

The Socio-economic Profile of Camel's Holders in North Kordofan State, Western Sudan

Khalid E.Sahal¹, Bakheit S. A.¹, Maruod E. Maruod², Mohammed S. Elteama²

¹University of Kordofan, Faculty of Natural Resources and Environmental Studies, Department of Animal Science, Elobied, Sudan.

²University of Kordofan, Faculty of Natural Resources and Environmental Studies, Department of Agricultural Economics and Rural Development Elobied, Sudan,

Abstract The current study was conducted in North Kordofan State, covering the period 2013-2014. The main objectives were to determine the socio-economic situation of camel's herders in the state, to know the other economic activities of the camel's herders and to investigate the constraints and problems facing camel's herders and their solutions. Multistage, purposive and simple random sampling techniques were used to select 210 respondents for the study. Well structured questionnaires were administered to the respondents to obtain data. Tabular analyses as well as descriptive statistics were used to analyze the data. The results revealed that, 42% of camels herders were within 51-65 years old, and most of the respondents (83.81%) were illiterate, 85.2% of them were only camel reared and 85.24% of them possessed their camel stock through inheritance. The results indicated that, 90% of the respondents possessed other breeds beside camel rearing. Also the results revealed that, 71% of the respondents were sedentary, beside that 69.9% of their sons left school and went to the area of traditional or artisanal gold mining. The results showed that, 88.6% of the respondents depend mainly on buying camels as source of income, and 69.1% of them spent SDG 400-900 per year for veterinary care, 28.58% of them pay more than SDG 4000 per year for herd drinking water and 39.05% pay SDG 4000 yearly for zakat or Islamic tax. The results also revealed that 46.19% of them depend only on family labor for herd management. The results showed that the main constraints facing camel's herders were lack of labors, herd robbery, expansion of agriculture at the expense of the range lands, lack of general services for human and livestock and water shortage mainly during the dry period. The study concluded with some recommendations as, expansion of cultivation against range land should be stopped, range land rehabilitation program should take place, water sources should be rehabilitated and extension services are essential to develop camel's herders' profile.

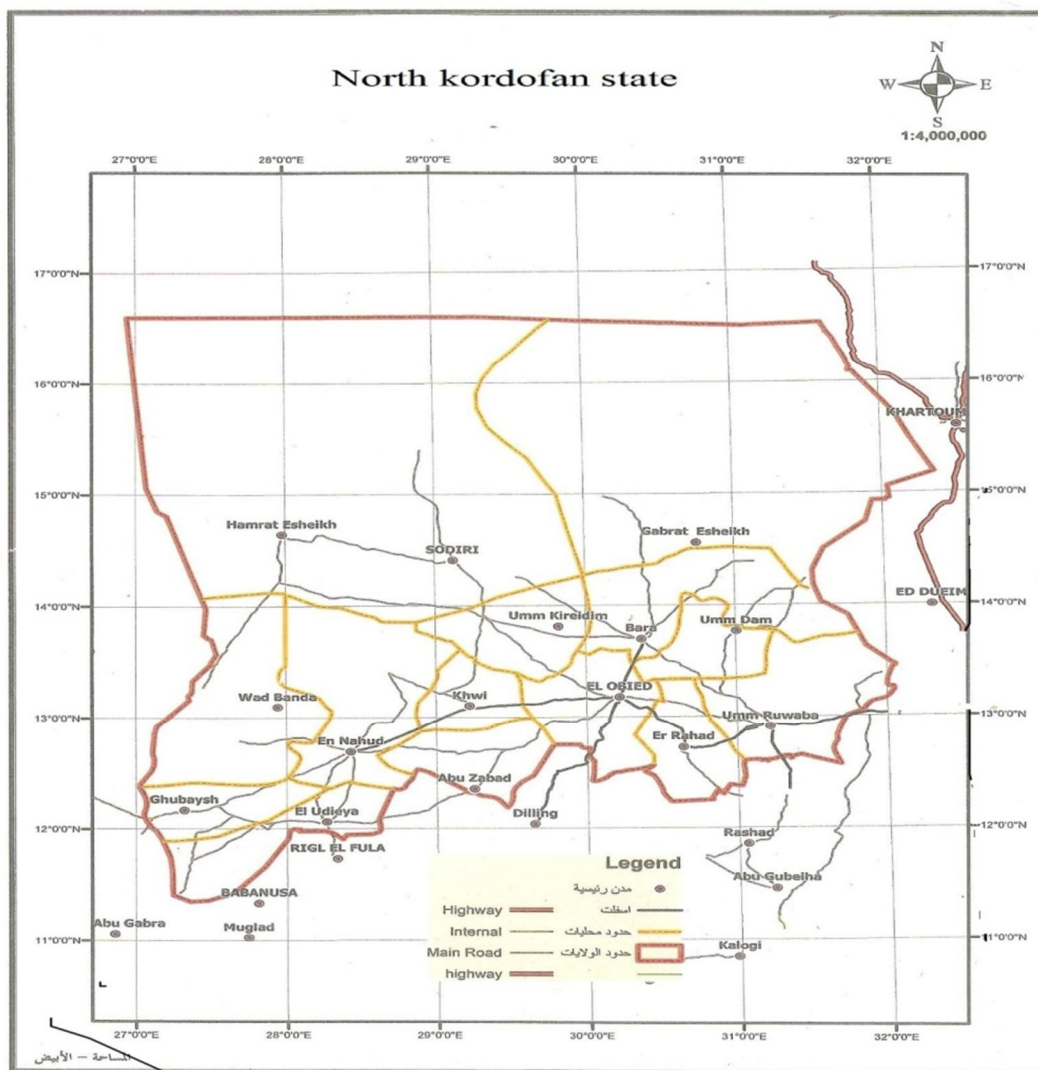
Key words: Camel herders, North Kordofan, Profile, Socio-economics

INTRODUCTION

According to Wardeh (2004) dromedary camels were classified into four major classes: beef, dairy, dual purpose and racing camels, this classification based on the fact that the camel consider as a major component of the agro-pastoral systems in Asia and Africa. Camels were famous for their abilities to provide human in desert and semi desert areas with many necessary things which need those are carrying food, transportation, and provide him with milk, meat, leathers and wool. Therefore, camels joint as important animal for Arab community and considered a part of its social – economic and cultural life. The role of camels as tool of transport was decline due to the modern types of machines except in hardest routes and semi desert areas. Sudanese Camels belong to the species (*Camelus dromedaries*). These Camels are owned and reared by nomadic tribes, who migrate to north and south according to the season and availability of water and good pasture and escape from insects and flies. Camels in the Sudan and elsewhere are classified as pack (heavy) and riding (light) types according to the function they perform and probably as a result of the selection applied for this traits by the various Camel keeping tribes .the Sudanese heavy type constitutes the majority of the Camels kept by nomads in Sudan in this group two types can be identified on the basis of body conformation and tribal ownership: the Arab and Rashidi Camels. On the other hand, the riding camels are restricted to the north-east of the country between the River Nile and Red Sea. For Sudanese riding camels there are two main types, namely Anafi and Bishari Camels, (Ishag,2009).North Kordofan state (before it departed according to the public order) is located between latitudes 12:15-16:32 N and longitudes 27-32 E, an area of 19480 km² (Figure3-1-1). The state bordered by six states which are: Northern state from the North, Khartoum State and White Nile from the East, South Kordofan in the South, East Darfur from the South-West and North Darfur in the West. (El-Obeid Office Survey).The main ethnic groups are the Arab tribes, such as Dar Hamid, Kawahla, Hamar, Bedairiah, Joamaah, and Rekabeiah, except for the Nubba who are native to Sudan. Large grazing areas used and inhabited since hundreds of years by Arabic-speaking, semi-nomadic Baggara and camel-raising Kababish in Northern Kordofan. (UNDP, 2010).North Kordofan State comprises of three zones, the desert with rainfall below 100mm per annum, semi desert with rainfall ranging between 100-250mm and low rainfall woodland savannah (aria zone) with rainfall range 250-450mm. might have changed over the year as a result of continuous decline in rainfall, with semi desert zone moving southward. Continuous desert encroachment is the main sign of isohyets southward shifts often estimated at 6.6km annually .the rainy season in North Kordofan state does not last for three month .rains occur between May and October with the peak in August .within and between season variations rainfall amount and distribution are common (fluctuating in rate and distribution). the average daily temperature ranges between 10-35 C° with annual variation of 15 C° , April, May and June are the hottest months of the year and

December ,January and February are the coolest ones .wide direction differs according to season ;north-east in winter and south-west in summer, (Elhag,2011) . North Kordofan state only has the highest camel population with more than one million heads, representing approximately 5% of the whole world camel population. However, this population is moving and a slight expansion of the camel belt to the South is observed since one decennial as in other countries of Sahel region (Faye, 2009).

Natural Range in North Kordofan State is classified to Wooded grassland on undulating sand, Wooded grassland on sandy plains, wooded grassland on longitudinal dunes, Open Grassland on sandy plains and Wooded grassland on Gardud plains, (Tibin, 2014).



(Figure 1): map of study area
 Source: (El-Obeid office survey)

For the nomads who inhabit the desert and semi desert regions in Sudan the camel plays important cultural, economic and social roles in the lives of these communities. In these marginal lands, stricken by recurrent droughts the camel is usually the sole survivor when all other types of livestock have succumbed. To those people camel herding is a way of life, an insurance against natural disaster and a highly valued cultural heritage (Bakheit,2008). Camels Pastoralists exert varying degree of control over their camels; they can supervise their grazing or they can let them roam free and fend for themselves. Supervising camels is necessary in area where there are dangers to the camels in the form of theft, or in cultivated areas where there is a possibility of crop damage. In remote areas where no agriculture is practiced, it is possible to let camels walk free for all or part of the year. However, even under these circumstances it is necessary to undertake measures preventing camels from disappearing (Koehler-Rollefson,1993). Often camels come back to their home villages in regular intervals for drinking water (Regime). In Sudan this system is applied by the members of Hawaweer tribe in Northern Part of the North Kordofan state, in these cases pastoralists often make an effort to strengthen these home attachments by feeding camels and bringing salt and by habituating young camels to human contact (Bakheit ,2002).

RESEARCH METHODOLOGY

The research methods adopted in this study include the descriptive, historical and statistical methods. Both primary and secondary data were collected and used in this study. Primary data were collected via questionnaires (camel owners), individual interviews, group discussions and observations. The socio economic survey of this study was conducted using questionnaires tool which was filled by direct interviews and personal communication with targeted respondents and some group's discussion with camel owners in the targeted areas, Moreover, the secondary data were obtained from different documents including, references, journals, published and un-published consultancy reports, papers, un-published thesis, and other relevant sources.

RESULTS AND DISCUSSION

The data presented in table (1) showed that the age of more than half of camel's herders were up to 51-65 years old this may be due to the appearance of some activities attracted the young people which like the traditional or artisanal gold mining or migration to the foreign countries like gulf countries and trade, then those age groups between 36 to 50 years while the age group between 20 to 35 years old was less than 5%.

Table (1) Age groups of the Respondents in North Kordofan State

Age Group	N	%
20-35	10	4.76
36-50	84	40
51-65	90	42.86
More than65	26	12.38
Total	210	100%

Source: (field survey 2013)

The information about the education levels and illiteracy were demonstrated in table (2) and showed that most of camels herders were illiterate people (83.81%) this is attributed to the lack of schools and to the continuous movement (Nomadic) of those camel owners (*abbala*) also may be due to the misconception of nomads towards the educational operation through some believes and social customs, followed by those who have their learning at Quran schools or *khalwas* and then those who had completed primary and secondary school levels were 6.19% and 1.9% , respectively. The results showed that the increasing of illiteracy trend will be reflected negatively in the development and general improvement of the camel herder's environments.

Table (2) Education level of Camel herders in North Kordofan State

level	N	%
Illiterate	176	83.81
Khalwa	17	8.09
Basic	13	6.19
Secondary	4	1.90
Total	210	99.99%

Source: (filed survey 2013)

The data in table (3) indicated that most of camel's herders or 85.2% of the respondents didn't do any other activities than camels rearing; on the other hand 14.8% of them work in other fields beside the camel rearing. the findings of this

study recorded that the other activities includes farming or traditional agriculture (5.71%), and who are rearing camels and work in trade in general goods were (7.62%), from the data in table (3 and 4) the decrease of percentage of camel owners who worked in other activities might be due to hard conditions and unsuitable environmental conditions and inadequacy and uneven distribution of rains beside camel rearing need more efforts and would decline the herders efficiency, in addition many of them haven't lands according to the land tenure system in the region.

Table (3) occupation of other economic activities of Camel herders in North Kordofan State

Other activities	N	%
Occupied	31	14,76
Not occupied	179	85.24
Total	210	100%

Source: (field survey 2013)

Table (4) Other activities of Camel Herders of North Kordofan State

Type of work	N	%
Farmer	12	5.71
Trader	16	7.62
Labor	3	1.43
Pastoralist	179	85.24
Total	210	100

Source: (field survey 2013)

The data in table (5) demonstrated that the herd size in the study area is varying in number of animal heads, the findings showed that (40.48%) of the camel herders owned between 40 to 99 heads in different age classes and sex followed by those who owned more than 100 heads (29.5%) then those who owned 20-39 heads, on other hand the lowest percentage 2.86% of the respondent who possessed herd composed of 10-19 heads.

Table (5) Camel herders herd size in North Kordofan State

Size	N	%
10-19	6	2.86
20-39	57	27.14
40-99	85	40.48
<100	62	29.52
Total	210	100

Source: (field survey 2013)

The data in table (6) indicated that 90% of camel herders bred other kind of domesticated animal beside camel rearing and this may be used as pattern of income diversity and adaptation for facing hard condition and natural disaster like drought and epidemic diseases, while 10% of respondent reared camels only. Data in table (7) found that 29% of the respondents owned more than 130 heads of sheep followed by those who owned 20-50 heads then those who owned 50-80 heads followed by those who owned 80-129 heads. On the other hand goats are found beside camels so the goats are browsing animals which browse over story like trees and shrubs. On the other hand cattle were not seen in the study area this might be due to the hard shipment and scarcity of water in the area. The findings in Table (9) revealed that sheep breeding rank first when compared with other animals this mainly due to the high growth rate and significant contribution in the income and the livelihood of the herders.

Table (6) Animal rearing beside camel in North Kordofan State

	N	%
Yes	189	90
No	21	10
Total	210	100%

Source: (field survey 2013)

Table (7) Herders sheep ownership in North Kordofan State

Number of sheep	N	%
20-50	49	23.19
50-80	40	19.48
80-130	38	18.95
<130	61	29.05
None	21	9.04
Total	209	99.71%

Source: (field survey 2013)

Table (8) Herders goats ownership in North Kordofan State

Number of goats	N	%
25-10	59	28
40-25	40	19.0
55-41	54	25.71
56<	38	18.09
None	17	8.09
Total	820	100

Source: (field survey 2013)

Table (9) Herders cattle ownership in North Kordofan State

	N	%
5-10	5	2.38
15-20	1	0.48
None	204	97.14
Total	210	100%

Source: (field survey 2013)

This study reflects the social situation of the camel's herders and investigated the sorts of relationships between the camel owners. The data in table (10) showed that more than half (71%) of the respondents families were sedentary and the other (28.6%) of camel herders are nomads. Most of the herders have settled in villages, after the drought spells that hit North Kordofan, the camel herders practice semi-transhumant system instead of nomadic system so as to take general services like education and health.

Table (10) Family condition in North Kordofan State

	N	%
Nomadic	59	28.10
Sedentary	151	71.90
Total	210	100%

Source: (field survey 2013)

The data in table (11) demonstrated that most of herders have sons and daughters in different age groups at school and half of herders have sons who left school for the

last five years and they help their parent in financial support for family life. Results in table (12) mentioned that more than two thirds of herder's sons (69.90%) had left school and went to the area of traditional or artisanal Mining followed by those who worked with their family's herds (28.16%) then those who worked in other activities (1.94%) like trade and agriculture. The study remarked that the percentage of school age loss is very high (51%) this is due to the poor environmental conditions of education in the rural areas and to the high cost of education in the private sector.

Table (12) Herders sons in age of school in North Kordofan State

	N	%
Yes	195	92.86
No	14	6.67
Total	209	99.52%

Source: (field survey 2013)

Table (12) Herders sons who left school in North Kordofan State

	N	%
Yes	103	49
No	107	51
Total	210	100

Source: (field survey 2013)

Table (14) Reasons why herders sons left school in North Kordofan State

	N	%
Work in family herd	29	28.16
Gold mining	72	69.90
Work in other activities	2	1.94
Total	103	100%

Source: (field survey 2013)

In general the money spent for herd cost and families fees. For herd the animal owners pay for veterinary care, water, Zakaat, salt and labors. From data presented in table (15) the results indicated that two third of herders (69.1%) have spent about 400-900 Sudanese pound per year for veterinary care in animal treatment against epidemic diseases and for internal and external parasites, followed by those who spent 1000-1500 pound/year while those who spent more than 2000 pound/year were about 7.61. Most herders did not pay large amount of money for veterinary care according to the population of their flock and due to the dry nature of the area and also they considered the veterinary care was not a feasible technique, because it makes extra and additional fees for herd management.

Table (15) Herders money spent for animal veterinary care in North Kordofan State

Cost/pound	N	%
400-900	145	69.05
1000-1500	40	19.05
1600-2000	8	4.25
<2000	15	7.61
Total	208	%99.96

Source: (field survey 2013)

The data presented in table (16) demonstrated that one third 30.95% of herders pay about 1000-2000 Sudanese pound/year for water for stock drinking followed by those who pay more than 4000 Sudanese pound/year, then those who pay 2000-3000 Sudanese pound/year, while 15.23% pay about 3000-4000 Sudanese pound/year for water yearly. The payment for water is great and this refers to the importance of water for animal survival, while the costs depend mainly on the herd size and water

source types, thus, small flock cost less than the large ones and water source which are worked with pumps are cheaper than wells which depends on human and animals efforts.

Table (16) water cost in Sudanese pound for herd per year in North Kordofan State

Cost/pound	N	%
1000-2000	65	95.03
2000-3000	54	71.52
3000-4000	31	76.41
>4000	60	8.582
Total	210	% 100

Source: (field survey 2013)

From data presented in table (17) the results showed that more than one third of herders 39.05% pay 4000 Sudanese pound yearly for zakat or Islam tax which are annually taken from rich and given to poor people, the amount of money spent for zakat varying according to the total number of animal heads. The results showed that 18.6% of the responded pay between 1000 to 2000 Sudanese pound/year, the finding remarked that zakat payments are huge number of money but they are not distributed to the poor people in the pastoralist communities.

Table (17) Zakat cost per year in Sudanese pounds in North Kordofan State

Cost/pound	N	%
500-1000	35	6716.
1000-2000	39	18.57
2000-3000	25	12.86
3000-4000	29	13.81
More than4000	82	39.05
Total	210	% 100

Source: (field survey 2013)

From data presented in table (18) the results found that 46.19 % of herders have not spent money for labor so they depend mainly on family labor for herd management, on the other hand about 22.9%, 17.6%, 5.7% and 7.6% spent money for labors 5000-9000, 10000- 19000, 20000-25000 and above 26000 Sudanese pound, respectively. The variation in the fees spent for labors depend on the age and number of the workers and efforts that they exert and to the size of the herd. The findings indicated that the pastoralist who depend on the external labors for his herd may be have another work like trade or employer in government or in private sector also some well educated people work in some corporations but they kept camels as a social and cultural views.

Table (18) Herders labors cost in Sudanese pound per year in North Kordofan State

Cost/pound	N	%
5000-9000	48	22.86
10-19000	37	17.62
20-25000	12	5.71
26000 <	16	7.62
Nil	97	46.19
Total	210	% 100

Source: (field survey 2013)

CONCLUSION

This study was addressing the Socio-economic Profile of Camel's Holders in North Kordofan State, Western Sudan .It is concluded that 85.2% of the respondents were only camel reared and 85.24% of them possessed their camel stock through inheritance. The results indicated that, 90% of them possessed other breeds besides camel rearing. Also the results revealed that, 71% of the respondents were sedentary, beside that 69.9% of their sons left school and went to the area of traditional or artisanal gold mining. Also, 88.6% of the respondents depend mainly on buying camels as source of income. The results also revealed that 46.19% of them depend only on family labor for herd management. The main constraints facing camel's herders in the study area were lack of labors, herd robbery, expansion of agriculture at the expense of the range lands, lack of general services for human and livestock and water shortage mainly during the dry period.

REFERENCES

- Bahkeit,S.A. (1999).**Studies of Milk Production and Compositiion Camels(*Camelus dromedaries*)Under Nomadic System.M.Sc. Thesis, Faculty of Animal Production, University of Khartoum.
- Bahkeit,S.A. (2002).**Some Husbandry aspects in the Butana area in Eastern Sudan M. Sc. Thesis faculty of animal production, university of Khartoum ,Sudan.
- Bahkeit,S.A. (2008).** A comparative study of Camel Husbandry under traditional and Semi-intensive system in Western Sudan.
- Elhag F.M . (2011):** Changes and Threats Facing Nomads under Dry land –the case of Shanabla tribe in Western Sudan.
- Faye,O.M.(2009).** Camel future and Prospects in Sudan.
- Ishag, I.A (2009):** Production System, Phenotypic and Molecular Characterization of Sudanese Camels (*Camelus dromedaries*) Ph.D thesis, Animal Production Faculty, University of Khartoum.
- Kohler-Rollefson, I.(1993).**About camel breeds:A re-evaluation of current classification system. *Journal of Animal Breeds and Genetics* 110: 66-73.
- Tibin M.A.M.(2014).**Assessment of Impacts of the Communal Grazing on Management of Range Resources in Low Rainfall Woodland Savannah of North Kordofan State,Sudan.
- UNDP, (2010):** Socio-economic and opportunity mapping Assessment report for North Kordofan State Joint mission (NSDDRC-SC/).
- Wardeh,M. F. (2004).** Classification of Dromedary Camels.J. Camel Science. 1:1-7.