added to this, only stock-rich households and their employees can afford to stay in a mobile or purely pastoral way of life. For many pastoral families today, the loss of their herds and flocks means destitution and long-term dependence on food aid. To re-establish a herd takes not only time and capital, but also a reinvestment in a social network.

'It is becoming increasingly hard for poorer herders to maintain a foothold in the pastoral economy at all, let alone to increase their herds' (Baxter 1993: 150).

We agree that sedentarisation is sometimes, to a certain extent, a symptom of adverse (internal and external) processes in pastoral societies. As such, sedentarisation can be perceived as an undesirable development, because it is for a large part a symptom of poverty. Similar to the increase of homeless street children in Nairobi and the growth of slums on garbage belts, the sedentarisation process of impoverished pastoralists is not a particularly positive change. Present-day development interventions among pastoralists have failed to assist poor pastoralists to remain in the system and sedentarisation is continuing. Especially in Marsabit District more than one third of the population nowadays lives on Marsabit Mountain as a result of reduced mobility of households and animals.

However, the 'mobility paradigm' with its 'anti-sedentarisation' tendency leaves too little room for a more 'diverse' approach to pastoral development. For individual herders who lose their herds, the advantages of sedentarisation at household level may outweigh the (unintended)
negative consequences at the village or district level. Why would people migrate to areas where they would be worse off than where they came from? That would be very uncharacteristic of nomadic people, who are used to searching for places where ‘the grass is greener’. Even though a considerable number of studies have shown the relative poverty of sedentarised people compared to the nomadic pastoralists (see for example Pearson 1980; Mohamed Salih 1985; Mitchell 1999) very few people seem to have asked settled pastoralists for their motives for, or their opinion on, sedentarisation, although they are the ones affected or helped by it. The question relating to motives and perception is, however, pertinent. For instance, Pearson asked settled nomads why they stayed in a very unprofitable settlement scheme when a nomadic life would benefit them more. As our own settled respondents also answered, the better educational facilities for their children were more important than higher economic returns (Pearson 1980: 30-31; Adano & Witsenburg 2004, in press. See also Chapter 5).

The question of whether nomads must settle has therefore become less relevant because a large proportion has already settled. It is too late to lament possible cultural losses or fear the loss of indigenous knowledge and traditional ways of life. However, because the failure of the past settlement projects has brought about a negative attitude among development scholars and non-governmental organisations towards sedentarisation (Morton & Meadows, 2000; Oba, Stenseth & Lusigi 2000), this has, in turn, resulted in neglect of the poorest and most vulnerable stratum in the pastoral society. We want to emphasise that fear that too much attention for settlement schemes would encourage sedentarisation should not result in donor (or academic) neglect, because reduced mobility and population increase in settlements is most likely going to continue in the future. Governance and administration (and funding!) by donors such as the World Bank, the central government and NGOs should instead deal with the fact that many more nomads are going to live a sedentary or semi-nomadic way of life, and they should deal with the consequences these changes will bring about. That does not mean that the nomadic lifestyle should be further discouraged or made impossible through prohibitive legislation and further privatisation of land. On the contrary, the pastoral production system needs to be supported. Evidence from semi-arid lands in India shows that certain populations of humans and herds have recently become nomadic again in response to favourably changed circumstances (Robbins 1998; Kavoori, 1996). In Kenya too, where 75 per cent of the Turkana pastoral households moved to mission centres distributing famine relief during the droughts in northern Kenya in the 1980s; more than one-half of them returned to mobile pastoralism when the droughts were over (Fratkin & Smith 1995). As has been mentioned earlier, permanent settlement should not be assumed to be the norm or the ‘natural state’ in African drylands. Mobility is the norm (De Bruijn et al. 2001). We therefore assume that sedentarisation is not a last stage in a process of modernisation: neither in a society in general, nor on Marsabit Mountain in particular.

’Nomads need not settle to change but will settle if the move (to stop moving!) serves them well’ (Aronson 1980: 184). We would like to add that individuals should not be forced to return to mobile pastoralism, because they would do so voluntarily if moving was beneficial to them. At this point, it is important to stress that sedentarisation can be perceived as a form of livelihood diversification, voluntary or involuntary, temporary or permanent, and it should thus receive the attention it deserves. To achieve this goal, it is important to deal with the opportunities of
sedentarisation instead of only looking at the problems. Even though sedentarisation was a result of adverse circumstances, it is important to look at the livelihood of those who settled.

In our study we will address some of the assumed negative consequences of sedentarisation as we mentioned earlier, however only as far as our expertise extends. Apart from a household study on reasons behind sedentarisation, each of the following chapters will elaborate on the possible consequences of sedentarisation. The description will cover issues of accessibility to natural resources for households, environmental problems, tenure conflicts and resource competition, along with economic opportunities and the education of household members. A livelihood profile analysis related to grain production and livestock keeping will provide information on the living conditions and the performance of farmers in Marsabit Mountain area. In addition, the negative criticism on planned settlement schemes encouraged us to compare the livelihood and farming performance of households in settlement schemes with those in spontaneous settlements.

It is, however, important to keep in mind that settled households and mobile households cannot easily be compared. In many cases, the settled households are a selection of households that could not make it in mobile pastoralism. The settled households that manage to increase their wealth are also usually able to maintain links with their mobile relatives. Members of one household move between pastoral and agro-pastoral production systems, and the distinction between an agro-pastoral profile and a purely pastoral way of life is not always clear. The simple dichotomy that is sometimes pictured in the literature between farmers and their mobile pastoral neighbours, who would have different interests, does not apply here.

For the majority of the settled pastoralists in the North-Kenyan context, livestock remains the most important resource and source of wealth. Even though livestock might not constitute sufficient economic input for subsistence, in our livelihood analysis we will show that livestock is worth more than wealth in the economic sense.

We advocate a new agenda for policy and analysis concerning pastoral development, which acknowledges pastoralism in the drylands as a form of sustainable land use, but which could and should be strengthened, among other things, by diversification into non-livestock based activities. That means that people in planned and spontaneous settlements should acquire an active role in the development of semi-arid areas. According to Morton and Meadows (2000), 'pastoralism' as a cultural-economic image should not be defined as a production system in which people derive 50 per cent or more of their revenues from livestock. A definition of 'pastoralism' should also include individuals or households that, although they derive their present income from other activities, have a pastoralist background, or regard pastoralism as a future vocation rather than their present occupation.

From an economy-based to an identity-based definition of pastoralism

What sort of capital is livestock? From the point of view of a camel herder, this question is very strange. The camel is his most valuable, life-encompassing resource. The camel is not only a

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3 This question was first raised by Morton & Meadows (2000: 15) and we examine it here in more detail because of its relevance to our study.
natural resource and a source of economic wealth; it links him to the social and religious world, because to the herder the camel is a sacred animal and is, next to God, the very source of life itself. Classifying an animal into one type of capital would disguise its importance to other spheres of life. It is therefore necessary to look at all the functions of the livestock resource. Hence, we first need to position our work within the framework of a definition of pastoralism, which would fit into a livelihood approach. Because many definitions of pastoralism do not take the various functions of livestock into account, we think that for the livelihood approach we need a different definition.

Usually pastoralism is defined as a production system in which 50 per cent of the gross household revenue (i.e. the total value of marketed production plus the estimated value of subsistence production consumed within the household) comes from livestock or livestock-related activities (Morton & Meadows 2000: 6).

Although Dietz and Mohamed Salih assert that pure pastoralism is a livelihood whereby people solely live from what their animals provide them and as such hardly exists (Dietz & Mohamed Salih 1997: 5), the term pure pastoralism is also used to refer to a production system in which at least 50 per cent of the pastoralists’ income is based on the livestock enterprise (Rutten 1992: 13). If pastoralists obtain 10 to 50 per cent of their income from animals and the rest from agriculture they are classified as ‘agro-pastoral’ and when non-agricultural income covers more than half of the food needs one speaks of a ‘mixed economy’.

Other definitions relate to the natural resource base in the production system. According to Dietz (1987) ‘pastoralism’ is a livestock-based or a pasture-based economy, in which livestock directly or indirectly provides more than half of the food needs of households.

If livestock products directly provide more than half of the food needs, we may call the economy ‘subsistence pastoralism’. If livestock products are sold or bartered and food is bought with the proceeds, the economy may be called ‘commercial pastoralism’. If less than half of the food needs are covered by direct or indirect livestock products, but livestock is part of the economy, we may call the economy ‘agro-pastoral’. If livestock is used for manure and draught power and if fodder is produced to feed the animals, we may call the economy ‘mixed-farming’ (Dietz, 1987). Rutten (1992) says in this respect:

‘Pastoralists are people who make a living by keeping livestock that act as a direct intermediate between man and his natural environment; the pastures’ (Rutten 1992: 13).

There is no problem in defining a production system or the economy according to the main contributing elements, to distinguish pastoral from agro-pastoral or mixed economies. In this terminology, the economy on Marsabit Mountain could be called commercial pastoral, agro-pastoral or a mixed economy, and the production system in the surrounding lowlands could be referred to as ‘subsistence pastoralism’.

However, how can we define the economic position of households or individuals in such production systems? Do they cease to be pastoralists when they temporarily start farming or once they become dependent on relief food? The problem lies in the definition of a household engaging in these economies. Households or individuals participate in various production systems at different times, even in different seasons. The importance of the household productive capital (like land, herds or a cash income from wage employment) as a source of income
fluctuates and can be temporal. One year the household could depend on farming, the next year most members rely on livestock. How would such households be classified? Moreover, members of agro-pastoral households can live a completely transhumant pastoral livelihood for some time and be temporarily engaged in other activities while still intending to return to livestock keeping. In addition, destitute pastoralists may depend on relief food for years. Their wealthy pastoral clan members who did not restock them might perceive them as being outside the scope of their pastoral identity. Would that mean they can no longer be defined as pastoralists? De Bruijn & Van Dijk (1995) note in relation to this issue:

‘The distinction between cultivators and pastoralists is only gradual and every group in the Sahel has to find its own mixture of mobility/sedentary and pastoralism versus cultivation (...) Pastoralism is just one of the ways to cope with hazard in arid environments, one of the many ‘arid ways’. Being a pastoralist is a matter of self-definition and identity more than anything else, and need not correspond to his/her daily activities or means of existence’ (De Bruijn & Van Dijk 1995: 18-19).

Zaal (1998) also extends the definition of pastoralism by incorporating the importance of people’s self-definition, but with a strong emphasis on the market-related activities of pastoralists:

‘Pastoral societies consist of interacting groups, households and individuals who define themselves as such, base most of their livelihoods on livestock production on natural pastures, using grazing, water, livestock, labour and immaterial resources, which they own or have access to and who are characterised by a partial and variable engagement or incorporation in imperfect markets beyond their direct control. When only part of their livelihood is based on pastoralism and most on other activities, these societies may be called agro-pastoral (in the case of cultivation), urban-pastoral (in the case of urban-based activities), or other similar combinations of terms’ (Zaal 1998: 24).

In a way, this definition leaves room for individual interpretations of the classification of people who would have liked, but did not manage, to make a living by keeping livestock. Morton & Meadows (2000) extend the term ‘pastoralists’ by including individuals or households within groups who pursue livestock keeping as an occupation or a vocation but have not (yet) managed to do so. This would apply to pastoralists who became destitute after a crisis and who need years to restock. In Morton & Meadows’ wider ‘vocational or value-based’ definition there is even more scope for attention to non-livestock based livelihoods for those who are voluntarily or involuntarily leaving pastoralism as an occupation.

We find these contributions to the development of concepts important for our understanding of the contemporary pastoral production system. Incorporating the natural resource base and the economic resources in the 1980s in the definition plus the importance of self-perception and cultural elements in the 1990s, and everything in between now enable us to perceive livestock as more than just economic or financial capital. Although we think it is useful to classify production systems according to the economic and environmental basis, in order to assess the outcome of a livelihood we need to analyse the importance of livestock within the framework of other resources as well. Possessing animals, even a few, is a source of pride and adds to the quality and quantity of social relations as well as to feelings of belonging and well-being. In addition, possessing animals increases a person’s political power. Pastoralists do not need livestock to
make up at least 50 per cent of their gross household revenue in order to satisfy these conditions for their (self) identification as pastoralists.

A herdsman at the well-site in Marsabit forest related the following:

'I am a Boran, a livestock keeper. I have 10 cattle. No, that is not enough for a living. That is why we also farm. Farming helps us to survive. But we live for our animals' (Boru, Karantina wells September 1997).

This makes it clear that pastoralists also perceive non-livestock-based activities as relevant strategies within their pastoralist identity. This also has important implications for development policy. It implies that supporting non-livestock based activities like agriculture in pastoral areas will not undermine, but can contribute to, pastoralism in its broader sense.

This is only understandable using the extended definition of pastoralism that incorporates the notion of self-identification. A very important element in this ‘extended definition’ is thus the notion of livestock as being part of social/cultural capital. Wealthy pastoralists might not perceive impoverished clan members who were not restocked as being part of their pastoral society anymore (as they are sloughed off and settled), but that does not mean that poor pastoralists would not define themselves as being pastoralists. The livelihood approach seems to be exactly what we need to understand why people settle, why even owning a few animals is important, why they diversify and restock.

Livelihoods: managing poverty and wealth

In this section, we will deal with some livelihood concepts. The livelihood approach entails in its full scope an enormous multi-disciplinary framework for analysis which goes beyond the scope of our study. However, even though we did not use all components of the framework, and adapted some concepts to fit our own purposes, we will nevertheless explain some of the backgrounds to, and uses of, this approach.

The concept of ‘livelihood’ has gone a long way in the social sciences in general, and in development studies in particular. Kaag et al. (2003) trace the concept back to scholars like Evans-Pritchard (1940), Kimble (1960), Pandit (1965) and Polanyi, who wrote the book ‘The livelihood of man’ although this book was only published in 1977, years after his death in 1964 (Kaag et al. 2003: 3). However, it has only been since the 1980s that the livelihood concept has started to attract a wider academic audience with an interest in theory and framework building. Since then, many other scholars have contributed to the advance of various components of the approach. Although various scholars have had important theoretical and case-study input, we will mention just a few here. Chambers (1983) (Rural development: putting the last first) and Chambers & Conway (1992) developed ideas on how to study rural livelihoods and why, stressing the importance of rural poverty, marginalisation, indigenous knowledge and survival strategies. In our view, Blaikie & Brookfield’s ‘Land degradation and society’ (1987) was very important in the 1990s, with its focus on the link between population and land, thus setting the stage for the development of a political ecology. Amartya Sen raised and developed topics on access rights and entitlements to resources, elaborated further by Dietz (1996) and Leach et al.
(1999) who focused on access to natural resources and entitlements. Bebbington (1999) further worked out the capital aspect of the approach. Berkes (1989) and Bromley (1992) pointed out the importance of indigenous ways of managing common property resources. Sen continued incorporating important elements on livelihood on higher levels from which the rights-based approach to development is now emerging. These inputs culminated in a synthesis on rural livelihoods by Frank Ellis (2000) and on urban livelihoods by Carole Rakodi et al. (2002), where all these inputs seem to come together.

The livelihood approach presently plays an important role in policy and extension, in civil society and civil action, in poverty studies and in the formulation of basic human rights. The ‘sustainable livelihood approach’ provides a normative concept and guidelines along which development projects are designed, monitored and evaluated. Although it is not our intention to describe the full background history of the concept and its future merits and demerits (which have already been examined by, for instance, De Haan 2000 and Kaag et al. 2003), we will highlight some issues relevant to the sustainable livelihood approach which inspired us to undertake the study in Northern Kenya.

Pastoralists and marginality

The peoples of Northern Kenya face the challenges that are currently at the top of the development agenda. Even though poverty, hunger and environmental resources are old issues, the problems have not been solved. More than 90 per cent of the population live below the poverty line as formulated by the World Bank, of US$ 1 per person per day. This positions the inhabitants of Northern Kenya among the world’s most economically marginalised people.

Poverty and food insecurity continue to be topics in the development spotlight in 2003. For instance, number one on the list of key outcomes of the Johannesburg Summit in 2002 is the need for global action to fight poverty and to protect the environment. In his speeches at both the World Economic Forum in Davos and the World Social Forum in Porto Alegre in January 2003, Lula da Silva, the Brazilian president, proposed starting an anti-hunger fund for developing countries in the war against hunger and poverty instead of spending money on military actions. These problems will therefore remain priority issues for this new century.

Morton & Meadows (2000: 8) state that pastoralists are more likely to be poor than most other groups of rural people. Jazairy et al. describe nomadic pastoralists (together with smallholder farmers, the landless, indigenous people, small and artisanal fisher folk, and internally displaced people/refugees) as a ‘functionally vulnerable group’. They need special attention in development interventions to combat rural poverty (Jazairy et al. 1992, cited in Morton & Meadows 2000).

However, instead of studying pastoralists as deprived and marginalised victims in a capitalist world, in whose mechanism poor people are always at a loss, we focused on how they deal with poverty, how they manage their resource base and what strategies they develop when circumstances change. This is precisely the strength of the livelihood approach. We nevertheless want to emphasise that even though individuals are often creative, skilled and knowledgeable in

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4 New institutional economics, political ecology, civil rights movements, civil society studies, (anti-) globalist studies have all in a way contributed to and at the same time profited from the livelihood concept. We will however not deal with each of these inputs separately.
their management of scarce resources, it should not distract our attention from the fact that their insecure food situation is one of poverty and marginalisation.

The sustainable rural livelihood approach as a framework for analysis

The relevance of the livelihood approach in food insecure areas is the analysis of poverty and food insecurity, and the ways people deal with this. Therefore, in line with the key outcomes from the Johannesburg Summit, the basic intention of our work is to contribute to an understanding of strategies that deal with poverty. Only through understanding can new policy be designed to alleviate poverty in a sustainable way for the people in Northern Kenya.

The sustainable livelihood approach assumes that there is a form of livelihood which is sustainable and also realisable. The study of livelihood is a study of people’s access to resources in combination with a study of the pursuit of different livelihood strategies. Whether such activities are sustainable or not, can only be interpreted after an analysis of livelihood outcomes. The focus of a livelihood study is the analysis of formal and informal organisational and institutional factors that influence people's livelihood.

Drawing from Chambers & Conway, a livelihood is defined as a means of living and the capabilities, assets and activities required for it. A livelihood is sustainable when it can cope with, and recover from, stress and shocks, maintain or enhance its capabilities and assets, provide sustainable livelihood opportunities for the next generation and generate net benefits for other livelihoods at local and global levels and in the short and long term (Chambers & Conway 1992: 25-26). According to Scoones (1998):

‘The framework shows how, in different contexts, sustainable livelihoods are achieved through access to a range of livelihood resources (natural, economic, human and social capitals), which are combined in the pursuit of different livelihood strategies (agricultural intensification or extensification, livelihood diversification and migration). Central to the framework is the analysis of the range of formal and informal institutional factors that influence sustainable livelihood outcomes’ (Scoones 1998: 1).

The main components can therefore be identified as:
1. An analysis of the context and conditions under which a livelihood is achieved;
2. The various capitals, assets or resources households use to obtain a livelihood;
3. An analysis of institutions and organisations defining or determining access to these resources;
4. Strategies performed by households in order to obtain a livelihood;
5. And finally the analysis and assessment of outcomes of livelihood strategies.

For our study, we largely draw on the framework for analysis as outlined by Scoones (1998) and Ellis (2000), and its relevance to pastoralism by Morton and Meadows (2000).
Figure 1.1
A framework for livelihood analysis

Vulnerability context
Stock and trends in:
- Population
- Migration
- Prices/terms of trade
- Natural resources
- Livestock
- Food
- Climate and seasonality
- Agro-ecology
- Social differentiation
- Shock (drought, stress, war, diseases)

External environment

Livelihood assets and resources

- Natural capital
- Social capital
- Cultural capital
- Religious capital
- Human capital
- Political capital
- Economic/financial capital
- Physical capital

Transformation context
The colonial heritage
Organisations and movements
Government
Culture
Institutions

Livelihood strategies
- Adaptation
- Agric. Intensification/ extensification
- Diversification
- Migration/sedentarisation
- Trade/livestock commercialisation

Livelihood targets
- Food security
- Increased resilience against stress and shock
- More income
- Increased well-being
- Sustainable use of natural resource base


It is very ambitious to try to study and analyse all the components of the sustainable livelihood approach. Such an analysis involves scholars of many different disciplines. A great deal of work concentrates on only a few components. Similarly, we focused our study mainly on the various forms of natural and social/cultural capital, the institutions that govern them and the strategies of households in the context of population growth, climatic stress and seasonality. In the following chapter we will discuss the topics that are relevant for each livelihood component in the pastoral setting.
Outline of the book

In this chapter we reviewed different outlooks on sedentarisation and the mobility of pastoralists and their herds. Before 1980, the development paradigm for the African drylands was inspired by the idea that sedentarisation of nomadic pastoralists was a solution to rangeland degradation and would bring 'modern services' to the nomads. After 1980, there was a shift in development thinking towards the view that pastoralists are better off when they remain mobile. In this chapter, we argued that so far the debate on sedentarisation seems inspired by environmental and political concerns only, with very little attention for the poverty side that gives rise to sedentarisation. The mobility paradigm explains why herd mobility is a better strategy for herds and environmental management and emphasises opportunities for better herd mobility, based on ecological arguments. However, what is lacking in this approach is a focus on today's needs of poor pastoral people, such as access to health services, education and the market.

Households, or individuals within households, can acquire access to different resources at different moments in time. A genuine understanding of a household's access to various resources is needed to understand changes in these resources over time. We use the livelihood approach because it offers us a broader perspective on strategies, resources and the contextual facts people have to deal with. It enables us to redefine 'pastoralism', because livestock constitutes various types of capital, and not only financial or economic capital. The old economic definition of a pastoral household considers households as 'pastoral' when at least 50 per cent of the gross household revenue consists of livestock or livestock products. Impoverished (settled) pastoralists would then be 'sloughed off' of pastoral development interventions. A new approach to pastoral development is needed; one that incorporates households which do not meet this standard of 50 per cent, but which value the other aspects of livestock (as social/cultural/religious capital). In a livelihood approach, 'pastoral development' also refers to and includes households which might not have livestock at present, but which strive to own more animals in the future. Moreover, economic activities of people in the settlements, or diversification strategies among pastoralists, can then be perceived as relevant in a new, more diversified pastoral development paradigm.

This book consists of four parts. The first part, encompassing Chapters 1-5, sets the background to this study. The material presented in Part I is largely based on existing reports and databases. All the graphs in these chapters are compiled by the authors based on existing databases and reports. Only Chapter 5 contains considerable information from our own surveys.

In the next chapter we will review the various concepts of the livelihood approach and the major components of pastoralist livelihood strategies, i.e. the context and conditions; the various capitals, assets or resources that the households use, the institutions and organisations defining or determining access to these resources, the strategies performed by households to obtain a livelihood and the outcomes of these livelihood strategies.

Chapter 3 reports on the combination of methods that we used for this study. It shows the challenges and opportunities arising from the combination of quantitative and qualitative approaches as well as the combination and integration of economic and geographical disciplines.

Chapter 4 describes the study area and provides an overview of the natural capital (with a focus on trends in rainfall and natural resource endowment of Marsabit District), human capital
(focusing on population figures, characteristics and dynamics), water sources as the main physical capital, the main sources of livelihood and the social institutions that determine people’s access to resources.

The sedentarisation process is described in Chapter 5. This chapter discusses the history and expansion of settlements and farmland on Marsabit Mountain as a response to the dynamics in pastoral livelihoods. It explores the background and motives of the first generation of settled pastoralists and further describes the present living conditions in the planned settlement schemes and in the spontaneous settlements. It shows how the populations in the schemes and in the spontaneous settlements are difficult to compare, because the starting conditions were unequal.

Part II of this thesis, encompassing Chapters 6-9, focuses on the resources of the study population and the dynamics therein. This part and Part III of this thesis is based on own field data. Discussing unequal access to land and unequal land holdings, Chapter 6 builds on the challenge noted in Chapter 5, namely that of unequal starting conditions of settlers on Marsabit Mountain.

Among pastoral communities, livestock constitute an important household resource. Yet, livestock wealth is highly differentiated between households. Chapter 7 reports on households’ herd sizes and compares these across various ecological zones and wealth levels. It critically assesses which households can subsist on their livestock. In appears that household herd sizes are insufficient for subsistence and that other resources are needed in order to survive. The findings of this chapter illustrate the background of declining pastoral wealth and form the basis of the study. Although pastoralists have responded in several ways to the decline in livestock wealth, sedentarisation is an important result of pastoral impoverishment.

Not only the question of access and use of farmland and livestock holdings are relevant when population increases, water resources and the way they are managed are also of critical importance. Chapter 8 therefore explores how scarce water resources are used and managed, how access is organised and how this translates into water use at the household level. Water resources turn out to be inadequate in terms of amount and distribution. Existing reports, however, contain no indications that the maximum potential of both land and water resources has been reached. The chapter further assesses intervention efforts in water development and gives an indication of the water availability for livestock from various water sources.

One of the most precious endowments of the Mountain area is the montane evergreen forest on its peaks. Although the favourable climate and the presence of the forest encourage people to experiment with farming, the protected nature of the forest limits the use of the forested area for human settlement and farming. Chapter 9 discusses the importance of the conservation of this forest and outlines management challenges in relation to protected areas in general and the forest ecosystem in particular. This chapter also focuses on economic and manpower constraints in forestry conservation.

In Part III (Chapters 10-14) we analyse livestock-based and other livelihood strategies in the study area. Chapter 10 focuses on livestock production and trade, comparing data at national level with those at district level. We then continue with the dynamics of livestock production in Marsabit District and in Kenya as a whole, presenting time series data on slaughters, hide and skin production, livestock off-take rates and trade and exports. This chapter also discusses the economics of livestock trade, focusing on the role of trade in pastoral household economies and
(relative) livestock prices, including the livestock and grain price ratios and caloric terms of trade. Presenting data from the household survey, this chapter also provides insights into the trade in milk and livestock, to end up with observations concerning the future prospects for livestock trade.

Social relations are crucial to compensate for declining livestock resources. Yet, the wealthy and the poor have different levels of access to these social relations. This is the main focus of Chapter 11, which explains the animal trust system and different types of rights over animals. This chapter further measures diversification of herd tenure across wealth levels.

In Chapter 12 an assessment is made of the agricultural potential of the study area and some trends are described in agricultural production and productivity over time. The basic question addressed in this chapter concerns whether rural households can subsist from grain production. In addition, we try to find some factors that influence the success of farming in certain areas and ascertain whether these factors are related to livestock keeping.

The direct use of the forest and vegetation resources by the local communities is considered in Chapter 13. This chapter identifies the specific resources and the probable determinants of rural household demand for forest resources, with particular reference to vegetation resources and fuel wood. In addition, it pays attention to the loss of assets and property blamed on wildlife. Attempting to link local forest resource use and national conservation and management issues, this chapter also provides some options for policy makers.

On the basis of the resources available to households on Marsabit Mountain, Chapter 14 measures to what extent households have been able to subsist from a diversified portfolio of strategies. It questions whether farming is merely an alternative to livestock keeping or is instead complementary to pastoralism.

The results of this study will be integrated and discussed in the last part of this thesis, paying particular attention to the implication for policy. Departing from the notion that forest ecosystems indirectly support a wide range of ecological and economic functions, Chapter 15 examines how forested areas support micro-irrigation activities and urban water supplies and presents a simple model that links water yield and changes in the area under forest cover. The results of this chapter have major implications for policy on protected area management.

The livestock resources depend on communally shared rangeland resources, including water. Livestock populations are, however, affected by external factors such as rainfall and droughts. Thus, Chapter 16 questions the link between livestock and rainfall (as a proxy for rangeland conditions) and assesses effects of recent droughts on livestock numbers and human welfare.

In many regions in sub-Saharan Africa, population increase and rising resource scarcity have been reported. The main argument in the literature is that scarcity of natural resources provokes ethnic violence. The proponents of this view usually argue that poor people lack the social institutions that should govern scarce resources. In Chapter 17 these assumptions are challenged using firm data on violence and scarcity indicators.

Finally, Chapter 18 is a summary and conclusion of the study's findings and contains recommendations and options for future policies on pastoral development in Northern Kenya.