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# Transformation of Camel Breeding in the Sudan

*M. E. Abu Sin*

This article is reviewing the recent trends of change in camel culture in the Sudan. How is this change challenging the subsistence nature of camel breeding which proves to be a suitable production system for semi-arid areas (north of isohyet 400mms). The message of the paper is to point out the process of marginalization of camel herders and show how such herders are a self-generating mechanism of adaptation. Such adaptation is gradually losing the momentum of sustainability.

The transformation is viewed in the light of the dramatic changes in the country, which include: (i) The environment, whether natural or man-made; (ii) the path and objective of development which is mostly top-down, directed by interest of investors, whether foreign or national, and even by the government. The nature of modernized agricultural development, in the home areas of camel herding, is stripping camel husbandry from the resource base, and restricting its mobility as an effective way of using meagre resources. It is in a way a "displacement" development, the beneficiaries of which are not the original users of the resources.

The article is presenting the emergence of three forms of camel breeding systems, i.e. the traditional, semi-traditional, and commercial agropastoralism. The rising market economy is rapidly pacing in the camel breeding, which makes it necessary to support camel herders. Improvement in the natural range, control of diseases, specific corridors and grazing areas, are vital to ensure a gradual transformation which has already begun.

## Introduction

The aim of this paper is to point out the main factors and processes of transformation of camel herd breeding in Sudan over the last two decades. This account is largely based on empirical evidence and close observation of changes in camel culture in the country, along with research findings mostly in eastern Sudan.

It is evident, although further documentation is needed, that the transformation process of camel production is making a shift from subsistence to commercial breeding. This has been associated with the recent orientation, even within the traditional economy, geared towards production for the market. Simultaneously, there is an increase in the external demands for camels for Egypt and the Gulf states, especially for high breed racing camels (Abu Sin, 1986).

Commercialization has resulted in a direct challenge to subsistence camel breeders who have developed their own adaptive strategies, by using small animals to meet basic food and daily cash needs while maintaining the camel as a capital reserve.

This system has overstretched the family labour and has reduced camel herds management ability.

It is the perceived advantage of being capital reserve, which camels have in relation to other livestock, that precipitated commercialized breeding. "Rich nomads" and agro-pastoralists—mostly owners of mechanized crop production schemes—are investing in camel breeding for purely commercial purposes. The latter are developing a reciprocal camel-farming investment system, whereby the farmers have an in-herd investment in a selective system of selling and buying of camels.

As a profitable business, subsistence breeders have developed a new form of alliance between "hired labour", and rich nomads or agro-pastoralists as a form of "stock client relationship" (Dahl and Hjort, 1979). Many of the small herders attach themselves to rich nomads and agro-pastoralists, taking over herd management on a hired labour basis. Young members of a family of subsistence breeders provide their services for rich nomads and agro-pastoralists where earnings are high and

chances of accumulating a herd of their own seem quicker and more secure. This process, among many others, is challenging subsistence camel breeders, although it increases their ability to generate cash which can easily be exchanged for basic needs.

The 1984 drought struck the subsistence camel breeders, and most of their camels perished or were sold cheaply to rich breeders. Camel restocking is now very expensive, so by necessity subsistence camel breeders have resorted to investing surplus resources in small animals, thus making camel ownership beyond their reach.

### The Camel Environment

Camel breeding, for quite a long time, has been confined to the ecological zone between latitude 13°N & 18°N. Latitude 13°N is used as an arbitrary line dividing Sudanese nomads into camel breeders (*Aballa*) to the north and cattle breeders (*Baggara*) to the south. Accordingly, the camels are mainly concentrated in the desert, semi-desert, and the northern fringes of the low rainfall woodland savanna, east and west of the Nile (Figure 1). Isohyet 400mm is taken as a better southern limit of the camel environment. This depends on the micro-relief, soil, drainage, and vegetative distribution, due mostly to the variations in range and water potentials of the sandy landscape west of the Nile and the clay east of the Nile. The expansion of the camel southward depends on the water supply sources, and specified migratory routes for their north-south reciprocal movements in the wet and dry season, respectively. Camels in this zone previously had the advantage of minimum competition over pasture from other livestock.

The suitability of such an ecological zone for camel breeding could be attributed to the following main factors:

1. The body metabolism of the camel adaptable to such harsh conditions.
2. The wide stretch and relatively diverse zone providing space for extensive movement as a process of utilizing those pastures

with the highest nutritional value.

3. The wide range of vegetative cover of herbs, grasses, and bushes suiting the high grazing selectivity of the camel.

4. The zone is generally disease and insect free, open for movement, and healthy for camel breeding.

5. The camel zone, particularly west of the Nile, has never been attractive to agricultural development. This is due to marginality in the soil, water, and permanent streams as compared to the area east of the Nile. The camel is under pressure west of the Nile to purely natural factors, while east of the Nile the pressure is coming from the expansion in irrigated and rainfed agriculture in both small-scale and large-scale mechanized farms. This has forced the camel to be pushed further south to Isohyet 800mm and to stay longer in this area (Figure 1).

At the regional level the ratio of camel breeders to the total population depends on the ecological suitability of each region into the traditional camel breeding areas and size of settled population as well as the dominance of land use system (Table 1).

### Grazing System, Management Changes and Economy

The grazing system has been formed by the camels need for pasture, water and open space according to seasonal variations in rainfall and vegetation. The family has limited choice to divert from the camels dictated needs. Under the pure form of camel breeding practices of the past, the management is a strict family system with clear division of labour among the family members. Accordingly, the entire family has to move with the herd to perform a defined function. Within a highly flexible and long-distance movement, the family depends on the camel for food supply. The grazing system is in harmony with the resource base, which is rather strict in timing, direction, and form of management. In the 1960s, ill-planned permanent water sources (boreholes) had been provided mainly

Figure 1. The camel environment in Sudan

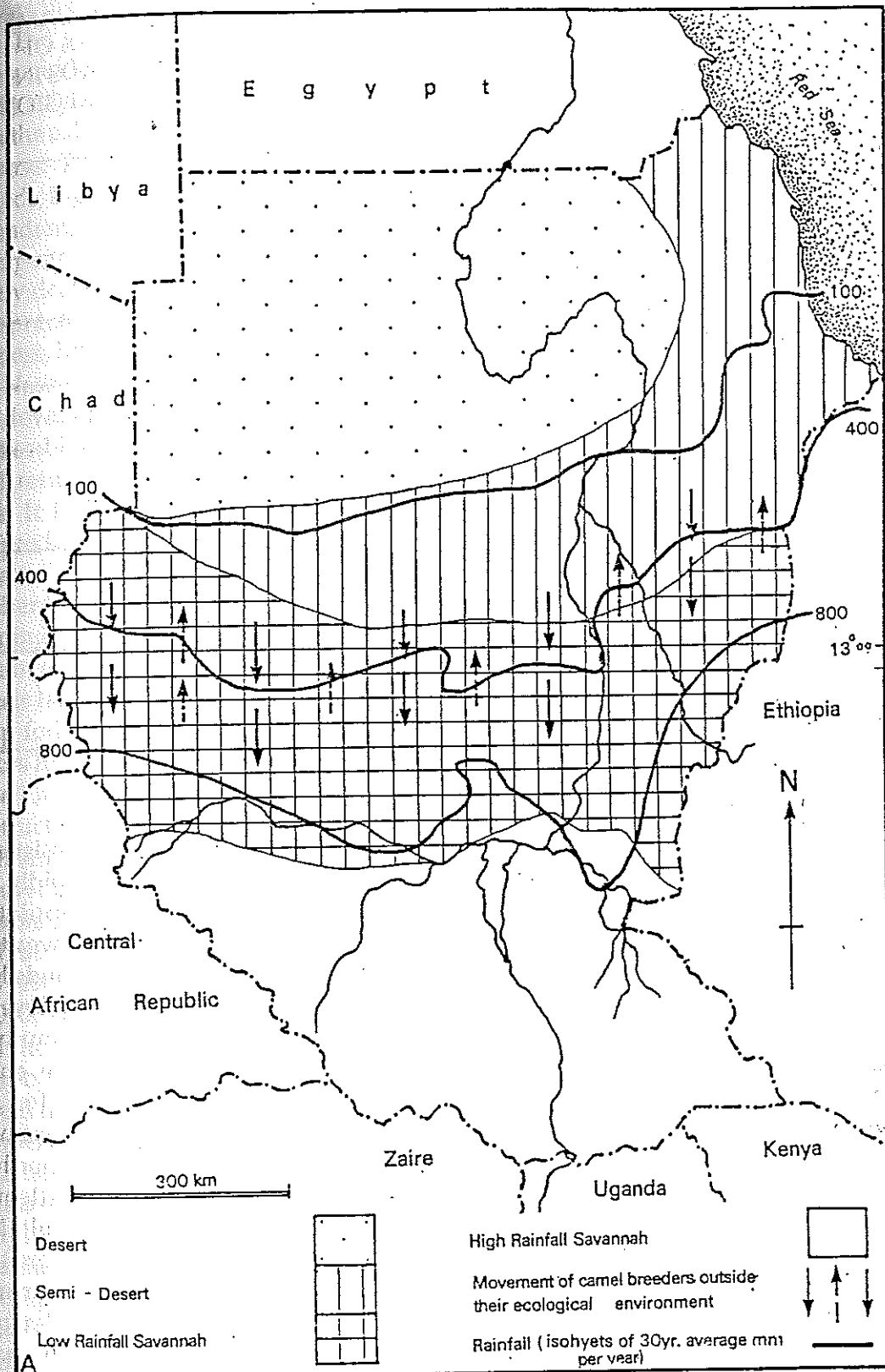


Table 1. Nomadic population in northern Sudan and approx. % of camel pastoralists of the total population in each region in 1983

REGION	NOMADIC POPULATION (000)	% OF NOMADS IN EACH REGION OF TOT.NOM. POPULATION	APPROX. CAMEL PAST. % OF NOMADS IN EACH REGION
1. Kordofan Region	781.0	35.6	38
2. Eastern Region	558.1	25.6	36
3. Darfur Region	469.1	21.6	28
4. Central Region	244.2	11.1	15
5. Khartoum	88.0	4.0	60
6. Northern Region	50.3	2.3	75
<b>TOTAL</b>	<b>2191.9</b>	<b>100.0</b>	-

Source: Compiled from 1983 census data

in the marginal areas of the camel environment. The dense concentration of such water sources along certain axis, and their open use by all nomads, have caused ecological degradation and disturbed the rhythmic north-south movement of camel breeders. The recent drought aggravated the situation and subjected the majority of subsistence camel breeders to hardship, and loss of camels by starvation or mass selling.

Consequently, the traditional herd management system is no longer holding, except among a few breeders who are extending their movement further south to isohyet 800 mm and are staying longer in areas previously inhabitable by camels.

At present three systems of grazing exist in the country.

1. The old traditional system of resource

management constitutes a pure subsistence-based system. This system is rapidly declining in terms of gross population involvement, herd size and camel wealth. It is still family managed, but demands long distance movement and a high level of control of the camels in the southern movement where the agriculture on all farms is mechanical and space for free movement is becoming scarce. For example, Ruffa'a el Hoi nomads in their northern movement, from Damaring Settlement Centre along the Blue Nile to the White Nile (near Kosti), take two months, before then crossing the mechanized farming area. In their return to Damaring centre along the Blue Nile they have to cover the same distance in 10-15 days (during the time of harvesting of sorghum (*dura*) in this period

of Oct-Dec. (El Samani & Abusin, 1985). Rufa'a el Shareq used to cross the present Rahad scheme before filtering out into central Butana in 1-2 months. Now they have to cross the same area in 3-6 days.

2. The grazing system involves young males and hired shepherds. The rest of the family stays behind looking for sustenance from the sale of small animals kept for this purpose. This group may be called rich nomads, in the sense having of large herds, dependent, in a way, on hired labour in the management and breeding of animals mostly destined for the market. They may also practice an in-herd inter-changing business, livestock trade, and export.

3. New agro-pastoral system. This system has developed recently and is mainly practised by settled ex-nomads who have good returns from agriculture or animal trade. It includes owners of mechanized crop production farms, especially in southern Kassala Province, Blue Nile Province, and southern Kordofan. Their strategy in breeding camels, beside being a capital reserve investment, is to use the crop residues in their large schemes (1000 acres each) as cheap fodder for camels. Few of such investors have access to or knowledge of the procedures of urban investment in land, construction, business, etc. They rarely use small animals because these require more intensive management and have a relatively unstable market. A herd of camels (100 head) at approximate prices of SSh 3000/head (1987 prices) carry a cash value of SSh 300,000. Ten herd of sheep is necessary to carry the same cash value of 100 head/herd at a price of SSh 300/head (1987 prices). It is evident that it is easier to manage one herd of camels than 10 herd of sheep, bearing in mind that the risk of starvation and death is minimal in the case of camels. This system is highly commercial in management investment practices, marketing, selective breeding, and veterinary care.

The last two breeding systems aim at building up camel stock rapidly at the expense of the first system. Eventually, fewer people are dependent on camel milk

which is recycled in the commercial system by being fed to young calves. This increasing nutritional standard and consequential herd increase is building up the role and market value of the camels.

The result is the existence of three grazing and management systems, which are highly competitive to the meagre natural grazing resources, manpower, and the relatively limited camel market when compared with other livestock. A considerable pressure is exerted on the family-based subsistence system. The commercially oriented rich nomads are equally under pressure until they may find an investment outlet other than camels. Both the subsistence and commercial systems, are under pressure from the rapid expansion of all three forms of traditional, irrigated and mechanized agriculture. The Range and Pasture Department is struggling hard to identify corridors or routes to facilitate the nomads movement and reserved grazing land in the southern and northern parts of the camel ecological zone, but literally with no success. In Gedaref district there are 3 million acres of unregistered mechanized farms in areas previously designated as natural grazing land.

Consequently the camel culture which is assumed to be the least vulnerable to change in livestock breeding systems, is undergoing a rapid change towards commercialization. The factors responsible for this process of transformation are mainly:

1. Recent environmental degradation of the camel environment has been aggravated by an ill-planned distribution of water resources in areas where communal land tenure is ruling.

2. The increase in contact between traditional camel breeders and settled communities, created new demands and aspirations among herders for goods and services (food, dress, education, medical care), etc. This direct contact often resulted in some family members staying settled, and others continuing the nomadic life.

3. The realization by rural settled and nomadic peoples of the advantage of camels

as a capital reserve and secured wealth has attracted investment in camels even among successful farmers.

4. The development of agriculture and its expansion within the natural rangelands without any land-use plan, has negatively affected camel pastoralists.

Under such circumstances most of the subsistence breeders have developed a responsive and adaptive strategy of affiliating themselves with the two expanding systems of rich nomads and agropastoralists. They render their paid services to either on condition that their small herds are put together with the big herd of the rich owner. Even young people abandoned the subsistence system and became hired labourers for the rich herd owners as a quick means to build their own herd. The strategy in both cases is to take advantage of rich herd services, in water supply provisions, veterinary services, and access to their agricultural land.

Such developments are reflections of the market integration whereby a strict class structure is emerging in the nomad economy, thus peripheralizing a large number of traditional camel breeders (Mayer et al, 1986). In fact the traditional pastoralism is undergoing a process of transformation with a shift from specialized breeding to diversification and breeding of different types of livestock within the ecological potentials (Abu Sin, 1982). Specification in camel breeding business is either concentrating on special high breeds such as racing camels (Abu Sin, 1986) or for meat. In both cases the management system takes a completely different structure.

The camel, in relation to other types of livestock, is low on the domestic market and export market list. According to official slaughtering records, in 1983 camel supply to the domestic meat market is about 2000 metric tons, compared with 300,000 for cattle, and 100,000 for sheep. This is partly due to the low domestic demand of camel meat and the limited off-take mainly controlled by the family needs. Selling a single mature camel for about SSh 3000 will

meet most of the breeder needs over a year. It is this big cash injection which tilted the balance towards commercial breeding of the camel.

As discussed earlier the camel economy and breeding is at a critical and transitional stage. Three highly competitive systems in objectives and management potential are operational. These are as follows:

1. To maintain the process towards a purely subsistence breeding in order to consolidate the food base before proceeding to a cash economy. The argument for this, is that if the trend of production for the market continues, the subsistence breeding system will collapse, people will be marginalized, and may be pushed to new types of work or activities they are not suited for. The trend, if continued, will speed up the process of eroding the food security base among the rural population, exposing them to an unpredictable environmental situations and erratic price conditions.

The argument against this option by whether there is a chance of modernizing camel breeding in a self-generated process. In most rural areas change is imposed by national planners who frame a development strategy which they think is good for the people (Abu Sin, 1985). The camel as a "capital reserve" advantage could be utilized only in commercial or semi-commercial breeding system.

The primary problem is that the chain of camel wealth, manpower, and the environmental hazards, is unlikely to allow for a gradual transformation of the subsistence sub-system without expected adverse consequences. To attain a gradual transformation an input by the government and foreign donors must be secured in the form of improvement of pastures or even to reserve special areas, providing credit, veterinary services, and special water supply points. Research should be encouraged in raising camel product industries.

2. To encourage or, at least, to allow the existence of the present process of commercialization of the camel culture. The argument for this option is that the subsistence

acquire a sustainable food base while opening the system for the cash economy as an unavoidable reality in the future.

## Note

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