

VETERINARY SERVICES

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Government veterinary and animal health services are currently organized within the Ministry of Agriculture, Natural and Animal Resources. Two administrations within this structure are principally concerned with services, while the other one deals with research.

The General Administration for General Services has 700 professional staff. Its sections cover Regional Affairs, Veterinary Supplies, Extension, Khartoum Central Veterinary Hospital, and Omdurman Veterinary Assistants' Training School. The Regional Affairs section is by far the largest and absorbs the bulk of the human (**Table 1**) and other resources (**Table 2**). Veterinary infrastructure has increased very rapidly in recent years and there are now five times more veterinary hospitals than there were in 1983: in addition 200 clinics have been established. Junior staff in support of the professionals total 4,000 people. The veterinary services in general are among the most active of the civil service.

Table 1 - Numbers and qualifications of professional staff in animal resources services

Service/Department	Educational level				
	Ph.D	M.Sc./Dip	B.Sc.	Other	Total
General/provincial services	3	86	504	105	698
Veterinary Research Laboratories	34	45	10	120	209
Animal production services	4	18	65	32	119
Animal health (epizootic control)	3	23	15	57	98
Hydrobiology/Aquaculture	1	8	18	70	97
Animal production research	10	25	7	23	65
Planning and Projects	2	9	19	2	32
Meat hygiene Training Institute	1	1	3	6	11
Headquarters	1	1	3	-	5

Source: Ministry of Agriculture 1990.

Table 2 - Animal health personnel and infrastructure in the Sudan

Service and services	Regions							
	Darfur	Kordofan	Central	Eastern	Khartoum	Northern	Southern	Total
Veterinary services	37	81	107	67	76	42	19	429
Hospitals	16	14	14	7	3	4	6	58
Clinics	33	64	64	31	12 32	?	236	
Epizootic control								
Vaccination teams	44	3	33	14	8	6	21	156
Serosurveillance teams	-	-	-	-	6	-	-	6
Research								
Central Laboratory	-	-	-	-	1	-	-	1
Regional Laboratories	1	1	1	1	-	-	3	7
Quarantine/meat hygiene								
Stations	-	-	-	1	1	1	-	3
Check points	-	-	-	5	6	3	-	14
Abattoirs	11	20	31	16	16	26	16	136
Veterinary Livestock Units	6 248	5 194	5 423	1 978	200	411	8 938	28 390
TLU per vet/100	169	64	51	30	3	169	470	66

Vaccination figures are an indication of this activity (**Table 3**). It should be noted however that the popularity of vaccination is undoubtedly in direct proportion to the minimal cost to the pastoralist (compared to the real cost to the Government) and the free services at clinics and hospitals are also an incentive to go there for treatment. Annual vaccinations against Fowl Pest (Newcastle Disease) total about four million, against Fowl Pox they are 800 thousand and against Gumboro and Marek's Diseases about 280 thousand. The Central Veterinary Laboratory at Soba near Khartoum is a regional production centre and most vaccines used in the country are produced there (**Table 4**). Production for Sudanese use is purportedly geared to each year's identified needs.

A relatively recent development has been the establishment of veterinary pharmacies. These are private establishments, and in competition with the state services, but do comparatively well in view of the fact that the state is often unable to supply the required drugs. The problems that pharmacies believe they encounter include lack of foreign currency, unlicensed drug sales and use, high sales prices imposed by government, smuggling, and high taxes. The main demand is for antibiotics, anthelmintics and the trypanocidal drugs.

Livestock research is carried out by the Animal Production Research Administration. There are stations for Butana cattle at Atbara and for Kenana cattle at Um Benein. The station at Ghazala Gawazat that was for Western Baqqara cattle is now under the control of the Western Savanna Agricultural Research Project. Dairy research is carried out at the National centre at Shukaba in the Gezira. Animal production research is also undertaken at Khartoum and the Gezira Universities.

Table 3 - Number of animals vaccinated against various diseases in 1988-1989

Regions	Diseases				
	Rinderpest	CBPP	Anthrax	Haemorrhagic Septicaemia	Black Quarter
Northern	30 100	200	250	240	
Eastern	1 310 850	56 800	155 250	80 640	1 440
Khartoum	420 250	8 800	234 000	105 000	41 280
Central	1 586 600	76 000	156 125	153 600	139 920
Kordofan	1 465 100	75 500	118 000	134 880	137 160
Darfur	510 300	266 800	95 000	102 840	70 320
Total	5 323 200	484 100	758 625	577 200	390 120

Table 4 - Number of vaccines produced at the Central Veterinary Laboratory in selected years

Years	Vaccine type				
	Rinderpest	CBPP	Anthrax	Haemorrhagic Septicaemia	Black Quarter
1974-1975	2 342 400	132 375	1 321 050	1 532 560	424 890
1977-1978	5 006 200	31 900	1 130 875	2 049 880	232 320
1980-1981	5 412 300	1 286 720	1 312 375	2 043 840	775 070
1983-1984	7 686 450	606 900	657 300	1 750 800	607 440
1986-1987	5 784 150	912 500	1 036 050	1 256 760	78 840
1987-1988	4 932 800	326 800	1 445 125	1 333 680	197 400
1988-1989	5 661 200	521 300	818 750	654 120	394 680

LIVESTOCK MARKETING AND MARKETS

Marketing systems

Sudanese livestock owners keep only those livestock that are productive, whether this be for reproduction, meat, milk or transport. The rest are sold or used for home consumption, annual offtake being about 4% for camels, 8% for cattle and 25-30% for sheep and goats. The export trade is an important source of revenue. Two major companies handle the majority of animals: one of these specializes in camel exports to Egypt and (for the best racing camels) to Saudi Arabia; the other mainly exports sheep to the major Arab centres abroad. The "official" export trade - comprising animals with export licences and for which proper accountability is required - represents only a small fraction of the total trade, perhaps 10 to 24% depending on the species. Transactions are usually settled in cash as a result of direct bargaining. Auction sales are almost unknown. Intermediaries play an important role in the trade, providing various forms of credit but above all guaranteeing the ownership of the animals and the right to sell.

Animals which go through markets are subject to a sales tax, imposed by the District Council at local levels and by various other statutory bodies. In some areas this is an important part of local government revenue.

Systems of marketing differ somewhat, depending on the species.

Sheep

For sheep factors which come into play include the condition of the animal, the distance to be trekked, the state of the export market, the usual laws of supply and demand, and the need for cash. The main period for normal sheep sales is October-December: the family is at a convenient point in the annual cycle, animals are in good condition, and there is adequate feed and water on the stock routes. The annual feast of Id el'Adha also plays an important role in the marketing and slaughter of sheep, it being expected of every family to sacrifice at least one sheep at this time.

The first point of sale is directly off the range or at a local market. Previous mutual exchanges between buyers and sellers is important and buyers, whether small or large scale private, company agents or brokers, are expected to have an intimate knowledge of the area in which they operate and the factors which currently affect the market. One system of purchase involves outright payment at the time of sale while another, known as "*el fasi*", provides an immediate part payment to the seller followed by a second one on final disposal. The latter case obviously needs mutual confidence between buyer and seller and is often the preferred method when there is a glut of animals on the market.

Camels

The camel marketing system is essentially geared towards exports to Egypt, with some going to Libya and, as already stated, there is a specialist trade to Saudi Arabia. The parties involved include pastoralists themselves, local merchants, wholesale exporters and Egyptian traders. A quota system operates in theory, a number of animals being assigned to each region each year in relation to the actual or expected demand. There are peak buying periods at the end of the dry season but there is a constant low level of trade as herds (the sale animals being gathered into a unit known as a "*dakobat*") are built ready for the long trek. The part payment/credit system is the norm in camel sales.

Cattle

Until recently, the "abbala" groups owned considerable numbers of cattle. In the past cattle were sold at the same markets as sheep and camels, and were bought mainly by local traders, the major trade in cattle being carried out in the "baqqara" areas. "Abbala" cattle did, however, supply a considerable proportion of the internal demand in their own areas. Most cattle were sold in the cool winter season while still in good condition but in the face of a declining feed resource.

In the "baqqara" areas cattle begin to be gathered into trek herds as early in the wet season as possible. The long treks to the main marketing areas or to the export holding points have to be achieved before the water on the trek routes dries out and while there is still some feed available. In the 1980s there have been some attempts to modernize this trade with the introduction of special stock trains by the Railways Administration in collaboration with the marketing agencies but the system is not always very efficient and is also costly.

The Livestock Meat and marketing Commission was established to organize marketing at the national level and is linked to the local markets through regional offices. Its specific functions are:

- formulation of internal and external marketing plans and provision of advice to government, producer and consumer;
- provision of services and facilities to traders and agents in order to promote the industry;
- to balance the internal and external demands for livestock and meat;
- and carry out research and studies to provide information on supply and demand for both internal and export markets.

Steps are being taken at present to transform the Corporation into a private company.

Goats

Goat marketing is less well-structured than for other species. Sales are made at any time, in response to needs for small amounts of cash, and females are sold as milk animals as well as for slaughter. Their share of the commercial internal meat market has increased considerably since the drought of the mid-1980s. Women are involved in goat marketing much more than they are with other species.

Markets

The major markets in the Eastern Region are New Halfa (which has expanded greatly in the last 10 years and is now a principal market for all types of stock), Gedaref, Kassala and Tambul. Gedaref is also a multi-species market while Gedaref mainly deals in sheep and goats. Tambul is known for small ruminants and camels but has been superseded to some extent recently by New Halfa.

There are many intermediate markets in Northern Kordofan, especially during the early dry season, these being the ones which mainly deal with sheep. Mazroub and Um Badr deal mainly in camels while El Obeid is a major collection market for all species.

In Northern Darfur the intermediate markets are mainly in the north-western areas, both Mellit and Kutum being important. Mellit is also an important collecting centre for camels and sheep, as is Um Keddada. El Fasher is particularly known for camels and sheep but relatively large numbers of cattle also accumulate here.

In Southern Darfur, Nyala is by far the most important market for cattle and sheep, and indeed one of the major markets in the country. Other centres include Ed Dae'in, Kas and Buram.

The terminal markets are in the Khartoum area and at Port Sudan. Omdurman is by far the largest. The market at Omdurman is largely manipulated by a small coterie of merchants who between them, and directly or indirectly, control more than half of the total trade. Many animals from Omdurman are put through a fattening period of 4-6 weeks in feed lots before final export or slaughter.

Stock routes

The areas where livestock populations are largely in excess of local needs are mainly the western

provinces. The LMMC runs trains from Southern Darfur to Omdurman and Port Sudan. There are also some recent developments involving the use of trucks from other areas to Omdurman and from Ondurman to Port Sudan.

The greater part of livestock movement, however, is still on the hoof. The time of, and the time taken in, trekking depend on the location and distance of the gathering centres from the terminal markets and the state of the feed resources on the route. There are several main trek routes whose main function is to get animals from the west to the east.

The northern routes

The major sheep and camel routes from Northern Darfur to Omdurman start in El Fasher. They pass through El Abyad, Abu Odam, Sodiri, Shershar, Gabrat eshh Sheikh, Um Inderaba and on to Omdurman. Livestock make use of the short rainy season to travel northward and then eastward.

The southern routes

A major stock route follows the line of rail for much of the way from Nyala to Omdurman. It passes through El Obeid and serves the “baqqara” tribes of Southern Darfur, Southern Kordofan and White Nile. Both this and the northern route are extended eastward to Port Sudan but most livestock now move on this stretch by truck or train.

The Egyptian camel route

Camels from Northern Darfur still follow the ancient “*darb el arbein*” or Forty Days Road. Another major route which also serves camels coming from Northern Kordofan passes through Um Badr, Mazrub, Ed Debba, and Dongola before crossing over into Egypt. Some camels from Kassala also trek northwards via Ed Debba.

Offtake

The official figures of sales and estimates for home consumption must be treated with reserve, and it is generally admitted that much of marketed offtake is never officially recorded. It is also sometimes difficult to calculate offtake and sales, as many more animals are present at markets than ever appear to be sold (**Table 5**): these figures do perhaps show the willingness of livestock owners to market their animals if the price and other conditions are right. Factors that have undoubtedly contributed to increased offtake in recent years include population increase, sedentarization, urbanization, and education and improved dietary awareness.

Table 5 - Numbers of livestock attending and sold at major regional markets in 1986-1987

Markets	Species									
	Camel		Cattle		Calf a)		Sheep		Goat	
	Offer	Sales	Offer	Sales	Offer	Sales	Offer	Sales	Offer	Sales
El Fasher	22 900	5 349	16 545	5 282	349	168	162 940	64 385	64 272	11,342
Mellit	22 500	5 348	473	241	89	41	66 395	31 208	15 021	3,730
Nyala	15 617	9 529	57 597	47 453	9 341	7 172	65 202	28 864	34 399	14,730
Ed Dae'in	283	207	21 400	15 939	6 992	4 870	49 520	29 186	27 700	14,659
Kosti	1 294	490	89 557	57 433	13 663	8 376	118 232	83 360	97 235	40,560
El Obeid	20 442	5 912	62 285	38 494	21 881	8 812	158 466	70 107	93 273	35,426
Sennar	2 177	605	16 676	1 023	4 884	3 297	113 483	67 139	42 739	26,569
Port Sudan	3 765	2 139	20 293	14 019	4 336	2 474	27 047	7 176	20 494	5,627
Rabak	4 220	1 092	17 272	5 884	5 674	1 921	302 966	102 731	43 044	19,957
Total	93 138	30 671	302 098	185 768	67 319	37 131	1 062 251	484 156	438 17	172,60

Note: a) calves are animals up to 4 years old

Increasing awareness in the monetary and economic value of livestock results from, and is encouraged by, several factors. These include:

- the active market and the high prices to be obtained for sheep which has created opportunities to exchange camels for sheep;
- development of commercial attitudes by owners, many of whom buy small lots of animals to bring-on during the rains to sell to large scale traders in the dry season;

- stratification of producers into wealthy, average and poor groups;
- the high-priced export market, yielding bigger margins to producers and traders (but which in some cases is detrimental to local consumers as it pushes the meat price above their means);
- a high price for good quality rams ("*sadeis*"), also for export, encouraging a local market for cull ewes as meat animals;
- more efficient marketing systems, encouraged by the export trade, operated by skilled modern managers and to some extent streamlining the system;
- and the limited trade in very high-priced camels for racing, providing hope to everyone that he may eventually sell one of these animals.

Once again it needs to be stressed that official figures for marketing and slaughter are little more than notional. A generally admitted figure for illegal export of sheep is 800,000 animals per year. Returns from abattoirs (**Table 6**) include only those from the larger centres and many smaller slaughter slabs and the whole of household consumption is excluded.

Market movements related to offtake over the last few years can be summarized under a few main headings:

- a marked reduction in the number of sheep slaughtered in the Sudan resulting from diversion of animals to the high-priced export market;
- a rise in animals marketed in 1984 due to the drought, with a concomitant drop in livestock (and meat) prices;
- a drop in the number of animals marketed in 1985 and 1986, consequent on and as a reaction to the forced selling in 1984;
- increased sales (and consumption of meat) of camels and goats in recent years especially away from the main centres, probably because large numbers of cattle and sheep are being exported.

It is worth noting that milk is being imported to fulfil the present demand.

Table 6 - Animals slaughtered at principal abattoirs 1986-1987

Regions	Species								
	Camel		Cattle			Sheep		Goat	
	Male	Female	Male	Female	Calves	Male	Female	Male	Female
Northern	1 738	268	14 442	1 216	1 170	32 586	2 812	1 462	230
Darfur	3 064	1 051	8 598	2 999	162	10 499	1 764	20 262	5 054
Khartoum	2 353			110 490	49 470	2 235			
Central	5 604	7 745	75 750	15 056	5 748	68 805	17 275	33 010	1 742
Eastern	4 267	2 086	27 247	20 617	9 413	67 119	22 505	24 110	1 112
Kordofan	2 251	903	17 982	6 732	4 703	13 277	5 008	29 920	10 789
Total	31 330			322 320		291120		129 926	

Price trends

The effects of drought during the 1980s have been the major factor influencing the sale price of animals. Prices rose steadily during the 1970s and early 1980s, generally in line with inflation, but collapsed dramatically in 1983. Prices rose sharply again in following years as pastoralists attempted to build up their herds and as the relative value of livestock to millet (the staple cereal) returned to pre-drought levels (**Table 7**). Livestock sales prices increased several fold in the succeeding years until Government intervened to control the meat price in Khartoum: intervened to such an extent, in fact, that meat was sold at less in Khartoum than its value in the producing areas in the west. In 1987 prices paid to producers in Southern Darfur dropped (this area having been less drastically affected by the drought than some others) while prices in Omdurman were very high.

VETERINARY SERVICES (CONTINUED)

Table 7 - Trends in livestock sale prices (£Sud/head) from 1984 to 1987

Year	Market and species							
	Nyala		El Fasher		El Obeld		Omdurman	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
1984	254	39	289	74	292	51	623	140
1985	185	43	196	65	368	74	788	208
1986	983	156	2 235	184	916	202	1 374	450
1987	823	111	1 185	230	1 255	230	1 653	269
Ratio								
1987: 1984	3.24	2.85	4.10	3.11	4.30	4.51	2.65	1.92

The price trends from 1984-1987 reflect a classic producer response to drought: forced selling at the height of the crisis, followed by reluctance to sell and attempts to build up animal numbers for the next cycle. The areas worst affected by the drought followed most closely this paradigm with 1987 prices being relatively higher in the worst affected areas of Kordofan and the central area (Table 8) than in the west. The difference of 30% in relation to the national average sales price is less than might be expected and is due in part to Government intervention and to traders having to reduce their margins. Demand for sheep and goats remained strong in the west during the late 1980s but cattle and camels were favoured in the centre and east. Cattle and sheep prices at the terminal export markets remained reasonable.

Table 8 - Variations in regional livestock prices (National index = 100) in 1987

Market	Species				
	Camel	Cattle	Calves	Sheep	Goat
Nyala, Southern Darfur	89	64	93	48	83
Ed Dae'in, Southern Darfur	84	88	73	118	151
Mellit, Northern Darfur	98	80	78	123	119
El Fasher, Northern Darfur	103	92	98	101	111
El Obeid, Kordofan	117	97	78	101	86
Kosti, White Nile	103	96	83	94	86
Rabak, White Nile	115	91	64	99	85
Sennar, Blue Nile	91	164	240	96	92
Port Sudan		128	94	119	86

The efficiency of the marketing system in Sudan is intimately linked and affected by the organization of the animal health services and the complicated nature of commercial channels. Veterinary services are to some extent concentrated on the main transport routes, whether these be rail or road or the great trek routes. The large number of markets assists in channelling livestock to these routes and their movement to the final centres of consumption or export.

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