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PASTORAL DEVELOPMENT NETWORK

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PASTORALISTS IN TOWN:
SOME RECENT TRENDS IN PASTORALISM IN THE
NORTH WEST OF OMDURAM DISTRICT

by

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Introduction

1. The aim of this paper is to document current trends in pastoral production in the North West of Omdurman District, in the vicinity of Sudan's capital, Khartoum. The proximity of a large urban market means that the forces of change affecting pastoralists in Sudan are particularly important in this region. The data challenges the classic image of pastoralists as a group of wandering people chasing pasture and water to maintain a herd of domesticated animals in accordance with the limits of a given ecology. While they may depend on the herd as the main means of livelihood, there is increasing evidence to show that pastoralists supplement pastoral production with activities such as trade, crop farming and so on. In the vicinity of Omdurman, milk selling is particularly important. The penetration of the market economy, the imposition of modern systems of governmental control and an increasing frequency of natural disasters, such as drought and desertification have dramatically changed the picture for pastoralists, who have become ever more dependent on and vulnerable to fluctuations in the market economy of which they are an integral part.
2. The paper questions the view of pastoralist production which takes ecology as the most important determining factor, and supports Dahl's view that "however important ecology has been historically, its importance in shaping pastoral modes of life is in decline; the political and economic place of the pastoral society in a wider national and international context is more important for the future of pastoralism" (1980, p. 200). The processes of change involving pastoralist society are, moreover, in no way unique but have much in common with those that are taking place in other traditional sectors of production, such as the peasantization of subsistence crop farmers.

Ecological zones and settlement patterns in the North West of Omdurman District

3. The area in which I conducted my fieldwork lies to the North West of Omdurman town and belongs to the Western and Northern Rural Councils, which represent two of the three Rural Councils of Omdurman District. The third is the Southern Rural Council which lies to the southern fringes of Omdurman town (see Nap 1). According to the population census of 1983 these three Rural Councils are inhabited by the following number of people.
Northern Rural Council: 32,555 persons; Western Rural Council: 50,273 persons; and Southern Rural Council: 39,585 persons. The total population is therefore 122,413 persons. Omdurman is the main market place and administrative headquarters and services centre of these three Rural Councils. Over 150 lorries, vans (called boxes) and buses enter the town every day carrying commuters, flocks, vegetables and fruit. According to an estimate by the veterinary authorities, there are about 500 milkmen in the North West of Omdurman District; they use donkeys or hire vans to carry the milk to their customers.
4. There are three main residential groupings in Omdurman and its hinterlands; the urban population including the squatter settlements, the sedentary rural population and the pastoralists (see Table 1).

Table 1: Population of Omdurman District

	1955	%	1983	%
Urban	505,000	84	526,287	81.0
Rural Sedentary			86,663	13.5
Rural Nomadic	81,000	16	35,750	5.5
Total	586,000	100	648,700	100.0

Source: Population Census 1955/1956 and 1983.

One can see at a glance that the size of the nomadic population in Omdurman District has decreased from 16.0% of the total population in 1955/1956 to 5.5% in 1983. This decrease in rural population is reflected in the increase of the urban population. Internal and inter-regional migration has contributed to an influx of about 54,000 people who live in the squatter settlements surrounding Omdurman. These three types of settlement (urban, rural sedentary and rural nomadic) correspond to three ecological zones.

5. Ecological zone 1, associated with urban settlement: this zone consists of Omdurman town and a number of small villages found on the banks of the White Nile (before it joins the Blue Nile in Khartoum) and the River Nile. They extend for about 12 km on the western banks of the rivers. These villages are inhabited by cultivators, fishermen and milk sellers and are found alongside the rivers in the valleys away from Omdurman. Along the river banks grow scattered acacia of various types, short grass, shrub and are composed of soils of varying width and content. This zone is subject to flooding; it is very fertile and is suitable for the cultivation of vegetables, fruit and fodder among other crops.

6. Ecological zone 2, associated with rural sedentary settlement:

another type of settlement area is called damar these are the areas which the nomads were using two decades ago. They extend to the northern boundaries of Northern Kordofan and Nile Province. This type of settlement is associated with the soils next to the western banks of the rivers. This zone is an important area for settlement because water is obtainable from the river and the ground is relatively high and can protect the villages against floods. The main soil types in this zone have little organic substance, and there are scattered bare rocky hills. Many streams such as Wadi-al-Abid, Khor Shambat and Kohr Abu Anga run through this region.

7. Ecological zone 3, associated with rural nomadic settlement:

this zone is characterised by soils away from the rivers: especially Nubian Sandstones. They support scant shrubby flora such as acacia and herbs. The desert proper emerges towards the boundaries with Northern Kordofan and Nile Province. This zone contains stretches of sandhills, rolling sand and dunes. The dominant settlement pattern here is that of small groups of pastoralists living around wells during the summer and moving to the South and South East during spring and early summer. There is higher population density in the villages close to the Omdurman-Dongola and Omdurman-Obeid roads, where the local population depends on selling food and drink to the passengers.

8. The mean annual rainfall in all three zones is about 180 mm. It is doubtful, however, whether the actual amount of rain has ever reached this figure for the last decade. The rains are very unpredictable and fluctuate from one area to another.

Current trends in pastoral production and patterns of migration

9. All of these zones were traditionally roamed by the Kababish, the Hassanyia, the Quryiat, the Ahamda, the Hawaweer, the Kawahla and some other small groups of pastoralists. According to the local history of these pastoralists, they used to spend the dry season close to the banks of the rivers, then moved

northward during the rainy season. There used to be more vegetation than today and rain was apparently more plentiful and predictable. According to local sources and some scientific observations by geographers (M Khogali, 1977; F Ibrahim, 1980) the area has witnessed immense climatic changes, large-scale desertification and a decrease in the variety of flora suitable for livestock grazing. The pastoralists have been squeezed between the desert on the northern and western fringes of the region and the riverine areas which are now individually owned.

10. The result of this process has been a large-scale out-migration from the affected areas and the adoption of new strategies to cope with the disaster. It is interesting that despite these natural hazards, the following numbers of livestock are still maintained in Omdurman District: 276,000 goats, 79,000 camels, 48,000 sheep and 7,000 cattle. (Source: Population Census 1983). Goats are in the majority, followed by camels which are both tough, agile and can travel long distances in search of pasture. Goats and camels normally browse on trees which provide a relatively stable food supply. Both, furthermore, can go for days without drinking in times of good winter pasture and in the most harsh conditions.

11. Sheep and cattle cannot browse for long periods. They need, moreover, a larger supply of water and a definite source of grazing. Cattle in particular cannot skip drinking for a long period and they cannot reduce their water requirements by eating green plants. They drink three times the quantity of water used by a sheep, a goat or a camel. According to estimates by the Ministry of Agriculture, Food and Natural Resources (1972), a cow drinks 0.03 cubic meters a day; whereas a camel, a goat, or a sheep drinks 0.01. Since the banks of the rivers can supply an abundance of water and a relatively good supply of fodder, green grasses, and other sources of feeding, cattle owners have made their way to the outskirts of Omdurman town and scattered villages alongside the banks of the rivers. Some of the villages which were used as damar (ie. summer settle-

ments) in the past are no longer so used today. They have shrunk to very small settlements with a dozen or so residents. Those who are still there own small numbers of animals which they water from hand-dug wells or from the several modern wells which were established by the government. As some of the pastoralists told me, people took four major routes away from the traditional damar centres: the first group migrated to towns, especially Omdurman: they either moved with their cattle and flocks or left their livestock behind with close relatives to look after them while they were away. The second group consists of the owners of small numbers of cattle and small ruminants; not exceeding two cattle and 5 to 6 goats or sheep. They moved to the outskirts of the villages on the banks of the rivers where they could obtain cheap fodder and green grasses from the cultivators. Some of these work as agricultural labourers or shepherds with those who have a shortage of labour within their households.

12. The third group consists of the owners of small numbers of camels and sheep. They could not move to town with their camels because it is technically and financially impracticable to depend on expensive fodder for a slow reproductive animal. They moved closer to the well centres where some of the household members could travel to town as temporary migrants or to sell firewood or clarified camel butter. They usually stay with their relatives in the squatter settlements before they can make their way back. The fourth group is the most affected by desertification. It comprises the owners of larger herds of camels. They migrated southward to the sparsely populated area around the White Nile or closer to the boundaries of Northern Kordofan with the White Nile Province. I am told that they sometimes leave traditional damar centres for more than three years in search of water and pasture, a pattern which represents a total change from the annual cyclical or northsouth vertical movements practiced by other camel pastoralists.
13. The outcome of desertification is thus a polarization of pastoral production into camel and goat pastoralism, on the one

hand, and cattle and sheep pastoralism on the other. In this respect, M. Kassas (1977, p. 202) was right in arguing that "desertification has a socio-political connotation". The growing political and administrative centres have gradually undermined the traditional mechanisms of social interdependence and have forced the inhabitants beyond their traditional means of sustenance. The effect of desertification has been aggravated by the present worldwide economic recession, and there has been no government policy able to counteract its impact. More and more people have been pushed towards the centres of employment. Desertification, furthermore, is often followed by unfavourable market relations in which the pastoralists have to sell more in order to buy less.

14. In 1984 a wholesale merchant could gain over 25% net profit from the sale of a goat or sheep and over 50% from the sale of one head of cattle or a camel. (See A Ahmed Mohamed 1980, A G M Ahmed 1976 and 1982). The direct governmental charges amount to Ls.0.50, (one pound sterling = 3.80 Sudanese Pounds), to be collected from the sale of each goat or sheep, Ls.2 from each head of cattle and LS.3 from each camel. Livestock is also exported abroad but pastoralists do not as a rule assume the role of direct exporters, instead they act through intermediaries (Konczacki 1980, p. 24). Export taxes on livestock represent the share appropriated by the Government as a source of revenue. The result of the commercialization of livestock is an interlocking of pastoralists within the national and international market economy, and an increasing need for cash to finance the increasing family requirements of manufactured goods. For those who have migrated to town, milk selling involves less risk than the sale of livestock.
15. Pastoralists who have migrated to town have to adjust their pastoral livelihood to an urban context and to the market economy. As a result, their economy, which was based on institutions of solidarity, is now dominated by commercial activity. Cattle in town are owned not by groups of households but by individuals. Economic and social differentiation follows from

the nature of market relations which encourage and facilitate the emergence of private property in place of the traditional corporate ownership. The distinction between the sedentary cattle pastoralists who live on the outskirts of town selling small quantities of milk and small animals in order to survive, and camel pastoralists who have migrated outside the South West District of Omdurman, is a distinction between wealthy and poor pastoralists.

16. Those who continue to pursue the traditional system of pastoral production possess at least the number of camels needed so that their venture is economically viable. It is estimated that 20 camels per household would be required in order to be able to control the risk involved in the traditional system. Watering and feeding such a number of animals requires a good initial capital to minimize stress in the environment or to cope with sudden climatic disasters.
17. Pastoralists who live in the squatter settlements and sell cows milk and small ruminants cannot afford to maintain such large herds, which would require massive capital investment, higher labour capacity and full time attendance on the herd. As the following material will show, the annual income of milk sellers is very low, so that they are categorised as poor pastoralists.

Pastoralist milk sellers In the squatter settlements

18. There are about 54,000 people living in the squatter settlements in Omdurman; the majority of them live in the northern and western fringes of the town. The main concentrations of the settled pastoralists are found in El Sheikh Abu Zeed, Marzoog and El Galla. The material which I present here was collected mainly from Marzoog and El Galla on the northern fringes of Dmdurman. My sample was very small (a hundred households) and the probability that it may be biased is high. Nevertheless, I use the results of the survey as indicators of a general pattern and not as an explanation of pastoral production in the whole of Omdurman town.

19. Most of the migrants are of the 16-47 age group. Some of the men who do not have animals in town leave their wives behind in the home area. This is reflected in the percentage of the male population who make up 51.8% of the migrants with a pastoralist background (see Table 2). Although this figure is less than one would expect, had the investigation been among other migrants it shows that, although they come to Omdurman from a shorter distance, some of them prefer to leave their females behind.

Table 2: Age and sex distribution among the migrants
(Sample of 100 households)

Age Group	Males	%	Females	%	Total	%
0 - 15	79	21.7	70	20.7	149	21.2
16-29	79	21.7	73	21.6	152	21.7
30-33	62	17.1	63	18.6	125	17.8
34-47	53	14.6	54	16.0	107	15.2
48-51	49	13.5	50	14.9	99	14.1
52-65	26	7.1	20	5.9	46	6.6
Over 65	16	4.4	8	2.4	24	3.4
	<u>364</u>	<u>100.1</u>	<u>338</u>	<u>100.1</u>	<u>702</u>	<u>100.0</u>

Seven out of 100 heads of households were married to two wives each. The majority were monogamous with only one wife. This low rate of polygamy and small mean household size of 6.6 (See Table 3) is largely accounted for by the difficulty of maintaining a large household in town.

Table 3: Household size of 100 households in Marzoog squatter settlement

F. Household Size	Number of Households	
1- 2	10	10
3- 4	16	16
5- 6	19	19
7-8	30	30
9 - 10	16	16
Over 10	9	9
Total	<u>100</u>	<u>100</u>
Mean Household Size =	6.6	

Table 4 shows that most of the migrants with a pastoralist background are milk sellers (17%), followed by construction workers, porters, and water sellers who make up 12%, 10% and 9% respectively. This implies not only occupational diversity as such but an internal differentiation according to type of work. The low percentage of those who have clerical jobs indicates the low level of education among this type of migrant.

Table 4: Occupation 100 migrant household heads with a pastoralist background

WC well diggers	3
Permanent workers in construction	8
Daily workers in construction	12
Crafts (bed makers, blacksmiths)	4
Vegetable sellers and causal middlemen	5
Porters	10
Clerks	2
Drivers	2
Water Sellers	9
Milkmen	17
Others	16
Unemployed	<u>12</u>
Total	<u>100</u>

Table 5 shows that 47% of the migrant households migrated during the last 15 years which corresponds very well with the climax of the drought of the 1970s.

Table 5: Length of stay of households in the squatter settlement

Number of years	1 - 10	11 - 15	16 - 20	Over 20
Number of Households	20	27	36	17

20. Despite their long stay in town, (See Table 5) the migrants have been refused rights to establish their own co-operative society which would facilitate their supply of goods under the rationing system. They therefore depend on the black market for the purchase of their basic needs (such as sugar, wheat flour, cooking oil, rice, lentils₄ and clothing). They depend on the health and educational services available in town. It is unfortunate that very few can afford to meet the increasing demands by the school authorities for donations and the payment of daily transport and breakfast expenses for their children. Water for human and animal consumption can be obtained from eight water pipes for Ls.2 a barrel.
21. Herd Management: as Table 6 shows, goats are the most popular livestock species. All households own varying numbers of them. Cattle come second and are owned by 71% of the sample. The popularity of goats arises from the fact that they are good milkers and do not require much work and attention.

Table 6: Household herd size in Marzoog by livestock type

Herd Size	Number of households owning livestock			
	Goats	Cattle	Sheep	Camels
1 -5	35	18	20	7
6 -10	26	21	10	-
11-15	18	25	2	-
16-20	12	7	-	-
Over 20	9	-	-	-
	100	71	32	7

Note :These figures were collected from 100 livestock owning households.

22. Camels are the least popular livestock in town. This is because of the difficulty of feeding them. The structure of the camel's mouth is such that, unlike sheep and goats, it cannot graze close to the ground and so all its food has to be bought fodder. The few camels which are kept in town are used for transport: eg. for carrying small quantities of firewood for household consumption or for sale.
23. Cattle raising is second in popularity, although it is the most labour-intensive activity. Cattle drink and feed regularly, and so need large quantities of water and fodder. Unlike the situation before their move to town, cattle are now kept in one place throughout the year. They rely on water and fodder that can be obtained in exchange for cash and not as a gift of nature. In their traditional folk ideology, however, most of the milkmen maintain that "cattle feed themselves", meaning that returns from milk sales are sufficient to purchase fodder but can secure little surplus to augment household income.
24. Goats and sheep on the other hand usually provide a contingency fund to resolve financial crises. With only Ls.328.4. mean annual net income (see Table 7) from milk sales, it would be

expected that goats and sheep sales have a significant role in augmenting household income. Both types of animal reproduce more quickly than cattle and camels (5 to 6 months compared with 12 months). Herd management in town therefore requires a careful balance of the appropriate livestock varieties and their labour demands. Also the existence of such a large population of pastoralists in town has created a market for fodder which is sold at Ls.120 for a lorry of sorghum stalks; Ls.22 for a sack of crushed sorghum and Ls.30 for sesame and cotton seed cakes. Livestock feeding therefore is a daily routine which requires constant attention.

Table No. 7: Net annual mean income from milk

Annual income in Sudanese Pounds (£1= Ls.3.80)	Number of Households
0 - 100	4
101 - 150	3
151 - 200	2
201 - 250	6
251 - 300	6
301 - 350	-
351 - 400	-
401 - 450	4
Over 450	15
Total	40

Mean annual income from milk = Ls.328.40

25. Sexual divisions of labour: migration to Omdurman does not offer pastoralist women any escape from their responsibilities towards the herds. They are part of a family-based division of labour according to sex and age. In the same way as Kababish women, 'while ideally each sex has its own sphere of activity and responsibility, women are frequently called upon to perform

men's tasks, but rarely ever the other way round. Women are more likely to be overworked than men' (T Asad 1970). The situation is even worse for the migrant women than for traditional pastoralists: traditional domestic reciprocity such as the exchange of collective labour, and cooperation in handling pastoral production is undermined in the urban settlements.

26. Milking, watering and feeding constitute the principal tasks directly associated with livestock keeping. The following is a description of a typical day for a woman in town. Day begins with milking the small animals, making tea and breakfast, taking the cart to the water pipe and leaving it there with a little son or daughter. She returns home to untie the cattle, goes back to the water pipe to bring back the cart with the water, waters the animals, and washes the dirty household utensils and clothes. Then she sweeps the floor, goes to the nearby shop to bring the daily supplies of food, and starts cooking lunch for the family. She soaks sesame or cotton seed cakes in water and gets them ready for livestock feeding. She prepares lunch, and may go to one of the nearby streams to look for pieces of wood for fuel. The evening routine begins at about 4.30pm, when she checks the animals, searches for the missing ones, ties them up and milks the cows. She milks the goats and sheep again in the evening, cooks the evening meal and sees whether any of the small animals need some more feeding and are well secured. This routine can be interrupted by occasional visits to the market for selling some eggs or ghee which she can make from any extra milk; she also looks after the children, cleans them and their clothes together with those of her husband.
27. Men, on the other hand, purchase food and fodder from the market, transport it home, and take the animals to the veterinary clinic for vaccination. A few men fetch water by driving carts to the water pipe; or occasionally feed the animals when their wives are sick or unable to attend to their daily routine. Men have taken up the marketing of milk which they

pour into cans and carry on donkeys to sell in town. Women usually interpret this as a new role for men since in the traditional setting the disposal of milk and its products was a female activity. Women's complaints are derived from the fact that men not only do the selling of the milk but also control the financial affairs of the household, a situation which is different from the traditional nomadic household budgeting procedure.

28. The heads of households who are employed as daily labourers in construction work, water and vegetable sellers and middlemen leave all the work related to pastoral production to their wives and children. In this case wives carry a workload equivalent to that of both sexes in the traditional pastoral society.
29. Although female responsibilities have increased, their control of their production has decreased. I was told by several women that their husbands no longer asked their consent before disposing of one of their animals. This is explained in part by the women as a consequence of their being deprived of their right to use the milk and other animal products. Since women are no longer responsible for milk marketing (a practice which associates them with and sentimentally attaches them to milk cows) their role in decisions concerning livestock disposal is no longer seriously considered by men. Nevertheless women have retained their control over poultry and its products, an activity which has always been performed by them. This generates a little extra income which women can use independently to augment the household finances.
30. Work opportunities outside pastoral production are very slim if not non-existent, because the town offers very few jobs for illiterate women. Also, women are prevented from working by social values: society scorns women working in construction or selling milk if there are men around to do the job. It can be concluded that the migrant women have become more economically dependent on men and that they have lost, to men, some of their rights over pastoral production.

The changing nature of camel pastoralism in the North West of Omdurman District

31. K Krotki (1973 p.162) wrote that, "the nomads from Juzu grazing might bring their animals for sale (in Omdurman) in exchange for grain, sugar, tea and cloth. All of this is small trade on which no big metropolis is likely to be built. There is no camel market worth speaking of and large

caravans go to Egypt without assistance from Omdurman merchants". Krotki, however, was referring to the period prior to the 1950s. In the year 1960, on the other hand, I M Khalil stated that, "there is a good trade in camels with Egypt. About 50,000 camels worth over one million pounds are exported'. These two statements are presented to highlight the growing camel export trade and the early date of incorporation of pastoralists into the national and international market economy. Trading in camels was enhanced by the economic recession, the high inflation rate during the 1970s, and by the drought which began during the same period. Because of these factors, livestock sales have risen sharply, to enable pastoralists to purchase highly-priced food – especially grain – which they do not produce themselves.

32. Drought has furthermore resulted in a decrease in the animal population within Omdurman District, especially camels. Some have died and some have migrated with their owners outside the affected region: the camel population decreased from 97,500 in 1960 to under 69,000 in 1980. Population growth, the high demand for camel meat in some Middle Eastern countries, and the pressing need for cash to meet increasing family expenditure, all have led to a great flourishing of the camel trade. Nevertheless, pastoralists have begun to migrate away from Omdurman, the main camel market in the country, in order to maintain their camels – a process which has a negative effect on the prices which they get for their animals; installed in the new areas to which they have migrated and which are far from the main market, they cannot assume the responsibility for transporting their camels by themselves all the way to

Omdurman. They have to dispose of their produce through middlemen who pay less and gain more from the wholesale merchants. In other words, they have been compelled by natural disaster to give up the advantage of being close to the market. Their out-migration is a necessary strategy for the growth of herds and in order to minimize loss of livestock.

33. There has, moreover, been a further disintegration of camel pastoralism: whereas there has been a tendency among cattle pastoralists towards sedentarisation, camel pastoralists have continued their traditional mode of ecological adaptation, but with much more reliance on bore-holes than ever before. The main difference between the present and the previous situation is that camel pastoralists now operate in a market economy in which they depend on sales from their herds in order to water their animals and to hire the labour to look after them. If this new trend continues, it will only take a few years for camel pastoralism in its traditional form to become a minor activity in the North Western district of Omdurman.
34. A new form of pastoralism will thus emerge, in which small numbers of camels are used as burden, riding and dairy animals. Because of the rise in meat prices and an increasing demand for camels as an export commodity it can be expected that the present tendency of establishing bore wells around the Western fringes of Omdurman will continue. This is evident in the villages bearing the prefix beir (well) in Wadi El Magadam in the far North Western fringes of the Western Rural Council (see Map 1). The inhabitants of these villages own small numbers of camels invariably in conjunction with goats. Camels here are used as dairy or butchery animals. I also came across some camel pastoralists who sold their few camels, exchanged the proceeds for cattle and goats, and joined the migrants in the outskirts of Omdurman town. Those who lost all their livestock as a result of the drought have become permanent migrants in the manner which I described in an earlier section.
35. The wealthy camel owners have distanced themselves both spatially and in terms of traditional bonds of kinship and

cooperation. Hired labourers have superseded the role of the traditional communal institutions of pastoral cooperation. The sharing of water points and pasture within a lineage group, and economic solidarity among pastoral households have begun to break down (Swift 1979, p.'164). Some of my respondents maintained that their herds had expanded significantly since their migration to the new areas. The crux of this statement is that the commercialization of camels and their conscious designation as exchange capital has superseded what was traditionally perceived as social wealth. The establishment of the Omdurman Camel Market was one step in the sequence of change in which livestock marketing, previously handled by the traditional marketing network, has become dominated by a governmental marketing institution, the Livestock and Meat Marketing Corporation.

Conclusion

36. Although desertification is, on the face of it, an act of nature, its consequences can be explained only in relation to the structural determinants of the receiving urban centres and hence the market economy. In the North West of Omdurman District, desertification and drought have encouraged migration to and sedentarization in the outskirts of Omdurman town. The sedentary pastoralists are inevitably less dependent on natural grazing and watering. Their dependence on purchased fodder and water has led to the commercialization of pastoral production. They have thus become more and more dependent on merchants and middlemen to market their produce. This new trend in pastora- lism suggests that the prime importance of natural ecology is in decline. Pastoralists are incorporated into the national and international economy through the trading boards, livestock exporters and wholesale traders. These new market dealers extract surplus from the primary producers, in a process similar to that operating in other parts of the agricultural sector. The case of the milk sellers and migrant pastoralists in the North West of Omdurman District offers a possibility for

reconsidering the emerging forms of pastoral production and its relationship with the receiving urban centres. Any explanation of the current pastoral economy in terms of ecological adaptation alone, or any attribution of the poverty of the pastoralists who migrated to town to natural hazards, is partial and unsatisfactory.

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