

## **Constraints of camel pastoralists in Gedarif state, eastern Sudan**

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### **Abstract**

This field study was conducted between Oct 2005 and Aug 2008 in Gedarif state, eastern Sudan. The objective was to provide knowledge on constraints faced by camel herders, and to identify the solutions as an essential step towards the development of camel herding in this state. A set of detailed structured questionnaires were used to collect information from camel herders. The results showed that, nomadic tribes in the study area (58.8%) represented by Lahaween and Rofaah tribes and their dwelling type is tents made from (Hair & wool). Semi nomadic tribes (30.9%) represented by Kenana and Rashaida tribes and their dwelling type is cottage made from branches of trees and sorghum stalk and the sedentary tribe (10.3%) represented by Shokria tribes and their dwelling type are buildings made from either mud or bricks with cement. There was a high percent of family members who are illiterate. It was clear that the level of provision of most services needed by the herders and owners is relatively very low. The camel owners annually need to sell 5 to 6 camels to feed 100 camels on sorghum stalks in the dry season. The serious livelihood constraints were education, electricity, water supply and veterinary services. More care from the government and non government organizations is recommended.

**Key words:** Camel, Constrains, Gedarif, Nomads, Pastoralist

### **Introduction**

Camels have a vital role in the subsistence economy of rural pastoral communities. In Sudan, camels are concentrated mainly in the eastern and western regions of the country. It is estimated that more than 25.7% of the country's camel stock is found in the Eastern region of Sudan (Department of Animal Resources Statistics, 2008). Animal herders in Sudan are agro-pastoralists, leading a nomadic life combined with minor crop production activities for about four months of the year. The camel pastoralists are always moving over large areas in search of food and water for the camels. During their continuous transhumance, camels are affected by many production limiting factors such as diseases, range and pasture limitations, water scarcity, high calf mortality, and recently, security problems (Majid, 2006).

This paper investigated the constraints facing traditional camel rearing people in Gedarif area, as perceived through field research. Strategies for reducing and applicable solutions to these constraints for high awareness and welfare of camel pastoralists are highlighted. The objective of this study was to provide

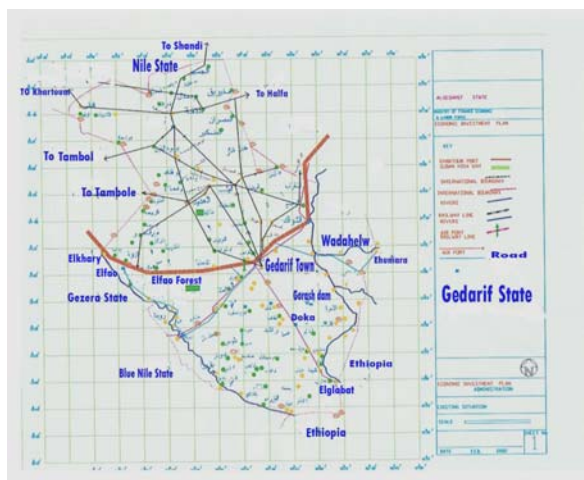
knowledge on life situation of camel herders highlight the constraints affecting them and to identify the solutions as an essential step towards the development of camel herding in this state.

### **Materials and Methods**

Gedarif state is situated between long: 33°-45° and 36°-45° East and lat 12°-45° and 16°-00 North and have borders with Sinar, Aljezera Kassala, Khartoum and Nile state. It has also borders with Ethiopia in frontiers. Gedarif state is an area of 71,621 km square. The population of Gedarif state is about 1.7 millions and most of this population is living around Gedarif town. The study also included part of Butana area which is one of the most important grazing areas and is situated in the north part of Gedarif state between the River Nile and River Atbara. Butana consists of five sub states, namely the north, central, southern, western and eastern sub states (Saint-Mation et al., 1992).

The study was based on well designed questionnaire to cover most of the problems that faced camel pastoralists such as feeding, diseases, lack of pasture and water, basic services and education. Two

types of questionnaires were designed. One was answered by camel owners and the second by camels' herders. Hundred and fifty three group of herders and owners were interviewed. The required data was collected during several field trips in different season of the year. The study carried out covering a period of three years from Oct 2005 to 2008.



**Fig. 1: Map of Gedarif area**



**Fig 2: Type of tent house, belonging Lahaween, Roffa tribe (file photo, 2007)**



**Fig. 3: Watering of camels at water point (Hafir; file photo September 2006)**

## Statistical analysis

The collected data were analyzed using the descriptive statistic of the Statistical Package for Social Sciences (SPSS) version 14.

## Results

There were three systems of camel production in the study area (Table 2), namely nomadic, semi-nomadic and sedentary and they represented 58.8%, 30.9% and 10.3%, respectively.

Nomadic tribes in the study area were represented by Lahaween and Roffaah tribes and their dwelling type was tents made from Hair and wool, and the semi nomadic tribes were represented by Kenana and Rashaida tribes and their dwelling type was cottage made from tree branches and sorghum stalk. The sedentary tribe was represented by Shokria tribes and their dwelling types were buildings made from either mud or bricks with cement (Table 3).

Table (4) shows the levels of education among camel herders and owners. There was a high percent of family members who were illiterate because they did not find a chance to acquire education. Illiteracy among the herd owners and their families reached as high as 69.78%. This shows there is need for education in order to develop and improve their standard of living.

**Table 1: Field trips conducted during this study**

Area visited	Period	Duration
Gedarif camel market	2006-2007	2 months
Butana area (Elsoubag)	2008/2006	7 days
Min. of Anim.and fish.,Gadarif	2006-2007	4 days
Pasture Dep. Gedarif	2007	2 days
Elshowak camel market	2006-2007	4 days
Butana area (Demat Elsahl)	2009/2007	7 days
Elrahad locality	2006-2007	15 days
Elhowata locality( Abuerog)	2006-2007	6 days
Federal M. of Animal Resources and fisheries -Khartoum	2007	2 days

**Table 2: Camel management attributed to nomadic, semi-nomadic and sedentary systems**

Production system	Frequency	Percent (%)
Nomadic	40	58.8
Semi-Nomadic	21	30.9
Sedentary	7	10.3
Total	68	100.0

**Table 3: Type of house among camel rearing-tribes**

Type of house	Frequency	Percent	Tribe
Hair & wool	26	38.2	Lahaween, Roffa
Muddy building	4	5.9	Shokria
Cement	6	8.8	Shokria
Cottage	32	47.1	Kenana
Total	68	100.0	

**Table 4: The level of education among camel herders and owners**

Family Member	Count	Illiterate (%)	Khalwa (%)	Primary (%)	Secondary (%)	University (%)
Husband	89	13.79	1.01	1.62	1.62	0.00
Wife	92	15.82	0.61	1.8	0.41	0.00
Sons	197	22.52	0.00	11.56	4.46	1.42
Daughter	115	17.65	0.00	4.67	0.61	0.41
Total	493	69.78	1.62	19.7	7.1	1.83

A survey was carried out in study area where the camel owners and herders were asked about the availability of basic services. It was clear that the level of provision of most services needed by the herders and owners was relatively low (Table 5).

**Table 5: Services provided in the study area**

Services	Owners		Herders	
	Yes (%)	No (%)	Yes (%)	No (%)
Electricity supply	18.8	81.2	7.4	92.6
Water supply	67	33	55.9	44.1
Veterinary services	18	82	19.1	80.9
Vet-survey for herd	22	78	5.9	94.1
Services from pastoralist and other constitution	5.88	94.1	0.00	0.00

**Table 6: The price mean and number of a paid scheme/standard deviation (SDG)**

Item	Mean
No of paid scheme	4.08
Mean price of scheme	8.50

**Table 7: Herd size and no of paid schemes**

Herd size	No of paid scheme								Total
	1	2	3	4	5	6	7	8	
20-50	6	8	9	2	3	0	0	0	28
< 50	1	8	18	2	2	2	2	1	36
Total	6	16	29	3	3	2	2	1	64

Spearman correlation herd number and no of paid scheme =0.243; (P value =0.05).

**Table 8: Main sources of water for camel herders**

Water source	No. of respondents	Percentage (%)
Deep borehole+ hand dug well	11	14.67
River	7	9.33
Hafier	27	36.00
Wadis + Khors	2	2.67
Irrigation canal	6	8.00
More than 1 source	22	29.33
Total	75	100.00

Water resources (Hafier) in Butana area were few. Camel herders normally lived at a distance of not more than two-day walk from water sources. Interviewed

camel herders reported that camels were watered at intervals of 5-7 days in the hot season. Watering camels in winter ranged from 10-14 days.

## Discussion

Generally there were three types of camel production systems in the study area. These were 58.8, 30.9, 10 and 3% nomadic, semi-nomadic and sedentary systems respectively. The percentage of nomads reported agrees with that reported by Eisa (2007). However it is different with Darosa (2005) who reported that there was a rapid decrease in number of nomads in Gedarif State (Butana area) during 1984 to 2003. The second type of camel production was the semi-nomadic which represented 30.9% of respondents in the study area. They depended on natural grazing areas and crops residues in the mechanized farming agricultural schemes during the dry season after the harvest. This description of the types of nomadism is in agreement with Babiker (1997), and also generally in agreement with that of Agab and Abass (1999). The tribes in eastern Sudan including Gedarif State practiced a semi-nomadism of range utilization, and move from one area to another following certain migratory routes.

The results of the study on illiteracy indicated that there was a high percentage of family members who were illiterate because they did not find the chance to acquire education. Illiteracy among the herd owners and their families reached as high as 69.78 %. This shows the need for appropriate systems of education to suit the camel herders in order to improve their standard of living. This result is in agreement with Darosa (2005) who reported the dominance of illiteracy among camel herders and owners.

The natural vegetation in general constituted a common resource free to all camel herders. The crop residues in the mechanized agricultural schemes belonged to the farmers who are usually livestock owners. The sorghum stover itself is not a particularly nutritious fodder and does little to compensate for the loss of tree forage but it represents an important component of feed resources particularly in later dry season. The spread of farming has gradually encroached upon traditional livestock migration routes and hindered access both to traditional grazing lands and to livestock watering points particularly along the river valleys. In

the study area the price of crops residues is governed by the availability of natural grazing vegetation and water. In most cases the nomads buy the remains of agriculture crops after the harvest. The price is equal to 8500 SDG (approximately USD 4200) for 1000 feddans (417 hectare). The camel owners usually need to sell 5 to 6 camels to feed 100 camels on sorghum stalks in the dry season. This result agrees with the results of Kohler-Rollefson (1991) who reported that to keep 100 camels on sorghum stalks from January to July, owners paid about LSG50000 (approximately USD 4000 at that time) and a household normally needed to sell three or four camels to fulfil the feeding needs of his camels. The movement of the camel herders in and around agricultural scheme should be regulated by the local government to avoid conflict between the farmers and the nomads.

Traditional livestock movement to the northern part of Gedarif State takes place from May to October (rainy season) and towards the southern part of the state from November-April to take maximum advantage of the natural grazing and water sources. Nomadic livestock owners who used to find ample dry season resources (water + grazing) in the Atbra valley now traverse the area and take their animals either across the border with Ethiopia or in to and beyond the southern part of the Gedarif state to Sennar state (The Dinder game reserve) or Blue Nile state due to the fodder availability and ample grazing ground in those areas.

### Conclusions and Recommendations

From this study it can be concluded that the serious livelihood constraints facing camel pastoralists in

Gedarif state was education, electricity supply, veterinary and feeding and water resources. A lot of effort and attention is required from the government and non-governmental organizations in order to upgrade the economic and social conditions of this sector for the benefit of the pastoralist in Gedarif State.

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