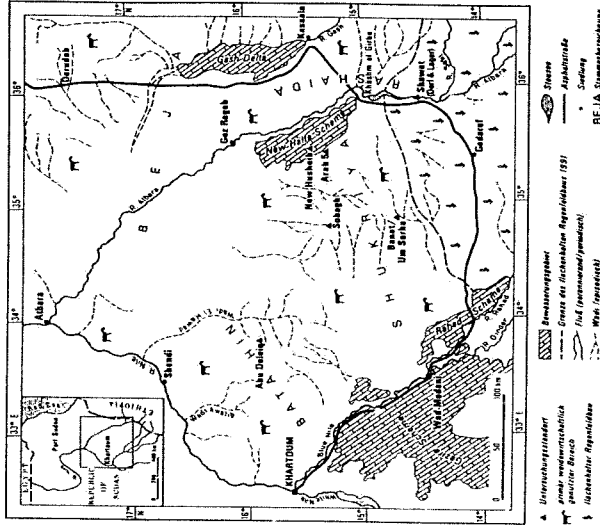


Diagram 1: The Butana



Source: MENSCHING/SEIFERT 1994

Although important changes have taken place during the last decades, animal keeping in the Butana continues to be the most important source of income for the majority of the population that live there (RAHMANN 1994). This applies mainly to the rural areas of the Butana where other possibilities of earning an income are limited.

Income from animal keeping is earned from the meat production and the milk used for home consumption. The animal holders' most important concern within the framework of animal keeping is to expand their livestock since it alone promises a certain security, prosperity and prestige (DAHL/HJORT 1976). A certain security is particularly important to survive heavy drought periods.

Costs arise in animal keeping. According to the year and the season, medicines, water, crop residues and salaries must be paid. Since natural pastures and water supplies are free of charge, a positive total marginal income is achieved even in extremely dry years. However, even the positive total marginal income in the extremely dry year and in the following year should not delude to the fact that economic difficulties may occur. The marginal income from animal keeping does not suffice, by far, to guarantee the maintenance of the herding collective. To be able to meet all the expenses (that are important for survival), more and more animals must be sold. Thus, for example, in the extremely dry year of 1990/91, the livestock was reduced by one-third on average, due primarily to sales and not to the death of animals as is often assumed (RAHMANN 1994).

THE IMPACT OF TERMS-OF-TRADE-EFFECTS TO HERD MAXIMISING ANIMAL KEEPING IN THE CASE OF DROUGHTS IN THE SAHEL

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Introduction

Sustainability of land use needs an understanding of human impact and constraints, particularly the economic behaviour of the animal keepers and the performance of the markets in semi-arid climates. This article tries to describe some of the findings of the interdisciplinary research project "Animal Production in the Sahel - Recent Developments and Prospects in the Republic of Sudan" carried out between 1990 - 1994 (MENSCHING/SEIFERT 1994). The aim of the project was to establish scientifically proven facts about the ecological and socio-economic situation of the people involved with animal husbandry in the Butana Region of Eastern Sudan and at the same time to collect information about the situation of livestock including all factors which influence its productivity (KIRK/MENSCHING/SEIFERT 1994).

The Butana lies in Eastern Sudan (Diagram 1). The semi-arid conditions of this 120.000 sqkm vast region are determined by 150-mm-rainfall in the north and 400-mm-rainfall in the south. In this region, typical for pastoralism, about 20.000 people live mainly on the basis of extensive animal keeping (SORBÓ 1985; SALEM-MURDOCK 1989) and they keep the animals in different farming systems. The most important are the extensive animal keeping with wadi-cultivation and rainfed-cultivation. This already shows the close relationship of agriculture and animal keeping (BASCOM 1990). Thereby it represents the traditional form of animal keeping, even if its organization has changed considerably (JAHNKE 1982).

This article concentrates on the point of terms-of-trade-effects to traditional animal keeping. In the analysis, are four production years presented: 1988/89 with very high rainfall and excellent production possibilities (the year with the most rainfall ever measured in this region), 1989/90 with moderate rainfall, 1990/91 with nearly no rainfall and 1991/92 with rainfall below the average for 50 years. The last two can be seen as severe drought years.

Markets are of great importance to animal keepers. There, they sell their animals and buy consumer goods. This is the reason for the animal holders' economy being largely orientated towards the market. Usually, animal holders sell their animals on the regional markets which - according to the geographical situation of their camp/village - lie at a distance of 40 to 100 km.

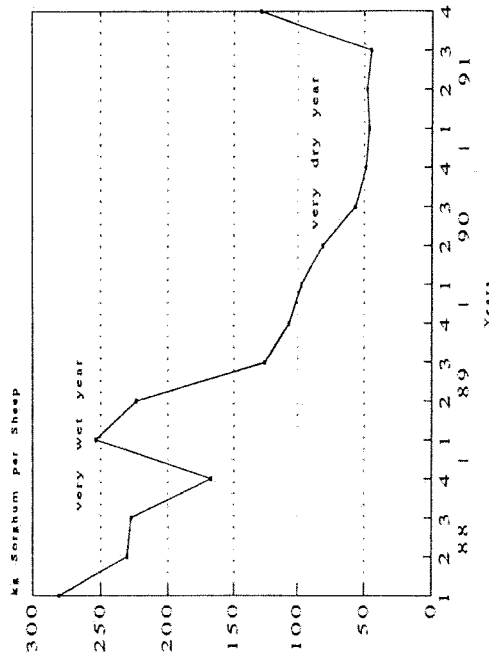
According to the distance, up to 10% of the value of the transported animals must be paid as transportation costs, if transportation is available. Additional transportation costs arise for the person who travels to the market and eventually for purchases he brings back (e.g., a sack of sorghum). Altogether, travelling costs may add up to 40% of a sheep's value (RAHMANN 1992).

Altogether, this analysis concentrates on seven market locations which have a considerable great significance for the animal holders concerned. The market structure must be considered as being unfavourable for animal holders who practice extensive animal keeping since:

- the markets are "demand markets",
- numerous suppliers (polypolists) are confronted with few buyers (oligopson) and
- both sides stand out because of different price elasticities.

Moreover, since they have had to meet relatively high transportation costs, many animal sellers are mainly forced to sell their animals when they go to market. They are confronted with animal buyers, very often wholesalers and butchers, who are aware of their awkward situation. Since the supply of animals is very often greater than the demand, they have an advantage over animal holders in trade and can choose from the most favourable offers. This is obvious, especially in the different price elasticities of buyers and sellers. The price elasticity of supply is much greater than that of demand.

Diagram 2: Price Relations of Sorghum as Compared to Sheep from 1988 to 1991 (trimester average, Sorghum at retail prices)



Source: RAHMANN 1994

In times of crisis, as during the extremely dry year of 1990/91 and partly 1991/92, the disadvantage of animal holders on the market is very considerable and even threatening. The unfavourable marketing effects worsen considerably for them. Thereby, the terms of trade are especially significant: as a result of the strongly decreasing demand and very abundant supply (maintenance difficulties in animal keeping), animals are very cheap; in contrast, basic foodstuffs such as sorghum are very expensive (Diagram 2). Compared to favourable years such as 1988/89, the price relation between a sheep and a sack of sorghum of 1:3 (Nov. 1988) has dropped in years of extreme drought such as 1990/91 to a price relation of 1:0.2 (Dec. 1991).

Conclusion

A crucial problem for many animal holders in Butana is the permanent food and income insecurity. Specific difficulties arise for traditional animal holders during the years when the amount of rainfall is below average and during which there can be serious problems regarding the quantitative and qualitative supply of food.

As to their market position, the animal holders are at a disadvantage in comparison to animal buyers and sellers of consumer goods. This is apparent, above all, in the terms-of-trade. Especially in times of crisis as during years of extreme drought, when there is a great need for consumer goods (basic foodstuffs primarily), these are very expensive, whereas animals are very cheap. Thereby, the relative marketing power of animal buyers and of sellers of consumer goods play a decisive role. The herd maximising is an important strategy to deal not only with the climatic constraints but also with the unfavourable market structure to the traditional animal keepers in arid and semi-arid areas. This strategy can be described as: "Herd maximising is optimising the security of traditional animal keepers".



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