Pastoralists and markets: livestock commercialization and food security in north-eastern Kenya
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Research methods

In this chapter, we discuss the research objectives and research questions of the study. The circumstances within which the study was carried out will then be considered. The study is placed within a broader theoretical orientation. The selection of the research areas as well as the selection of, and data collection at, various levels of the study are explained.

Research objective and questions

The main objective of this study is to establish whether increased livestock commercialisation could improve the food security situation of Somali pastoralists in north-east Kenya. The Somali pastoralists of Garissa District were chosen for this study since they are more involved in commercial livestock activities than the other pastoralists in North-eastern Province of Kenya, given the relative proximity of Garissa to the wider consumer markets in the rest of Kenya. At the same time, Garissa District is large enough to show spatial differences in marketing behaviour.

The Somali pastoralists in Garissa District also consume foodstuffs other than livestock products, mainly maize meal. Since maize is not grown in the area, they have to purchase it from shops with money earned from livestock sales or from other sources. Livestock products such as milk are also sold by both surplus and deficient households. Households producing more milk than they need tend to sell it in order to earn extra income. At the same time, poor households unable to produce enough milk for all their members also tend to sell the little milk they produce and use the money to purchase other foodstuffs. The central research question addresses commercialisation and food security:

Does increased commercialisation improve food security for Somali pastoralists? Are there additional insecurities that may result from increased market participation, and how could these be improved in the Somali pastoralists’ transition to a market-dependent economy?
The Somali pastoralists sell their livestock and livestock products in the markets closest to them, but also in the main regional market in Garissa town. The choice of where to sell an animal is influenced by a number of factors including household labour availability, price differences between markets and pastoralists' knowledge of such differences, the presence of buyers and above all, the seasons and climatic factors. Thus, the second research question addresses these issues.

To what extent are the Somali pastoralists involved in livestock marketing, and what market opportunities and constraints do they face?

The livestock trade involves many actors: livestock traders, brokers, butchers, and the pastoralist producers. While there is competition between some of the actors, there could also be co-operation in some areas of activity. Food retailers play an important role in the trade network and provide the maize meal that is often purchased by the pastoralists. The third research question therefore is:

Who are the main actors/participants in the livestock and food trade in the area and what trade relationship(s), if any, do they have?

Household incomes and expenditures are estimated with a view to establishing the contribution of the livestock sector to household incomes, and the proportion of that income spent on foodstuffs. The prices of livestock products (meat) and maize meal are compared on a food value basis, leading to the fourth question:

What are the caloric terms of trade (Tc) for the Somali pastoralists in Garissa District under different geographical conditions?

Livestock commercialisation is influenced by external factors such as government policy and insecurity in the area. The recurrence of droughts seems to be more frequent and a number of households appear to be withdrawing from pastoralism and moving into towns and trading centres as food-aid recipients. On the basis of this we formulate our final question:

How do the Somali pastoralists of Garissa District cope with crises during droughts? What are the options for those displaced by such crises?

The research set-up

This study was part of a Netherlands-Israel Research Programme (NIRP) project involving researchers and institutions from the University of Amsterdam and the African Studies Centre (ASC) in the Netherlands, the Blaustein Institute for Desert Research of Ben Gurion University in Israel and the School of Environmental Studies of Moi University in Kenya. The overall objective of the project was to establish the level of market participation by pastoralists from different ecological backgrounds and economic environments as expressed by the caloric terms of trade. The Somali pastoralists from Garissa District and the Maasai from Kajiado District (both in Kenya), and the Bedouin from the Negev Desert in Israel were studied to compare situations in terms of market relationships and caloric terms of trade of pastoralists who are at different levels of livestock commercialisation. The Somali are the least integrated into the livestock market both in value and volume because of poor infrastructure and distance from the main
consumer markets, while the Bedouin are highly commercialised, using improved breeds and a more developed marketing system. The Maasai are in an intermediate position being within easy access of the increasing demands of Nairobi and other urban markets in Kenya.

It should be recognised that the Somali pastoralists operate under ecological, political and security conditions that are more difficult than those of the other groups. The collection of data in this study experienced the same difficult conditions and was also affected by the severe drought in 1996 which necessitated changes in research procedures.

Theoretical framework and unit of analysis

The Somali pastoralists in Garissa District, and indeed those in most of north-eastern Kenya, face many difficulties in survival. They have to contend with dry environments with minimal resources, poor livestock infrastructure, as well as unfavourable government policies on livestock movements and marketing. Although the Somali pastoralists in Kenya have been involved in market transactions for a long time, the extent of their involvement has been little investigated. Factors promoting or inhibiting livestock marketing at the household level were also looked into in this study. Both the resources at the household and those at the reer level were important in the household's involvement in the market. Figure 2.1 shows the interaction of the various levels and units within the context of this study.

The main kinship affinities of the Somali pastoralists in Garissa District operate at the reer, one level above that of the household (see Chapter 1). Although most decisions on livestock sales are made at the household level, there are cases when such decisions are vested in the members of the reer rather than those of the respective households. This is so in the case of particular animals such as good breeders and high milk-yielding females which are considered too important to leave the reer. In the event that a particular household intends to sell such an animal because it has no alternative, a replacement is given by another member to save the important animal from going to market. Such replacements can either be given as a gift or be repayable at a later date.

While both the household unit and the reer unit are operational among the Somali pastoralists, their functioning and performance is dependent upon their resources and the external environment. The first comprise the rangelands, livestock, labour, skills and during times of scarcities such as droughts, food aid. The external environment is set by ecological conditions e.g. rainfall, government policies such as quarantines and movement restrictions. and banditry and general insecurity.
This study was carried out, although not by design, during a drought period when food aid was very important for household needs, particularly in the north of the district. Similarly, there were high rates of attacks by bandits resulting in important implications for livestock marketing in that flows of livestock and livestock products were hindered. The flow of money earned by the pastoralists from such transactions, as well as that of foodstuffs by the food traders, were also affected. Thus, food aid is considered a resource although not in a conventional sense, and insecurity is taken as part of the external environment which has an impact on the pastoralists at many levels. The Somali pastoralists' interaction with the livestock (products) market is often mediated through intermediaries who play an important role in the commercialisation process. These intermediaries include livestock traders, food traders, livestock brokers and butchers.

**Unit of analysis**
The household was taken to be the unit of analysis for this study. Although some decisions affecting the household were actually made one level higher at the level of the *reer*, several households constituting the *reer* were still involved. The unit of the *reer* acts as a joint insurance for its members during times of need, and also intervenes in house-
hold decisions in cases of livestock disposal and social issues like marriage outside the reer, especially when such decisions are considered to have implications for the overall performance of the reer as a unit. The communally-owned range resources are utilised mainly on the basis of kinship relations. This results in people of the same reer being identified with particular settlements and thus ownership of the land and water resources in that area. Yet, each household had, first and foremost, obligations to its own members, and then to those of its reer.

Decisions on livestock migrations and sometimes those on labour allocation within the community are usually made at the level of the reer and are binding on the individual households that make up a reer. In the event of a household’s violation of decisions that are made at the level of the reer, that household and its subsequent generations will be excluded from the reer and isolated in every aspect. Due to the magnitude of the impact of such exclusion on households, decisions are usually taken cautiously and only after all other channels are exhausted. Similarly, households rarely defy their reer because of the consequences of such defiance. In the same vein, new households may be accommodated within the realm of the reer even when they have no blood relations with the other members. These are usually households from smaller sections of the community who would like to join a particular reer in order to share the burden and benefits of collectivity on certain issues.

Hypotheses of the study
The study addressed three main hypotheses:
1. The caloric terms of trade between livestock (and livestock products) and grains (whole maize and maize meal) are generally positive for the Somali pastoralists of Garissa District;
2. Positive caloric terms of trade (Tc) help Somali pastoralists in achieving improved food security; and
3. Increased market participation by Somali pastoralists in District has weakened traditional social security networks.

Selection of research areas
Within the wider objective of comparing livestock commercialisation and caloric terms of trade between the different pastoral groups facing different ecological and economic conditions, the Somali were taken as a group of pastoralists from an economic and ecological environment with many constraints on production and trade. Since the security situation as well as the status of infrastructure is and has been poor in the whole of North-eastern Province for many years, it was decided that Garissa District should be studied since it was relatively more accessible than the other districts in the region.

The selection of the research sites in Garissa District was guided by the existing livestock production and resource utilisation systems in the area. There are two different livestock production systems in Garissa District. The northern part has a livestock production system based on cattle, camels and small stock while the south has one based on
cattle and small stock only. The presence of camels in the south is constrained by tsetse flies due to the heavily infested Boni forest and relatively higher rainfall. Besides the differences in livestock production, the north and the south of the district differ in tenure rules for water resources. The north of Garissa has government-provided boreholes and dams while the south has privately-owned dams but no boreholes. These differences in water resources have important implications for sustainable husbandry in Garissa District.

Based on the different livestock production and water use practices between the north and the south of the district, the two divisions of Dadaab (in the north) and Ijara (in the south) were selected for study. Subsequently households from these two areas of the district as well as livestock and food trade actors were studied. Livestock and food trade actors from Garissa town were also studied. The livestock markets in the two areas of Dadaab and Ijara, and the regional market in Garissa town were also examined.

Selection of markets and data collection

The markets for which data were sought and obtained were the livestock markets and the food trade markets in the survey areas in Garissa District.

*Livestock markets*

Livestock markets were selected along with the divisions that were chosen for the survey. There was one livestock market in each of the three research locations and these were studied. The divisional markets usually act as collection markets for the smaller trading centres within their proximity. In addition to the two divisional markets, the main regional livestock market of Garissa town was selected since it is often the terminal market for many of the smaller markets in the rural parts of the district, including those of the survey locations of Dadaab and Ijara. The Garissa regional market also serves a wider hinterland consisting of the other districts in the region - Wajir and Mandera - and sometimes even the southern part of the Republic of Somalia. Thus, it is the district market, as well as the main regional market. Both the terms 'regional market' and 'district market' will be used for the Garissa market.

Historical information on the trade and marketing of livestock and livestock products (especially hides and skins) in the region was obtained from colonial reports in the Kenya National Archives (KNA) and annual reports at the Ministry of Agriculture, Livestock Development and Marketing (MoALD&M) in Nairobi. These data were supplemented by more recent data on livestock prices and volumes, and those of hides and skins in the 1990s obtained from the District Livestock Production Office (DLPO) in Garissa.

For the collection of primary data in the livestock markets, five field assistants were trained for one week in November 1995. Three of them were selected to collect market information on livestock sales in the markets of Garissa town, Dadaab and Ijara. The data for cattle sales at Garissa regional market were collected weekly (at the weekly sales) while those for camels and small stock were collected on a daily basis. The livestock data for Garissa market were aggregated on a monthly basis, hence monthly average prices
and volumes were obtained. In the case of the two divisional markets of Dadaab and Ijara, a similar approach was taken but with some modifications. Since there were no designated market days at the divisional markets, data for livestock sales were collected on a daily basis for the first month of each quarter. The data so obtained were used to represent the quarter within which the particular month fell. This was acceptable since there were no major seasonal changes in ecological conditions during this relatively short period of three months. The two assistants in the divisional markets also collected data on the sales of hides and skins, food prices and the continued household surveys which will be discussed later in this chapter. The market data were collected over a two-year period in 1996 and 1997.

Selection of market intermediaries and data collection

The term market intermediaries is used to refer to the actors in both the livestock and food grain markets. These are livestock traders, brokers and butchers in the livestock sector, and food retailers and wholegrain traders in the food grain market. The retailers deal in other merchandise as well - both food and non-food items. The grain traders only trade in whole maize. Food retailers have trading licenses and permanent business premises while grain traders have neither. They sell grains from makeshift premises without trading licenses. Data from the market intermediaries were collected by means of structured questionnaire surveys, although informal interviews were also held with all the intermediaries at various points during data collection. In addition, we visited the markets to observe their functioning.

Livestock marketing intermediaries

Among the market actors in the livestock marketing process, three types of intermediaries were selected from Garissa town, Ijara and Dadaab; livestock traders, livestock brokers and butchers. Initially, it was planned to interview all actors in the categories in the three market centres. We were able to do this for Ijara and Dadaab, but it was not possible for Garissa town which was found to have too many participants in each of the categories. Consequently, we selected 20 of each category in Garissa town. This represented about 80 per cent of livestock traders, 40 per cent of the brokers and 40 per cent of the butchers in Garissa town. The selection of respondents was made randomly.

The collection of data on market intermediaries was done by several field assistants after an initial training session in Garissa town. The survey was conducted over a one-week period during the months of January and February 1996 in each of the three areas of Garissa town, Dadaab and Ijara.

Food retailers

The term food retailer and retail trader are used interchangeably in this text. They both operate from retail shops in which they sell diverse merchandise ranging from foodstuffs, livestock and medicine to clothes and utensils. The retail traders are found in all the trading centres but are more numerous in Garissa town where they also have relatively
more capital than those in the divisional markets. Like the livestock intermediaries, it was initially planned to survey all the retail traders in Garissa, Dadaab and Ijara. However, this was not possible because the number of shops in the selected centres was too large. We thus selected 20 retailers from each of the centres of Garissa town, Dadaab and Ijara to include in the survey. The survey of retail traders was a one-of in each area with prices and volumes of selected commodities subsequently being monitored in the other two areas but not in Garissa town.

The collection of data on retail traders was done concurrently with those on livestock intermediaries in all the centres, and by the same field assistants. A structured questionnaire was used to solicit information on the retail trade in foodstuffs. In addition, the prices for selected foodstuffs were recorded for Dadaab and Ijara and averaged for each quarter of the two-year period during which this was done.

**Grain traders**
The trade in wholegrains was only found in Garissa town. The grain mostly traded is whole maize although the local population rarely use it in that form but take it to millers for grinding into maize meal. Although some of the traders purchased whole maize from the Dadaab area, most sold it at Garissa market. The source of maize grains in Dadaab is the refugee camps and relief distribution to the local population.

The number of wholegrain traders found in the area amounted to thirty-four and all were interviewed through a pre-tested questionnaire. The ethnic background and the age and sex of the traders were recorded as where the sources of products, their volume of turnover, the range of products sold, and prices. We also inquired into the period during which they trade and into other locations where they sell their merchandise, among other trade-related variables.

**Market communication**
To assess the communication needs of pastoralists before embarking on some radio programmes in Kenya, the Panos Institute in London, in conjunction with the author, collected data among the Somali pastoralists of Garissa District. In all, a total of 31 respondents were asked questions with the help of an unstructured questionnaire. In addition, group discussions were held with elders, government officials, women, youth and religious leaders. Most questions were aimed at identifying the communication means between government officials in the area and the pastoralists, the flow of information between and within the pastoralists, and the main issues communicated at various levels of interaction. With the kind permission of the Panos Institute, we use some of the information from that study in Chapter 4.

**Selection of households and data collection**

Households usually but not always, consist of the nuclear family and relatives or friends who are part of the production as well as the consumption unit of that family. Households were selected in each of the two survey areas of Dadaab and Ijara, in the north and south
of the district respectively. Households with polygamous heads were counted as one. In the survey areas households within a 15-kilometre radius of the main divisional head-quarters were targeted for inclusion in the survey.

An initial survey of 110 randomly selected households was conducted, with 55 households from each of the two research locations. For all the 110 households, essential characteristics such as age, sex, the marital status of the head of household, the educational level of the household head, the number of people in a household, livestock holdings, grazing and water-use patterns, constraints to livestock production and economic activities outside the livestock sector were listed among other variables. From the random sample of these households, a sample of 80 households (40 from each area) was selected for a long-term survey. The reduction of the sample from 110 households to 80 was guided by time considerations. The main criteria in selecting these 80 households included the number of cattle owned (household wealth) and the approximate distance from the trading centre. Subsequent interviews with these households covered a wide range of household and livestock issues such as household composition, herd size, grazing patterns, water rights, and social norms relating to livestock production and marketing.

Results have been weighted on the basis of their relation to the initial 110 households to correct for the sampling procedure, and this resulted in 88 weighted cases on the basis of 80 households selected and studied. Somalis are known to be reluctant to disclose the number of animals they own and were vague, by mentioning 'about ...' without being precise. This led to the generation of livestock holdings that were lower than actual sizes. The generation of livestock numbers using categories of ranges rather than absolute numbers gave a better estimate of livestock numbers. The 'poor' category included households which had fewer than 20 head of cattle, while the rest were grouped together in the 'average' category. Among Somali pastoralists, a family with fewer than 20 head of cattle is considered poor even if it owns some small stock. On the other hand, households that had more than 20 heads of cattle but fewer than 100 head, were not considered as rich but as average in wealth status. There were no households with more than 100 animals. The details of the sampling and weighting process are presented in Table 2.1.

<table>
<thead>
<tr>
<th>Household listing</th>
<th>Sample study Weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dadaab</td>
</tr>
<tr>
<td>0 - 20 cattle</td>
<td>44</td>
</tr>
<tr>
<td>21 - 100 cattle</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
</tr>
</tbody>
</table>

A structured questionnaire was used to collect information from the households in the survey. Two field assistants were trained in the use of the questionnaire (one in each location). All the assistants involved in the survey were male since the few potential female assistants were not allowed to travel far by their parents, nor were they willing to
do so. Furthermore, travelling was considered more risky for women due to the general insecurity in the area (the same assistants also collected data on the market intermediaries in their respective locations, including the livestock traders, brokers, butchers and retail traders). Households were visited every two months, half the group in one month and half the group in the following month. In all, five follow-up visits were realised during the survey year. The follow-up information mainly focused on herd dynamics (i.e. off-take and additions), income, expenditure, and prices of livestock and grains. Besides the household questionnaire, informal interviews with individuals as well as groups were also done with a view to getting more information on social security systems, and information within and between the communities concerned.

In collecting household data, a number of problems arose that had to be addressed such as a change in assistants and the migration of households. One of the assistants left during the course of the survey when he was offered a job by an NGO. It was not difficult to replace him quickly and his departure did not do the study any significant damage. The movement of households posed a bigger problem, mainly in Ijara. Since the survey period coincided with a dry year, some of the survey households moved, either to the major town of Garissa for relief food (the poorer households) or further inland in search of better grazing. Such movements were more prevalent in Ijara which had no NGOs and little or no relief distribution compared to Dadaab during the same period. Whenever households moved away, they could not be followed and we excluded them from continued monitoring unless they returned.

Selection of displaced households and data collection

Garissa town attracts people from many parts of the district and elsewhere in the region. This was the case particularly during the droughts of 1992 and the recent one of 1996 when many pastoralists who had lost their livestock moved to the regional capital to receive relief food. A survey of 50 households depending entirely on resources from outside their traditional livestock sector was conducted randomly within the periphery of Garissa town. It was concerned out with a view to obtaining some basic insight into the livelihood of this group.

Data collection from the displaced pastoralists involved the use of a questionnaire with the assistance of one field assistant. The information included the place of origin of the household, the date when it moved to Garissa, the source of their livelihood, and their general experiences as displaced pastoralists. The data were enhanced by informal conversation with members of some of the impoverished households as well as with some of the food-aid distributing agencies and policy-related government officials.

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1 Because of migrations by some of the survey households due to the continued drought, a planned second-year of survey of the households had to be discontinued. Since our first year of survey was more or less a normal year in the area, our data for that period were not adversely affected. Since most of the households that became victims of the drought moved to Garissa town, we conducted a survey among some of them in 1997.