REHABILITATION ALTERNATIVES FOR PASTORAL POPULATIONS IN THE SUDAN

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

REHABILITATION ALTERNATIVES FOR PASTORAL POPULATIONS IN SUDAN

By

M. O. EL SAMMANI

FAO

June, 1989

FOOD AND AGRICULTURE ORGNIZATION OF THE UNITED NATIONS

FAO/ESH Working Papers on
Pastoral and Agro-Pastoral Societies

1. Ian Livingstone (1985) Pastoralism: An overview of Practice, Process and Policy.

2. Slimane Bedrani (1987) Les Pasteurs et agro-pasteurs au Maghreb.

3. Jeremy Swift (1988) Major Issues in Pastoral Development with Special Emphasis on Selected African Countries.

4. M. Allaoui (1989) Bilan de trente ans de développement pastoral dans le bassin méditerranéen.

5. M.O. El Sammani (1989) Rehabilitation Alternatives for pastoral Populations in Sudan.

6. M.S. Samantar (1989) A Study on Drought-Induced Migration and its Impact on Land Tenure and Production in the Inter-Riverine Region of Somalia.

7. Guedda Mohamed Ahmed (1989) Alternatives de développement des population pastorales en République de Djibouti.

PREFACE

The World Conference of Agrarian Reform and Rural Development (WCARRD), held in Rome in 1979, emphasized strategies for including marginal rural populations in the development process. In this context, access to land, water and other productive resources have been identified as a major factor in aggravating poverty and in marginalizing many rural populations. Policies regarding these factors have, therefore, acquired new and more compelling dimensions, requiring that special policy considerations be given to those members of rural society that are often the hardest to reach.

In this regard, FAO has tried to assist member countries in addressing the needs of pastoral populations by commissioning a series of empirical studies on recent changes in their social conditions. Pastoral groups have evolved specific modes of production and survival strategies, ways towards achieving self-reliance and development in the face of recurrent droughts, economic change and other dislocations due to forces beyond their control. In light of these changes in the living conditions of these people, governments and international agencies need to elaborate their policies and strategies in a way that is consonant with existing conditions.

The present work grew out of one of a series of papers originally commissioned for an Informal Seminar on Socio-Economic Aspects of Pastoral Development, held at FAO Headquarters, Rome, in November 1987. Because of the wealth of detail and the succinctness of the analysis on conditions of pastoral populations in the country of Sudan, it was decided to ask the author to revise the document to address issues of interest to the wider FAO audience. This paper underlines the dynamic situation characterized by pastoral populations today. It is hoped that this publication will be useful to policy makers and scholars for identifying priority areas for policy intervention and development assistance for and more importantly in concert with pastoral peoples.

Rafael Moreno
Director a.i.,
Human Resources, Institutions and
Agrarian Reform Division

ACKNOWLEDGEMENTS

The author would like to acknowledge the assistance given by the following persons which facilitated the completion of this work.

(i) Eastern Region:

Sawi Mohamed Suliman (M.A.) and Sayed Mohamed Dabloub (M.Sc.) of the Soil conservation Land Use and Water Programming Department who conducted the surveys of the Shukriya, Rashaida and Hadendowa.

(ii) Darfur Region:

Mohamed El Amin A/Rahman (M.Sc.) and Hamdoon Ahmed Mohamed (Diploma) of the Natural Resources Administration and the Soil Conservation Land Use and Water Programming Department who surveyed the Zeiyadiya, Medoib and Zaghawa.

(iii) Kordofan Region:

Mohamed El Hassan El Tayeb (M.Sc.) - ex-Soil Conservation, Land Use and Water Programming Department official - who collected supplementary data on Kababish and the drought affected population in the Region.

(iv) Literature Review and Data Assemblage:

Abdel Bari Hassan Nasr of the Agricultural Statistics Department (M.Sc.) and Abdel Gadir Mohamed Ahmed, Statistics Department for collection of secondary material from related departments and offices in Khartoum.

(v) Report Production:

Abdel Aziz Ahmed Awadalla and Mohamed Ahmed El Mardi of the Department of Geography, University of Khartoum for the drawing of the map work.

Special thanks go to Abdel Mageed El Siddig of the Main Library, University of Khartoum for typing the text and producing the report in the final form. Abdalla Abbas from the DSRC, University of Khartoum for typing the report on the work process.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

GLOSSARY

Abbala	:	Derived from "Ibil", plural of camel, dennotes a camel economy and its related culture.
Awlad Rajel	:	A lose lineage made up of descendants of the second ancestor in the geneological line.
Baggara	:	Derived from "Bagar" which is cattle, thus referring to a cattle economy and its related culture.
Daboka	:	A herd of camels, optimum size is 115 but can be less
Dar	:	Territory that traditionally belongs to a tribe.
Darat	:	Early dry season grazing.
Dukhun	:	Millet.
Dura	:	Sorghum.
Gizu	:	Type of grazing practised in desert lands north of Meidob Hills up to Libya/Chad border, composed of succlent plants.
Goz	:	Sandy country/soil type.
Hafir	:	An excavated reservoir.
Intermediate/ High Land	:	Two types of grazing lands in Jonglei area, distinguished on minor variation in gradient based on flooding conditions during rainy season.
Khabir	:	A guide employed for trekking livestock.
LMMC	:	Livestock and Meat Marketing Corporation.
Mahdiya	:	The revolution lead by "Imam" Mohamed Ahmed El Mahdi 1883-1898.
May Regime	:	Founded by Nimeiri 1969-1985
Murah	:	Means a herd or flock. Optimum murah size is 100 camels, and 300 sheep, yet any sizeable number of animals below these figures is called a murah.
Nazir	:	A paramount chief of a tribe
October Revolution	:	A political movement by the people in 1964 that lead to a change in government from military to civilian.
Omda	:	A sub-tribal chief.
Sadeis	:	3 year old ram.

Sheikh	:	Head of village(s) or encampment(s).
Sheikh Khat	:	A sub-Nazir.
Shogara	:	Early rainy season grazing movement.
Toich	:	Pasture lands lying on fringes of Sudd swamps in Southern Sudan.
WSARP	:	West Sudan Agriculture Research Project.

22. The broad strategies adopted by pastoralists are; diversification of animals, and incorporation of farming in their production systems.

23. A large number of females in the herd is an established strategy of pastoralists for dry years. Other strategieis include, long distance migrations, feeding on imported hay and other fodders. The last thing pastoralists resort to during dry years is to get rid of their animals by selling them.

24. Strategies during wet years include; maintaining a productive herd through a continuous process of selection, recirculation of capital generated from the sales of one type of animal in building the other type, and purchase of young sheep to hold through a rainy season and for sale in the next marketing period.

25. Pastoralists from early age are on socialized to acquire and manage herds. The society has developed many mechanisms which facilitate acquisition of animals.

26. The use of land is organized on sub-tribal basis. Distribution of sub-tribes over the land was more strict in the past. Outside tribal land, right of use is acquired through conventions. There exist in the country a number of areas that are communally open to many tribes.

27. Within tribal domains, the fixed assets and the other infra-structure of wells, cultivated land, administrative and market centres and service facilities give the sub-tribe its dominance over the land. In using the resources of a territory, pastoralists normally observe certain principles.

28. Labour for domestic and herd requirements was provided in the past from inside the family. Two changes have occurred in labour organization: resort of pastoralists to hired labour, and diverstification of household employment pattern.

29. The rearing of four different animals; sheep, camels, cattle and goats demands different labour requirements for protection, management and watering. The number of herdersr needed is, accordingly, determined by the type and size of animals raised.

30. In the past, herders were paid in animals. Presently they are also paid in cash.

31. There is a division of labour within the household, with responsibilities assigned according to sex and age.

32. Social organization operates at three levels: the tribe, sub-tribe and household, with certain roles played and functions observed at each of these levels.

33. Whether Sudanese nomad economies can be thought of as parallel populations of people and animals reproducing together in time, the answer is 'yes' and 'no'. Yes for those production systems which are still operating under balanced conditions and no for systems where such a balance no longer exists.

34. Tribes had their traditional political structure, whereby chiefs had absolute powers over their areas. The system used to perform administrative, taxation, judicial and security roles.

35. Dissatisfaction about native administration started to build up after the country's independence (1956), instigated by the many changes resulting from the democratization processes, and the roles assumed by the educated tribal elite in official and public life.

36. Many accusations were leveled against this form of administration, which finally led to its abolition in 1969, with the exception of few areas. Its roles were assigned to Local Government Councils.

37. Abolition of native administration has seriously affected pastoral populations and created what has come to be known as the administration vacuum.

38. A network of intermediate administrative and marketing centres exist in nomadic areas. At these places nomads obtain their necessities and market some of their products. Marketing activities are characterized by seasonality.

39. In the past pastoralists used to sell animals to locally resident traders, and those coming from outside. Local markets had limited handling capacity, and when large numbers were intended for sale, tribal chiefs used to write to merchants from Omdurman (for example) to visit their areas and buy animals. The picture has changed, and livestock marketing is an increasingly complicated process.

40. The main livestock markets with export and internal distribution functions are: New Halfa, Gedaref, Kassala, Tambul and Port Sudan in the Eastern Region; Damer in the Northern Region; Mazrub, Umm Badr and El Obeid in Kordofan Region; Nellit, El Fasher and Umm Keddada in Darfur Region; with Omdurman as a national market centre.

41. Marketing processes take different forms related to the type of animal. Selling of livestock is influenced by factors such as: condition of the animal, supply and demand, export contracts, conductive trekking time, household need for cash, and readiness of some buyers to invest in livestock.

42. Trekking livestock is still the main system of transporting animals from local markets to consumption and export destinations.

IV. GENERAL TRENDS AND PROCESSES

43. Shortly after the application of the 1973 Local Government Act, many shortcomings were observed. The administration vaccum in pastoral areas was of high concern to most Regions. Kordofan Region saw that revitilization of traditional administration was a necessity. Accordingly, the old system was reinstated, with some alterations. A more comprehensive treatment of the issue at country level is presently under consideration by the Government.

44. There is a general trend towards sedentarization, which cuts across the various tribal factions.

45. Expansion of irrigation agriculture, and also of mechanized farming and traditional rain-fed farming, have lead to loss of grazing lands to other forms agricultural production.

46. Pressure on grazing land taken for other uses includes refugee influx on many traditional grazing areas.

47. Decline in grazing resources leads to increase in the incidence conflict.

48. Figures on livestock demand and supply are unreliable.

49. Consumption of livestock products - meat and milk - has risen considerably in the last two decades.

50. Present-day prices of meat for most towns are almost the same with no difference between supply and consumption areas, an indication that supply is short of meeting demand.

51. External export trade has flourished since the late 1970's, with increased sheep exportation and also racing camels to Saudi Arabia and the Gulf States, and cattle to the Arab Republic of Yemen. The traditional camel market of Egypt is also maintained.

52. There is a strong interrelationship between crop production and livestock raising in pastoral economies. The exchange value of livestock to grains is the major variable which determines the equilibrium between the two economies.

53. Other changes include southward migrations into wetter ecological belts, rising regional awareness about resource allocation and resource use, growth of a fodder market, more open use of once restricted tribal grazing resources, access to sorghum mechanized schemes, growing interest in grazing exclosures, more separation of animal types and irregularity of grazing cycles, access to grazing resources through owning wells, attempting irrigated crops near traditional watering places, and selling, burning or preserving of sorghum stalks for own use.

54. Other changes in resource allocation and control, include a rise of the number of salaried herders and of a market in production factors. The latter include water supply, salt, fodders, and veterinary drugs.

55. The stratification of pastoralists into rich, medium, and poor in terms of livestock ownership has generated disparities in income distribution in pastoral societies, with regard to income raised from the herd. However for many pastoral groups, owning livestock is no longer the yard-stick for measuring household prosperity since other gainful economic activities are widely pursued, adding substantially to household income.

56. There is a general weakening in group decision making, which could be attributed to a decline in the reciprocating relations that used to prevail among nomads, as well as, to the rising concern about individual welfare. Such changes have altered the old production relations, and in the place of the communal outlook, the household is emerging as the level at which decisions are taken. However, this does not exclude that at higher levels, in matters that concern the tribe and sub-tribe the appropriate institutions at the tribal level step in to perform their roles.

57. Some of the old values that evolved with nomadism in the area of self-help seem to be vanishing due to the rising market value of animals, the change in production relations and that the once observed norms related to status and prestige have changed. Yet, pastoralists are still co-operating in many facets of their life, especially when the element that calls for co-operation is the well-being of a wider group, or requires labour which is beyond the household ability.

58. Desertification and drought account for the prevailing conditions of resource degredation, especially in the northern half of Sudan. The drought of 1984 had only accelerated an already collapsing situation.

59. The stressed conditions of ecosystems under which pastoralists found themselves, especially those of Western Sudan, led during the years preceding the drought, to adopting many strategies.

60. Populations affected by drought and famine during 1984 amounted to 1 million 800 thousand persons.

61. As for loss of livestock, no census data is available for the country as a whole. However, it is estimated that cattle decreased by 24.3% and sheep and goats by 38.9% while camels did not register a noticeable decrease, comparing 1985 figures to 1982/83 ones.

62. Regarding numbers sold, a high percentage of livestock was slaughtered for meat, lowering its prices during 1984/85. However, many animals were bought by wealthy pastoralists breeders. Herders of most of the animals bought for breeding purposes were recruited from the displaced populations of the drought affected areas.

63. Due to the good rains of 1985 and 1988 there occurred adequate grazing in most pastoral areas, while crops are being sufficiently produced. Prices of animals are escalating in relation to the stabilizing prices of sorghum, and pastoralists seem to be experiencing good years. Compared to this picture, the immediate problem is one of the marginalized groups, making up to 20% of most tribes. These groups lost almost all of their animals between 1980-84. They are the ones who need immediate rehabilitation.

V. GOVERNMENT PLANNING, NOMADS ATTITUDES AND REHABILITATION ALTERNATIVES

64. There prevailed for quite a time a state of negligence of the traditional sector of agriculture, embracing the three major activities, traditional crop farming, pastoral nomadism and forestry production. The only time the credibility of this sector was seriously examined was after the recent drought, when the issue of rehabilitating the traditional sector became a policy priority. Negligence of this sector could be attributed to misconceiving planning approaches, modern sectoral development, conflicting targets, lack of long term vision, limited involvement of beneficiary population, and instability of organizational networks.

65. There has been continuous talk about the settlement of nomads since the country's independence, most of which lacked the right conceptualization of the pastoral issue.

66. The conclusions drawn under the evaluation of policies and programmes recommend: reactification of presently strained eco-systems, promotion of integrated approaches to pastoral economies, strengthening the spatial dimension in planning to complement the functional one, involvement of pastoralists in shaping their future, building more technical and organizational capabilities, and a more realistic look at settlement approaches.

67. Pastoralists could identify priorities and are involved in development issues. Areas of development recommended by them concern with planners and agency goals. Arriving at an approach which integrates the pastoralists and agency interests is one of the main challenges to implementing a rehabilitation strategy.

68. Strategies to assist pastoralists are presented under the following headings:

i. surveys for resource assessment,

ii. preparation of land use design plans,

iii. formulation of laws and regulations,

iv. organization of central and regional pastoral pannels,

v. preparation of district projects,

vi. establishment of a pastoral development fund,

vii. conservation of range resources,

viii. introduction of grown fodders under irrigation and mechanized schemes,

ix. development of pasture reserves, sheep ranching, and mixed farming projects,

x. creation of a network of fodder stores,

xi. encouragement of private sector drug stores,

xii. representation of pastoralists in LMMC.

xiii. promotion of processing of livestock products,

xiv. promotion of handicrafts,

xv. improvement of pastoralists crop farming activities,

xvi. avail pastoralists of opportunity to own mechanized schemes,

xvii. use watering places as focal points for organization of land use,

xviii. organize pastoralists to run water sources,

xix. finance services from a rate to be levied on borrowing from the suggested pastoral development fund,

PART ONE

I. SUMMARY OF PASTORALISM IN SUDAN

1.1 Ecological Zones of Sudan

Sudan has an area of 1 million sq. miles and a population of 21.5 million according to 1983 Census. The Nile and its tributaries constitute the major geographical features of the country. Riverain land systems, extensive clay plains and traditional tribal economies dominate most of the southern one third of the country. State-managed irrigation agriculture, privately owned pump schemes and peasant farming, prevail in the central and northern two-thirds of the country. In this latter part, and away from irrigated land, human habitation is determined by the amount and distribution of rainfall, and is founded on traditional crop production.

Figure 1 gives six climatic zones for the country (desert, semi-desert, dry, semi-dry, semi-humid, and humid). The zones are based on rainfall as indicated by the isohyets. Rainfall varies from nill in the northern desert to 1400 mm per annum in the extreme south west. The length of the period of summer rainfall varies from 3 to 5 months. The corresponding vegetation zones are given in Figure 2.

Based on rainfall, vegetation and soils, the country's land potential is indicated by the following land types :

Table 1 : Country's Land Potential

Land Type	Area		Percentage
	Sq. Miles	Feddan	
i. Northern deserts marginal lands and iron stone country	657,175	405,082,670	67.75
ii. Swamps	12,125	7,473,850	1.25
iii. Southern Rain lands	9,700	5,979,080	1.00
iv. Rainflood Plain	48,500	29,895,400	5.00
v. Central Rainlands	121,250	74,738,500	12.500
vi. Western Cattle Country	121,250	74,738,500	12.500
TOTAL	970,000	597,908,000	100.00

Source: Request to the United Nations Special Fund for assistance in studies on and Pilot Projects of Community Development for a settlement of Nomads in the Sudan.

FIG. 1 CLIMATIC ZONES OF THE SUDAN

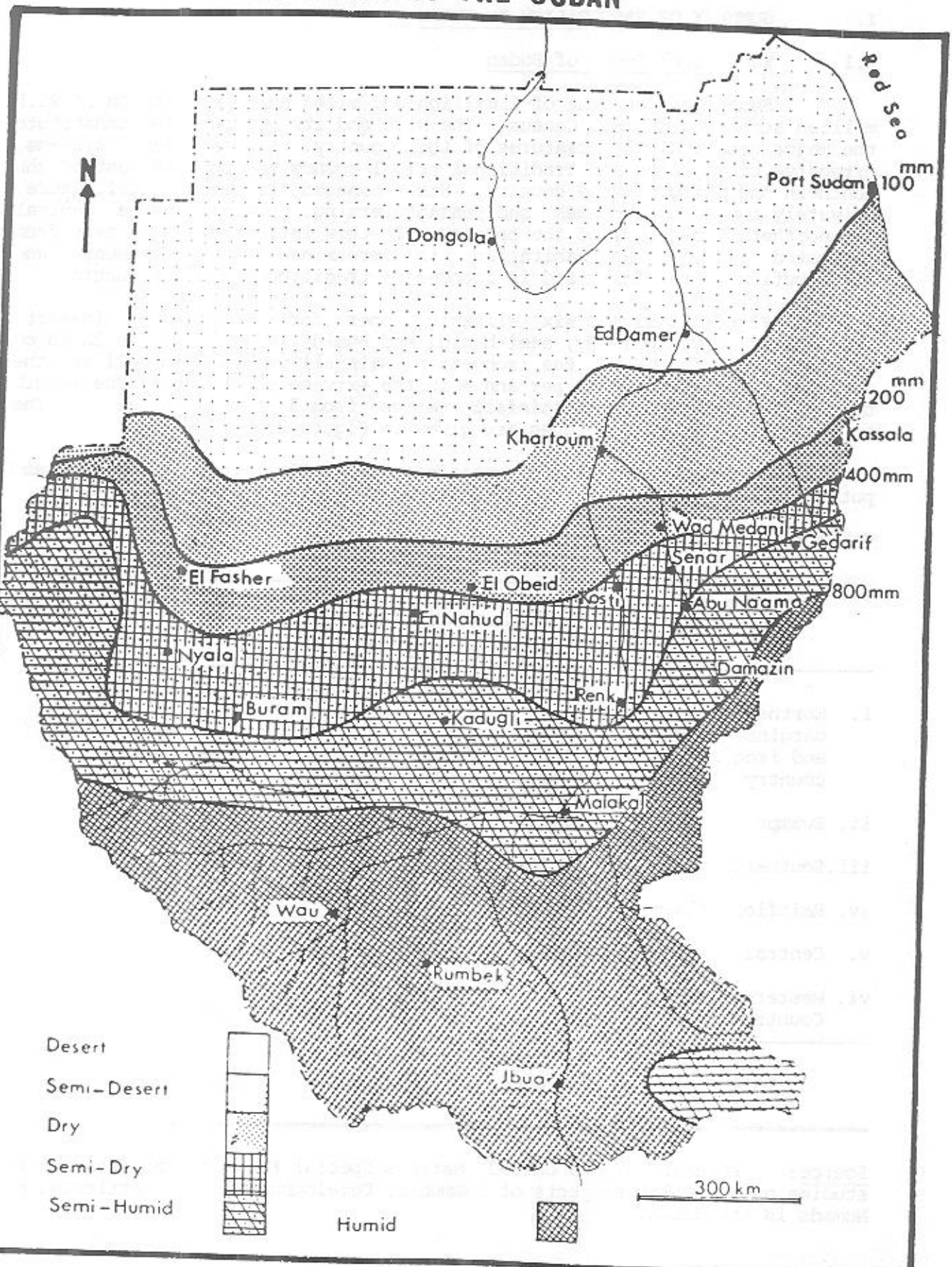


FIG. 2 SUDAN : VEGETATION & RAINFALL

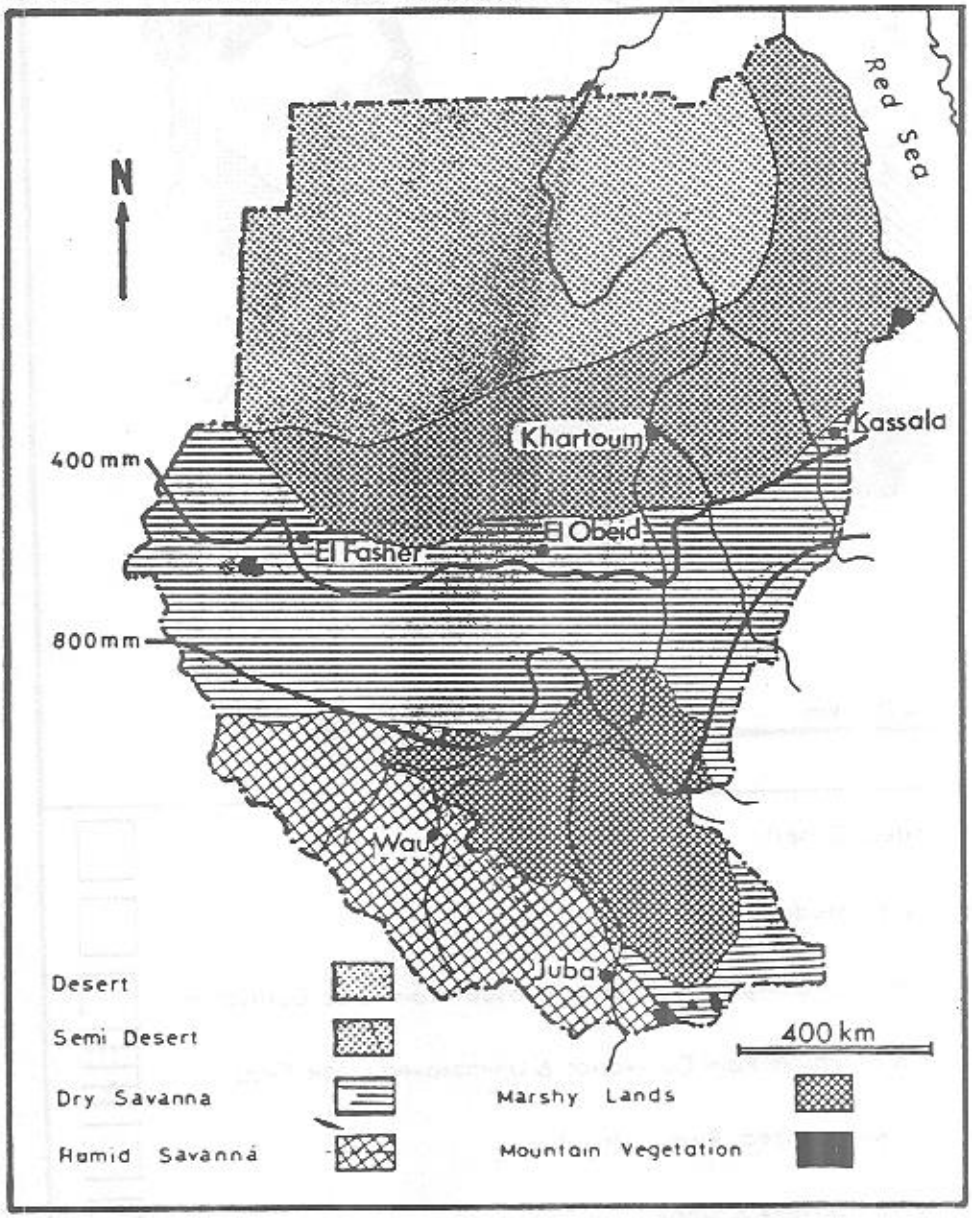
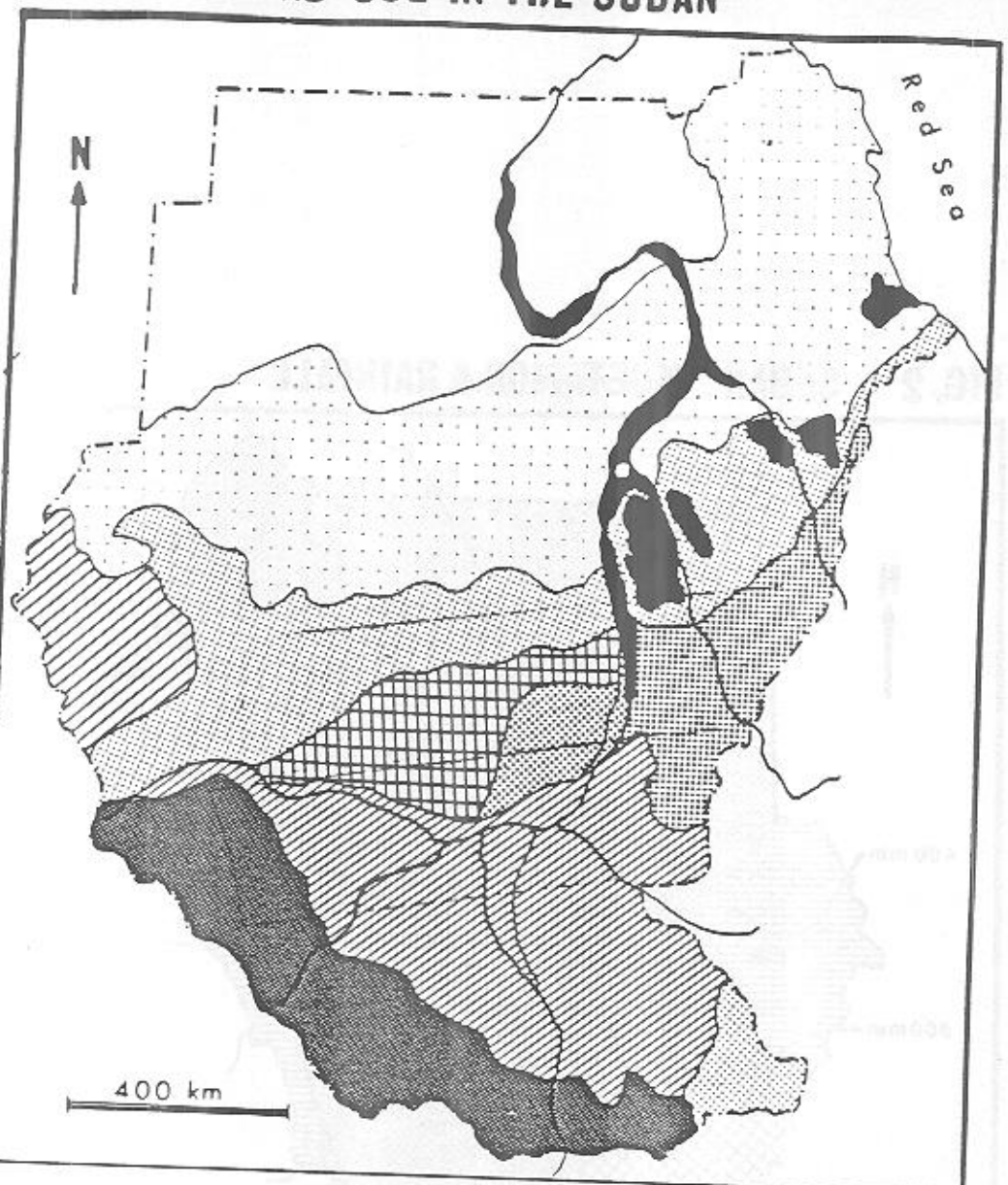


FIG (3) LAND USE IN THE SUDAN



Uninhabited Desert.

Extensive Nomadism, Camel Grazing.

Unimproved Grazing & Subsistence. Casual Rain Crop Cultivation.

Intensive & Extensive Rain Cultivation & Unimproved Cattle Grazing

Extensive Mechanized Rain Cultivation

Intensive Hill Terrace & Slope

Swamp Grazing.

Shifting Cultivation.

Gravity Irrigated, Tenancy & Pump Irrigated. Cotton, Cereals & Sugar Cane.

Source; Abu Sin (1975). Adapted From Fig.1-9.

Aziz

The Abbala ethnic groups could be accounted for under a number of tribal complexes, comprising the tribes of the Eastern Region, Northern Kordofan and Northern Darfur. The Eastern Region groups are comprised of the Beja and the Butana plain tribes:

a. Beja Tribes

i. Hadendowa
ii. Amrar
iii. Bisharin
iv. Beni Amir
v. Rashaida

b. Butana Tribes

i. Shukriya
ii. Lahawyeen
iii. Khawalda

c. North Kordofan

i. Kababish
ii. Kawahla
iii. Hawawir
iv. Diweih
v. Beni Gerar
vi. Dar Hamid confideration, made of Maganin, Maalya, Maagla, Habanin, Nawahya, Gileidat, et
vii. Shenabla
viii. Hamar

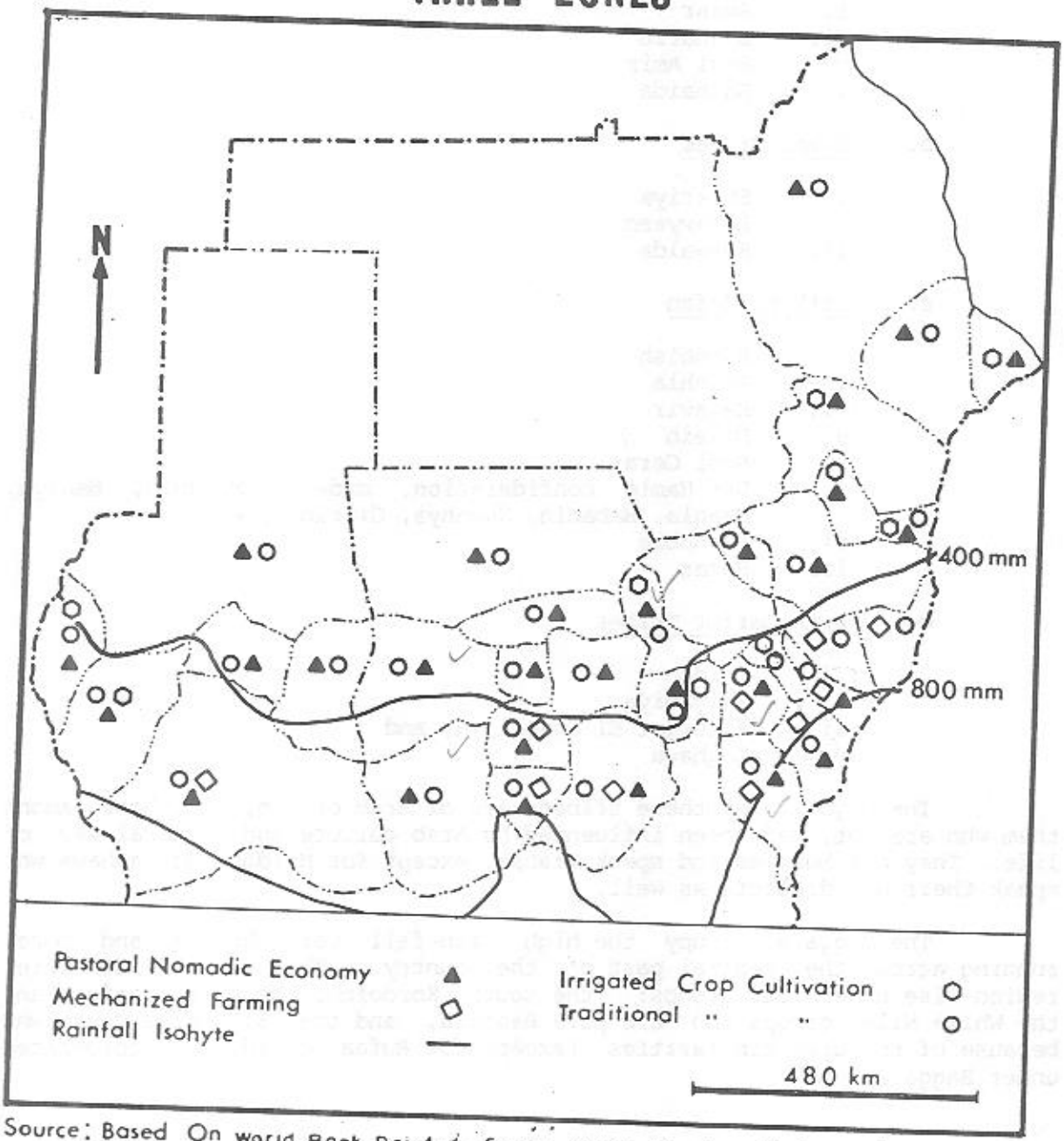
d. North Darfur Tribes

i. Meidob
ii. Zeiyadiya
iii. Rizeigat El Shamaliya, and
iv. Zaghawa

The majority of these tribes are of Arab origin, and those among them who are not, had been influenced by Arab culture and pastoral way of life. They are Muslims and speak Arabic, except for Meidob and Zaghawa who speak their own dialects as well.

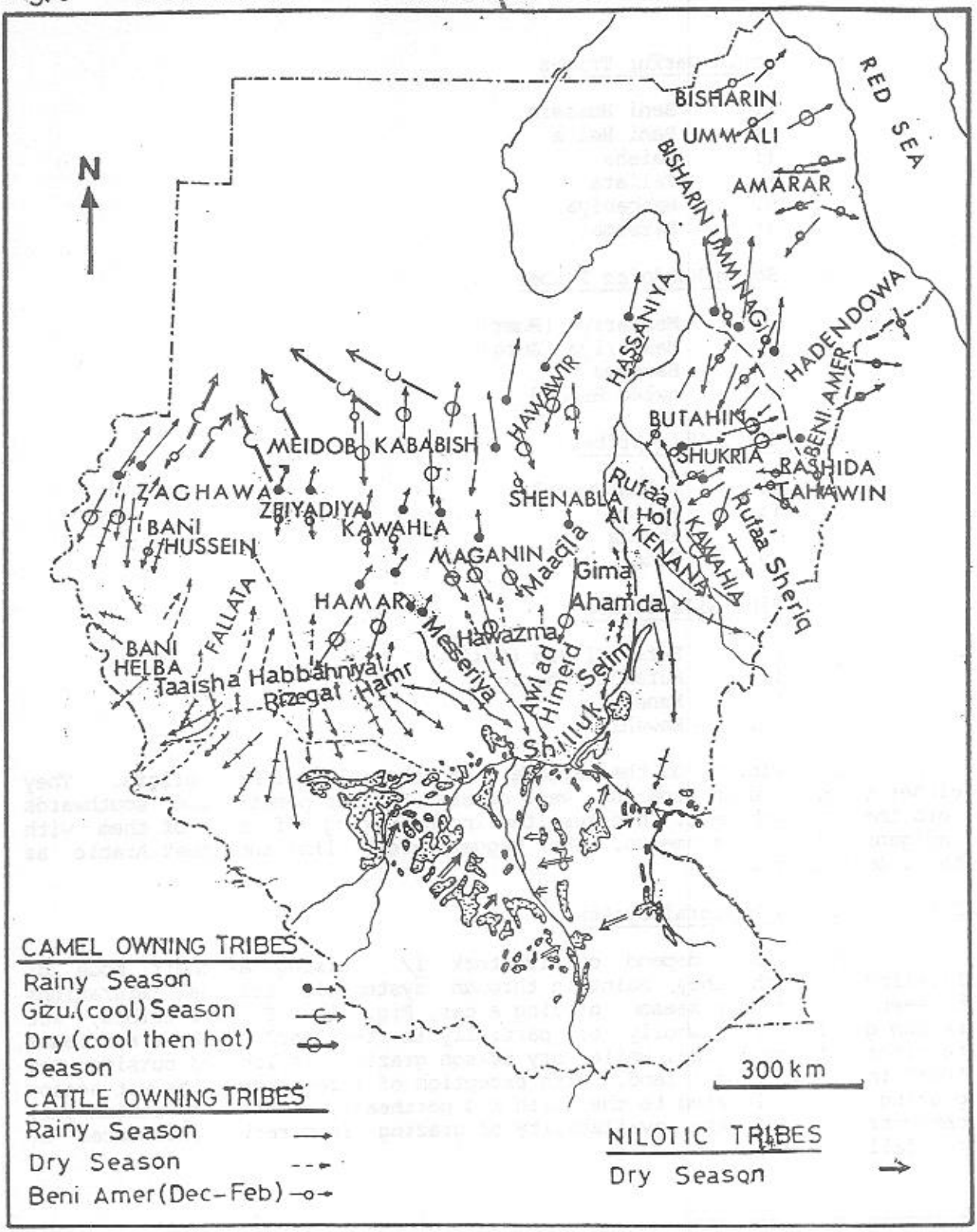
The Baggara occupy the high rain-fall belt, 500 m and more, running across the central part of the country. They may be identified region-wise under four groups: the south Kordofan, the south Darfur and the White Nile groups who are pure Baggara, and the Blue Nile ones who because of cultural similarities (except for Rufaa) could be incorporated under Baggara.

FIG.4 DISTRIBUTION OF TYPES OF ECONOMIES BY PROVINCE & COUNCIL WITHIN THE THREE ZONES



Source: Based On World Bank Rainfed . Sector Study . Ministry Of Finance & Economic Planning . Khartoum, 1985.

Fig. 5 SUDAN ANNUAL MIGRATIONS OF PASTORAL TRIBES.



(Names of tribes own both camels and cattle have been lettered alternately in capitals and minuscule).

SOURCE: Lebon.J.H.G. Land use in Sudan 1965.

a. South Darfur Tribes

i. Beni Hussein
ii. Beni Helba
iii. Taisha
iv. Fellata
v. Habbaniya
vi. Rizeigat

b. South Kordofan Tribes

i. Messeriya (Humr)
ii. Messeriya (Zurg)
iii. Hawazma
iv. Awlad Humeid

c. White Nile Tribes

i. Awlad Humeid
ii. Selim
iii. Ahamda
iv. Gime

d. Blue Nile Tribes

i. Rufaa El Hog (Hoi)
ii. Rufaa El Sheriq
iii. Kenana
iv. Kawahla

The majority of the Baggara are ethnically of Arab origin. They either entered Sudan from the west or east. Their penetration southwards into the Savannah belt, had resulted in the mixing of some of them with indigenous African elements. The Baggara are Muslims and speak Arabic as their only language.

1.4 Abbala Pastoral System

The Abbala depend on livestock 1/ raising as their mode of livelihood, which they maintain through systematic seasonal migrations between wet and dry season grazing areas, Fig. 5. For all tribes, wet season grazing lies wholly or partially in the "Dar", the traditional territory of the tribe, while dry season grazing is located outside the "Dar" in other tribes' land. With exception of a few cases, the wet season grazing area is located to the north and northeast, of the dry season one, demonstrating that the availability of grazing is directly influenced by rainfall.

---

1. The pastoral systems of Abbala and Baggara were affected by the drought of 1984, which led to the death of large numbers of livestock, marginalization of sizeable population especially among the Abbala, and the flight of many people to other areas. The good rains of 1985 brought back these systems to normality. Hence in our description of these systems we shall assume a normal pattern of grazing and production. Changes arising from 1984 drought shall be fully accounted for under that section.

The Beja migrate from the Red Sea hills, mainly from the plains and wadis, where they raise crops as well, to the low lands of the flood plains of the Gash and Baraka Deltas, and as far south and west as the River Atbara, the New Halfa irrigation schemes and the mechanized sorghum schemes of southern Gadaref district. The Shukriya and other associated tribes of the Butana Plain, pursue a pattern of movement that carries them between the Butana plain, the River Atbara, the New Halfa irrigation scheme and the mechanized sorghum schemes of south Gadaref area.

These cycles of migration have evolved out of older ones in the decades after independnce (1956). The establishment of New Halfa Scheme (1960-66) the Rahad Scheme (1973-77) and the expansion of mechanized farming (1945 to early 80's) were accompanied by the taking away of large tracts of country from the traditional grazing territories of these tribes. The decrease in pastures and natural range induced the Beja and Butana pastoralists to adopt new grazing patterns through utilizing the fodders availed by the left over from grown crops after harvest, and the extensive irrigation canals of New Halfa and Rahad Schemes as a source of water supply for their herds.

As in the case of the Eastern Region, the Abbala of North Kordofan and North Darfur depend on livstock raising as their main source of livelihood. Up to the mid 1960's wet season grazing was carried out in the northern parts of the two regions (Kordofan and Darfur) comprising the administrative territories of these tribes, while dry season grazing was practised in the central parts of the same regions. As a result of a number of factors, including, increase in livestock numbers (witnessed as of mid 1960's) growth in number of permanent water points, successive rain failure, especially in recent years, coupled with prolonged ecological degradation, these tribes have been induced to penetrate deeper into southern Kordofan and Darfur.

The Abbala raise camels, sheep and goats, plus a limited number of cattle which are mostly concentrated around permanent water sources. Cattle numbers drastically declined between 1982-84.

Animals, are raised to supply household food needs and for cash obtained from their products (milk and meat) or through exchanging their value for money and commodities, including grains. By meeting these requirements, the herd maintains household sustenance, and in community life gives prestige to its owner. The household still depends on the herd to fulfil these roles. However, the old traditional outlook to the animal is changing into a more commercial one.

The Abbala tend camels and sheep under two different grazing systems, as the management needs of each differ from the other. In the past, the nomadic family used to follow the animals into the different grazing areas. During the last three decades there developed a tendency of households settling down, especially during the dry months, near water sources, with the herds managed by the head of the household. The labour requirements of the herd were met wholly in the past from inside the family. With the transformations taking place in rural societies and economies, and the growing trends of migration for employment, most livestock raisers are relying more and more on hired herders.

The Abbala could be categorized into three groups in terms of livestock ownership. The majority fit in the category of average owners, raising 100-300 head of sheep. Camel ownership for this category is quite variant, and 30 head is an acceptable average. Those raising more than 300 sheep and 30 camels are distinguished as rich owners, while those raising less than 50 sheep are considered as poor ones. There is a flow of sheep through sales transactions among the three categories.

Most of the Abbala cultivate in an attempt to secure the household grain supply. The Beja of the Eastern Region raise crops in wadis radiating from the Red Sea Hills during the short flood period. Besides, some of the Beja possess tenancies in the Gash and Baraka schemes. The main crop raised in wadis is dura (sorghum), while in Gash and Baraka deltas, in addition to sorghum, cash crops including cotton and castor oil plus dukhun (millet - limited to Baraka scheme) are raised too. The Butana tribes cultivate sorghum near traditional settlement sites in the Butana plain. Those lucky among them, own tenancies in New Halfa Scheme, while the prosperous ones practise sorghum mechanized farming as well. The Abbala, of Darfur and Kordofan, grow dukhun at selected sites within their lands, mostly located in the southern parts of their "Dars" where rainfall is higher.

Crop production is integrated with livestock raising, complementing returns from the latter in meeting household needs. Every year, the household sells a number of animals, to raise cash for expenditure on the family and herd. The number and kind sold are influenced by considerations such as: domestic household needs, grain supply situation as balanced against household production, and projected expenditure on the herd during the coming production season.

1.5 Baggara Pastoral System

Similar to the Abbala, the Baggara livelihood is built around their animals, which they maintain through an alternating pattern of dry and wet season grazing. Wet season migration is practised in an intermediate belt running across the central part of the country, where for most of them the land utilized for grazing falls within the tribes' "dar". Dry season grazing areas are located further south, and are in many cases falling within the tribes' lands.

Up to mid 1970's, the household used to move following the animals into the different grazing areas. Though this pattern is still maintained, there is a strong tendency for settlement, with many groups among the Baggara changing to a transhumance life. The change is induced by factors such as: shifting to crop production which began to assume an increasing role in their economy, provision of permanent water sources which started to act as foci for the rise and growth of settlement, and adopting modern ways of life such as sending children to schools.

Since the Baggara economy is practised under richer ecological conditions, cattle and sheep grazing requirements are met within shorter grazing distances, as compared to Abbala animals, however, the two types

Table 4: Livestock Numbers by Province 1981/82

Region/Province	Cattle	Sheep	Goats	Camels
Northern				
Northern	19,064	224,725	178,595	127,649
Nile	58,779	312,824	321,558	69,804
Eastern				
Kassala	864,388	1,824,882	1,130,836	671,295
Red Sea	49,062	257,077	543,995	112,952
Khartoum				
Khartoum	76,465	340,934	525,643	16,239
Central				
Blue Nile	1,209,500	1,238,761	726,784	44,663
Gezira	677,540	1,396,414	1,398,202	172,627
White Nile	2,102,295	2,534,561	803,602	92,048
Total	5,050,793	8,140,188	5,628,715	1,307,177
Percentage	24.5%	43.7%	40.7%	46.8%
Kordofan				
N. Kordofan	1,260,015	2,836,379	2,058,281	1,006,542
S. Kordofan	1,972,948	952,952	850,906	2,125
Darfur				
N. Darfur	1,219,615	2,618,230	1,459,208	267,246
S. Darfur	3,677,827	1,414,442	1,365,817	167,937
Total	8,130,405	6,822,003	5,734,212	1,443,850
Percentage	39.3%	36.6%	41.5%	51.8%
Equatoria				
E. Equatoria	309	1,458	24,518	—
W. Equatoria	1,022,647	1,050,269	293,996	33,603
Bahr El Ghazal				
Bahr El Ghazal	1,650,712	824,583	738,519	—
Lakes	942,152	382,454	3,715,787	—
Upper Nile				
Jonglei	1,888,491	200,473	561,457	—
Upper Nile	1,920,143	1,202,554	459,502	5,817
Total	7,474,454	3,661,761	2,451,570	39,420
Percentage	36.6%	19.7%	17.8%	1.4%
Total	20,661,952	18,623,982	13,814,497	2,790,447
Percentage	37%	33.3%	24.7%	5%

Source: Democratic Republic of Sudan, Ministry of Agr. and Irrigation, A Note on Agriculture Sector in Areas of Economics of Production and Consumption with Regard to Animal Resources and Irrigation, (Arabic) undated, p 83.

FIG. 6 DEVELOPEMENT OF LIVESTOCK POPULATION IN THE SUDAN (— 1925 – 1977 —)

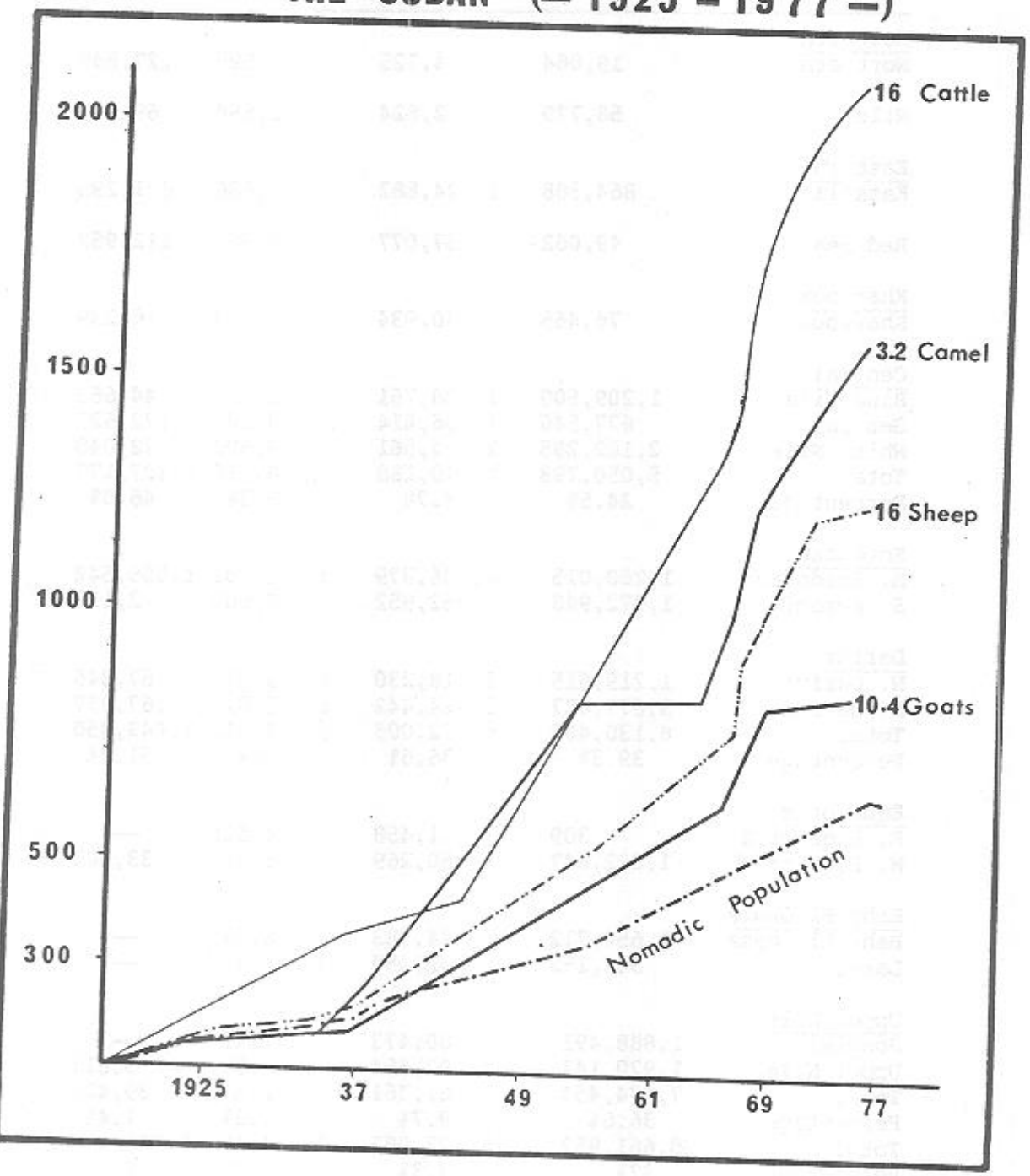


Table 5: Vaccines produced at Soba Laboratory 1974/75-1980/81

Year	Vaccine				
	Rinderpest	Contagious Bovine pleuropneumonia	Anthrax	Haemorrhagic septicaemia	Blackleg
1974/75	2,432,400	132,375	1,321,050	1,532,560	424,890
1975/76	5,318,400	1,246,300	2,318,525	3,038,460	290.640
1976/77	6,318,000	1,375,600	2,192,850	3,114,960	197,040
1977/78	5,006,200	31,900	1,130,875	2,049,880	232,320
1978/79	5,713,800	546,000	1,726,450	2,193,000	324,660
1979/80	5,410,600	721,000	2,920,875	2,653,080	994,920
1980/81 (April 81)	5,412,300	1,286,720	1,312,375	2,043,840	775,070

Source Democratic Republic of Sudan, Ministry of Agriculture and Irrigation, A Note on Agricultural Sector in Areas of Economics of Production and Consumption with Regard to Animal Resources and Irrigation (in Arabic), undated, p. 82.

II. DESCRIPTIONS OF SELECTED PASTORAL SYSTEMS

It is beyond the scope of this study to describe in the same detail all nomadic pastoral tribes in the country. Hence following the broad accounts furnished in the preceding sections, and for practical reasons, our treatment shall be limited to selected pastoral systems. Nine systems are chosen, three each, in Eastern, Kordofan, and Darfur Regions, as listed below:

Region and Tribe	Date of Survey Coverage
a. Eastern Region	
i. Hadendowa	Feb.-May 1986
ii. Shukriya	" "
iii. Rashaida	" "
b. Kordofan Region	
i. Kababish	May-Dec. 1983, June 1986
ii. Kawahla	" "
iii. Kawawir	" "
c. Darfur Region	
i. Meidob	May-June 1985
ii. Zeiyadiya	" "
iii. Zaghawa	" "

Though emphasis shall be on the above selected tribes, this does not exclude citing evidence from other related situations, whenever seen pertinent. Organization-wise, the aspects to be covered shall follow the outline set at the beginning of the document. For the location of the tribes see Fig. 5.

2.1 Species Herded

All nine groups under consideration, raised prior to the drought of 1980's, sheep, camels, cattle, goats and donkeys. The number and importance assumed by each animal type, varied from one tribe to the other.

Camels are the traditional animals of the Abbala, to which social prestige is attributed. Sheep rose in importance with the growth in demand for mutton, for internal and export markets. Cattle were incorporated by the Abbala during the last four decades, as a result of increased sedentarization to supply the household with milk. Goats are the animals of the house-wife, tended near encampments and settlements. Donkeys are beasts of burden and used for carrying water to camps and as a means of transport to crop fields and market places.

Apart from the ecological factor, pastoralists have their strategies for raising the above animals, which centre around certain functions served by each type:

Camels

On the positive side:

i. tough animals,
ii. graze at wide radius, 40-60 km,
iii. browse trees,
iv. watering interval 11 days and can be more,
v. live on 'gizu' plants 1/ for four months without need for water (Kababish, Kawahla, Hawawir, Meidob, Zeiyadiya, Zaghawa),
vi. resilient to drought (estimated loss in numbers was 10% during 1984 drought), easy to manage,
vii. supplies milk,
iix. carry wood on their backs,
ix. carry household possessions,
x. used for drawing water from wells and for carrying water to camps,
xi. hired, as transport animals, to sedentary population,
xii. used to fetch wood and hay for household use and for the market,
xiii. transport itself to markets when sold,
xiv. fetches high prices (prices of camels Gadaref/El- Fasher, June 1989 in the range of Ls 2500-5000), and
xv. a presitigeous animal,

But, on the negative side:

i. open to theft especially in last years, (Kababish, Kawahla, Hawawir, Meidob, Zeiyadiya, Zaghawa).

Sheep

On the positive side:

i. less tough animal compared to camel, manageable only under good grazing conditions,
ii. grazes in a wide radius, up to 40 km.,
iii. drinking interval 4 days,
iv. productive within short time span,
v. provides milk,
vi. supplies wool,

1/ Succulent plants that used to grow extensively in the area north of Meidob hills and Wadi Hawar in North Darfur up to the Libyan-Chadian border. They were grazed by the Abbala of North Kordofan/North Darfur from November to February. The last successful Gizu grazing was in 1979. (Last year rains also led to the growth of a good Gizu grazing).

vii. readily marketable,
viii. cash generated from sheep saves camels from sales (sheep are the "garment" of camels-Kababish) and,
ix. avails opportunity for investment with quick returns in good years,

But, on the negative side:

i. susceptible to diseases,
ii. open to theft,
iii. vulnerable to drought, estimated loss during 1984 drought was in the order of 25%,

Cattle

On the positive side:

i. thrives well under semi-arid conditions if grazing is available,
ii. best milk breeds are owned by Abbala (Butana and Kenana, of all rural nomadic groups) as compared to the Zebu type raised by Baggara,
iii. supplies milk for sedentary part of nomadic family,
iv. butter and ghee are processed from the milk for household consumption and for the market,
v. productive, and off-springs could be readily marketed (prices of cattle Gadaref/El Fasher, June 1989, in the range of Ls 3000) and
vi. has a good internal and external market,

But, on the negative side:

i. grazes at a limited radius 8-12 km, and devastates the pasture lands around settlements and permanent water sources,
ii. needs intensive management, and susceptible to plagues.

Goats

On the positive side:

i. maintained on almost any available vegetation,
ii. requires little care,
iii. supplies milk,
iv. special butter is processed from its milk and fed to children (Hadendowa),
v. supplies wool,
vi. sold for petty cash when need arises, goat prices in El Fasher, June 1989 reached Ls 150 per head,
vii. slaughtered for meat, and in recognition of prestigous persons, (Hadendowa), and
viii. gifted to relatives.

But, on the negative side:

i. because grazes everything is accused of accelerating degradation,
ii. susceptible to diseases, and
iii. vulnerable to drought, estimated loss in goat number during 1984/85 drought was in the order of 25%.

Up to 1979, when the above nine production systems were performing under normal conditions it could be fairly concluded that 80% of sheep raisers, raised camels as well, and about 40% raised cattle. Goats, kept in small numbers, ranked at 100% combination with sheep.

Within the above broad picture of distribution, individual animal ownership and levels of wealth, for sheep and camels, were reported in Table 6.

The percentage distribution of these levels, within these tribes, was pictured as follows:

	Percentage
wealthy owners	10-20
medium owners	60-80
poor owners	10-25

2.2 Movements and Resource Use

The established practice for raising nomadic pastoral stock is by adopting regular grazing migrations, between wet and dry season grazing areas, Fig. 5. As stated previously, these movements were up to late 1940's limited to tribal lands 'dar' for most nomadic groups. With the interplay of factors, such as, increase in number of animals, prevalance of security in the country side, provision of water sources, shrinkage of grazing resources in indigenous tribal territory due to a parallel expansion of other production systems e.g. mechanized farming and irrigated agriculture in Eastern Region, and traditional crop production in Western Sudan, added to that the state of general resource degradation, most tribal groups began to seek grazing resources outside their recognized tribal territory. The Kababish furnish an illustrative example, of how this expansion happened over time, (Fig. 7), while in the Shukriya case, (Fig. 8), it is demonstrative of grazing dependency. The latter developed on irrigation and mechanized schemes which have risen on the fringes of the Butana Plain during the last four decades.

Though this expansion brought new variables into the picture, herd movement is still regulated by the established requirements of the animal during the wet and dry season. The pattern adopted by the various groups is summarized in Table 7.

Table 6: Household ownership and levels of wealth by tribe

Tribe	Ranges of camel ownership in heads			Ranges of sheep ownership in heads		
	Wealthy owners	Medium owners	Poor owners	Wealthy owners	Medium owners	Poor owners
1. Shukriya	100 +	50 +	10 +	300 +	100 +	20 +
2. Rashaida	200 +	70 +	10 +	200 +	100 +	20 +
3. Hadendowa	50 +	20 +	5 +	70 +	40 +	15 +
4. Kababish)						
5. Kawahla)	300 +	100 +	20 +	300 +	100 +	20 +
6. Hawawir)						
7. Meidob	300 +	100 +	25 +	300 +	100 +	20 +
8. Zeiyadia	300 +	50 +	15 +	500 +	100 +	40 +
9. Zaghawa	200 +	80 +	20 +	400 +	100 +	50 +

Source Field Survey data, based on interviews with informant figures in the nine tribes.

Movements in the two seasons are influenced by the following conditions:

Wet Season:

i. Old sub-tribal allegiance and right to the land.
ii. Accessibility to farm land for those cultivating.
iii. A grazing area may be utilized by different groups from more than one sub-tribe, with encampments founded on groups of 'awlad rajel' and taking the form of extended-family units.
iv. For those not migrating with their families, the household is left behind in the "dar", the place of cultivation, with some cattle and goats.
v. Camels and sheep are herded differently, since the grazing requirements of the two are different, under the supervision of the head of the household.
vi. Avoidance of areas of wet soils and biting flies (more applicable to the Baggara groups).
vii. Avoidance of cultivated areas, with passage of livestock confined to demarcated corridors in areas of mechanized farming.

Dry Season:

i. Early dry season grazing is practiced near places of cultivation to enable family members to assist in crop harvest, usually followed by livestock proceeding to dry season grazing areas with some male members left behind to complete the harvesting of crops.

ii. Herds are driven to areas with which pastoralists are familiar, or to which they have established grazing rights.

iii. The above areas are very much characterized by being remote, of marginal resources or lightly used, secure; and in case there are other users, acceptance of migrating groups by the indigenous owners of the land.

iv. Availability of water sources.

v. Kinship, economic and social relationships with schemes settlers, in case of New Halfa, Rahad, Gash and Baraka Delta areas, which facilitate early access to harvested tenancies to graze the left-over from cotton.

vi. Holding of livestock at the northern edges of the mechanized schemes of the Eastern Region by December, to graze the sorghum stalks, obtained freely or the through being purchasing from the scheme owners.

2.3 Strategies: Wet and Dry Years

Broader strategies include: diversification of animals, by raising more than one type, and incorporating of farming in the pastoral production systems. In a coming section, we shall see that many pastoral groups have adopted a third strategy, which is diversification of employment at household level, outside the pastoral production system.

Confining our discussion to livestock raising, pastoral nomadism is proving to be an unsteady and unstable economy, during the present generation of pastoralists. Adjustments to grazing inadequancies, water supply shortages, outbreak of diseases and marketing irregularities are among the acquired experiences of the pastoralists.

Droughts are not new to nomads. The Shukriya remember the drought they experienced during 1947/48, when they lost 20%, 30% and up to 60% of their camels, sheep and cattle, respectively. The Zaghawa had a severe drought spell during 1974/75, which caused great death of livestock, and forced out many of their population to head to South Darfur, and to the irrigation schemes. Famines experienced by the Beja were referred to before. The nomad's strategies to adjust to such havocs, centre around maintaining animals in order to emerge out of a bad year with some productive head, building back herds, and indulgement in other income generating activities, such as cultivating to raise crops, or migration for employment. These could further be detailed as follows:

Dry Years:

i. Keeping many females in the herd, which is being inaccurately cited by some writers on nomadism as a pastoralists attitude towards building wealth and prestige. It is an established strategy of nomads to emerge with some producing animals, in case drought or a plague strikes.

ii. During times of localized droughts, long distance migrations are adopted to solve problems of grazing or water supply shortage in a tribal 'dar'. Such movements were legalized and accommodated in the tribal politics.

iii. Pastoralists have resorted to feeding on hay, and more recently, 1962 and on, on grown and processed fodders. Hay in the past was fetched from near-by places. During the last decade, pastoralists began to purchase it. Feeding on hay and fodders is practised with a fatalistic attitude towards the future. Such attitude builds around the perception that rains 'come' from God; that bad years of rain are not new to pastoralists, and good years usually come after bad ones. Hence they feed on hay and grown fodders in anticipation that grazing will improve next season. This anticipation may be maintained for three successive years, as it proved to be so during the period preceding the drought of 1984. Since 1980 many families, among north Kordofan and north Darfur nomads, were holding their animals at watering places and selling part of them to purchase fodders to feed the rest.

iv. Getting rid of their livestock is the last strategy nomads resort to in dry years. The first to sell their animals are the poor, followed by the medium owners, with the rich ones coming last, since the latter have more means to manipulate a drought situation. Of the animals sold, the old ones, the males and the young, which require feeding, are got rid of first. Productive females are the last to be sold.

Wet Years

i. Maintaining a productive herd, through a continuous process of selection, by keeping good animals, getting rid of males and low quality ones, and acquiring fecund females.

ii. Recirculation of capital generated from sales of one type of animal in building a herd of another type, sheep, camels, versus cattle or vise versa, depending on the preference of the breeder, and the short-term marketing trends.

iii. Buying of young sheep to hold through the rainy season, and to sell in the next marketing season.

2.4 Ownership and Access to Production Factors

The dry and wet years strategies, as explored above, are still holding. However, it is observed that during the last five years which preceeded the 1984 drought and on, there has been a tendency of livestock consolidation in the hands of the financially capable among the pastoralists. This change is induced by a number of factors: internal transfer of livestock from the poor to the richer segments of the population, the rise in costs of production, including; water, wage of herders, salt and supplementary feeds and veterinary drugs; added to that the strong trend towards commercialization. Though no data is readily available on changes in herd composition, it is worth noting that, from the ages of animals trekked to the market centres as observed recently, there is a tendency among pastoralists to sell younger animals, which is an indication that livestock is presently only kept till an economic marketable age.

Regarding ownership nomadic societies have developed many mechanisms which facilitate acquisition of animals:

i. a newly born child is given a female from each type (Hadendowa),

ii. presented with a female camel (Kababish),

iii. given a cow by fathers' brother, in anticipation that he shall marry his daughter (Hawazma),

iv. first time child had his hair cut is given a female by his father (Kababish),

v. when son is married he is given animals by fathers' brothers and age-group agnates (all tribes),

vii. dowry is paid in cattle among the Nilotes, which is raised from the paternal and material kins, and equally distributed to brides relatives on same lines of blood relationship of the livestock givers,

viii. some heads of households divide their wealth among their sons during their lifetime, giving each his share when he gets married (all tribes),

ix. a newly married man would spend his first year with his in-laws living on their herd, till his first child is born then moves away, which gives time for his own herd to grow (Hadendowa),

x. raise animals by hiring himself as herder to others (all tribes),

xi. a number of persons will combine savings, buy a she-camel which shall be owned by one of them then the off-springs will be acquired in turn (Hadendowa),

xii. through purchasing animals (all tribes),

xiii. through partnership, which takes the form of relatives employed outside pastoral economy investing savings in animals with a share going to those tending them (all tribes), and

xiv. through inheritence (all tribes).

Within a tribal "dar", the use of land is organized on sub-tribal basis. Each sub-tribe, or a group of sub-tribes, will have a right over a certain land domain. The distribution of sub-tribes over the land was more strict in the past because there was plenty of land to accommodate all sub-tribal population and herds within a specific territory, and for protection reasons. This has been relaxed in the recent decades due to the prevalance of conditions the reverse to the above.

Outside tribally owned territory, the right of use of land is acquired through conventions and recognition bythe other users of such right, normally built over the years. This is regulated by tribal meetings, held every couple of years, or when need arises, to resolve problems of grazing or conflicts associated with land use. As a result of the principle of conventional rights to grazing resources, there exists a number of areas in the country that are commonly open to many tribes, Fig. 9. These include:

i. the Butana plain, utilized by the tribes of the Eastern, Central, Northern and Khartoum Regions during rainy seasons,

viii. Hafirs developed along Kassala/Port Sudan road during the construction operation of the road aided the settlement and gave access to land (Rashaida).

ix. Water-yards provided by government are often monopolized by tribal chiefs and wealthy livestock owners, by establishing priority of admission to their herds (Kababish).

x. Priority of use of a water-yard within a sub-tribal domain is granted first to the livestock of that sub-tribe, then outsiders (all tribes).

xi. Land for cultivation is possessed within sub-tribal territory. Those seeking to cultivate outside their areas, should obtain permission from the owners of the land, (all tribes).

xii. Outsiders are granted only one year land lease to cultivate, then land is returned to owner for fear of transfer of property in wadis to foreingers (Hadendowa).

xiii. In marriages, close cousins are favoured to others for fear of transfer of property, including land, to outsiders (Hadendowa).

2.5 Labour Organization and Division

Labour for domestic and herd requirements was wholly provided in the past from inside the family. Men took care of the animals and provided the necessary protection for herd and family, while women were responsible for the domestic needs of the household and helped in some of the herding activities. With the adoption of agriculture, men became engaged in the main farming operations, with women assisting in the sowing and harvesting of crops. This form of organization is still maintained, with division of labour going on same lines, except for two changes: resort of pastoralists to hired labour, and diversification of household employment pattern. The latter trend accelerated with the recent drought, whereby family members began to seek employment within home area, as well as, in other areas.

The head of the household assumes the role of supervision and the management of herders. A 'murah' of sheep (300 head) normally requires two herders to look after it. The same number is needed for a 'murah' of camels (100 head). Even a small number of cattle would require somebody to look after them communally as a combined herd of many owners, or as an independent herd owned by a household.

Herding involves management, protection of animals while grazing and extraction of water from wells every watering time, which explains the need for employing two persons per 'murah'. More hands may even be employed if water is to be extracted from deep wells. Hence, the number of herders required is dependent on the type of animal raised and the number of herds posssessed.

Wealth builds with age, and when sons are added to the family. For an average case of a medium owner, a son or two would be looking after each 'murah' of camels and sheep, assisted by hired herders. In the past

herders were paid in animals, one "hog" (a two year old camel), and 6-7 'tini', (13 months old lamb of mixed sexes), for herding a 'murah' of camels and sheep respectively for a one year period. Of the two seasons, the dry period entails more work from the herders, since they drive animals to distant grazing areas and have to fetch water for them, as compared to the wet period, which entails less labour.

Cattle were normally herded near settlements. In cases where the number was large, a special herder was assigned. Herds of only a few head were normally herded collectively. Goats, weak animals, ewes pregnant out of season, and small lambs, are kept in the vicinity of camps, and looked after by females and young boys.

At home, women undertake many domestic tasks, helped by their daughters and their young sons. The son would be looking after the small animals in the camp, and as early as eight years old, he would be assigned herding tasks. Female activities are quite diverse. They prepare food, grind grains, fetch water for domestic use, bring fuel wood, mend tents, tan skins, spin wool, weave rugs, make leather works and mats, process milk products, collect wild fruits and often raise chickens.

Milking of camels is normally done by men, while women can milk the other animals. There is no social taboo against women milking camels, but the animal is difficult for them to milk. Women help men in shearing of sheep (by bathing the animals) normally done at the beginning of the rainy season, or late in the cool period. Farming is another activity in which all members of the household participate, with the heavier operations, like weeding, done by men.

2.6 Social Organization of Production

The social organization of production could be discussed at three levels: the tribe, sub-tribe and the household. At each of these levels, certain roles are played, and functions pursued, in the production processes.

2.6.1 The Tribal Level

The tribe stood as a more integrated autonomous political and social unit in the past. Still it acts as the spatial and cultural unit for a pastoral group. Through various forms of representation: traditional leadership in the past, councilors in local government and regional assemblies, assuming offices in the one party system that ruled the country in the recent past, and through the role of the educated elite, the tribe maintained a kind of leadership that gave it a measure of autonomy and representation of the nomads to the outside world.

Whatever Leadership it engendered, there existed a mechanism which maintained the tribe's rights in regional politics. Achievements were quite mixed. Sometimes goals were attended, other times local interests were ruled by the autocracies of the national systems, and in many cases supressed by the personal drives of the tribal leadership itself. Despite such repercussions, achievement of tribal goals has been maintained in the following areas:

i. Guarding the right of the tribe over its land; despite the official stand that all land in the country is government owned, no tribal land has been exproportiated without giving priority in

future development to the indigenous population inhabiting that land. The Shukriya and their associated tribes own almost half the area of New Halfa Scheme, developed for the resettlement of the Nubians. Rufaa El Hoi recently got a promise to fifty mechanized schemes in Mazmoum area because they traditionally utilize that area for grazing. Tenancies in Gash and Baraka schemes are predominated by Beja population, especially the rich and tribal chiefs among them. In all these cases we are not discussing internal inequalities, as to whom the tenancies were allocated, but the principle that in the name of the tribe gains are achieved.

ii. Provision of water supply sources; through pushing proposals for new sites to be provided with water, in district, regional and national programmes of water provision.

iii. Development of services; through allocating a share for the tribe's area, in regional and national budgets.

iv. Concern about the organization of veterinary services, and close follow up of the provisions of these services at times of outbreak of plaques.

v. Representation in local government councils, regional assemblies, parliament, and the board of the LMMC.

vi. Convening of tribal conferences.

2.6.2 The Sub Tribal Level

The sub-tribe performs at an intermediate level, pursuing most of the above listed functions within its local domain. As in the case of the tribe, it lost some of its past vigour due to changes in decision-making processes, where individual interests are substituting group consent. Sub-tribal groups often function under co-operating, and at the same time, competitive situations. They collaborate to maintain the interests of the domain they inhabit in face of outsiders, while within that domain each pursues its own interests. Sub-tribal groupings contribute the following to the organization of production:

i. Guard the rights of the groups living within their domains, as related to grazing, water sources, cultivation, etc., through the functioning of local institutions e.g. leadership, courts, ad hoc meetings, etc.

ii. Settlement of disputes arising from conflicts in interests.

iii. Organization of grazing movements, especially during the rainy season, by monitoring the conditions of the pastures and the water supply sources to be used which involves sending out scouts and timing herd movement.

iv. Protection of the lives and the property of the members by raising men at times of danger, e.g. animal theft.

v. Maintenance of the running of the services existing in their areas.

vi. Representation in the local government councils.

2.6.3 The Household

For economic and social reasons related to factors such as more than one type of animal being raised, herd size, organization and division of labour, production and consumption requirements, the household is mostly comprised of an extended family unit. It is normally composed of a father, his wife(s) and their married sons. Even in cases where a son manages to separate his own herd, he would be living near his father. The encampment of this group would be made of the individual tents of the nucleated family units; at a distance from which there would be an encampment of another extended family, belonging to one of the heads of household's siblings group. The household plays the following roles in the social organization of production:

i. Reproduction to maintain its continuity and attain economic and social life goals.

ii. Provides and organizes labour for herding, agriculture and other domestic activities.

iii. Shares in the decision-making processes, in matters of herding, marketing of animals, arising social situations, etc.

iv. Markets products to raise cash and fulfil production objectives and consumption needs.

v. Generate income from employment activities outside herding through migrating males, to substantiate family cash resources and invest in building herds.

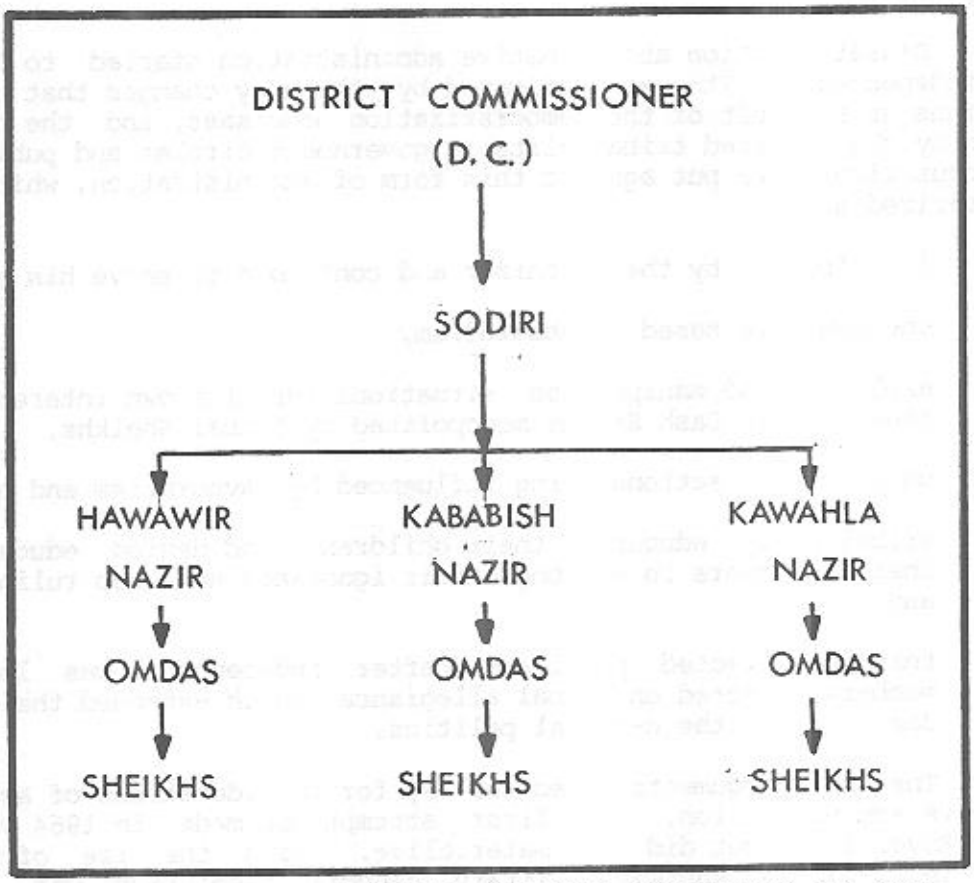
vi. Consumes collectively by purchasing all the family's needs, and in some cases organizes the preparation of food.

vii. Looks after the prosperity of its members through building herds for sons and assisting off-spring to attain life goals.

viii. Participate in broader community life through reciprocating socially and economically.

Through the above described three levels of performance, pastoral production systems are socially organized and maintained. Addressing the question of 'whether Sudanese nomad's economies can be thought of as parallel populations of people and animals reproducing together in time, the answer is 'yes' and 'no'. Yes, for those production systems which are still operating under balanced ecological conditions, where the herd is providing the family's economic and social needs. This could be true of the Nilotes of Southern Sudan, and to some degree of the Baggara groups. In these two cases herds have not deteriorated in numbers and condition as a result of the recent drought, and where agriculture is found to play a subsidiary role, while employment for generating incomes that go directly

FIG.(10) Native administration system, kababish.



SOURCE: M.O.EL SAMMANI, B.ABDALLA, G.ELTAYEB, M.M.SULIMAN, Aug. 1984.

in household substanence is of marginal importance. With the recent changes taking place in the Abbala systems, the answer could hardly be anything but no. If we are talking about a nomadic cultural hertige, the tribe under these systems still gives the pastoralist his identity, but the livestock economy, the way it stands, is short by itself of meeting the pastoralists' basic needs, especially with regard to the poor segment of the population.

Dissatisfaction about native administration started to build up after independence. It was instigated by the many changes that began to show signs as a result of the democratization processes, and the new roles assumed by the educated tribal elite in government circles and public life. Many accusations were put against this form of administration, which could be summarized as:

i. founded by the colonizer and continued to serve his ends,

ii. one-man rule based on absolutism,

iii. exploited and manipulated situations for its own interests e.g. tenancies in Gash Scheme monopolized by tribal Sheikhs,

iv. unjust, with actions being influenced by favouratism and nepotism,

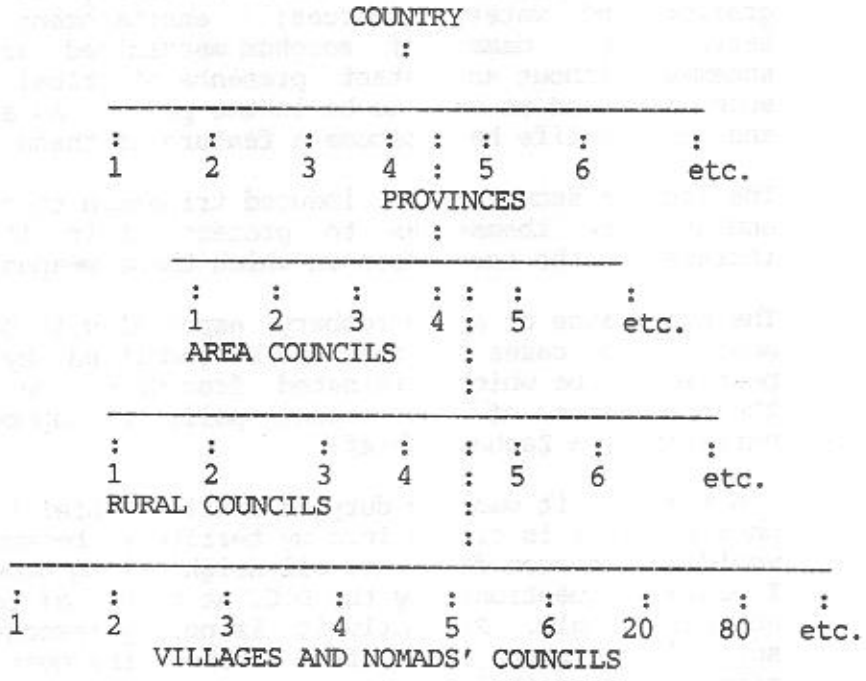
v. tribal heads educated their children, and denied education to their followers to prolong their ignorance and keep ruling them, and

vi. that the elected parliament, after independence was loaded by members selected on tribal allegiance, which extended their local dominance to the national politics.

The above arguments paved the way for considerations of abolishing the native administration. The first attempt was made in 1964 with the October Revolution but did not materialize. With the rise of the May Regime in 1969, a supreme military council resolution was enacted abolishing native administration. Some areas labelled as remote and difficult areas were exempted, including the whole of the Southern Region, some parts of the Nuba Mountains, the Ingessana Hills, and a number of pastoral nomadic tribes including the Kababish, the Amrar plus a few others.

The roles of the native administration were assigned to the Local Government Councils between 1969 and 1972. In 1973 a new Local Government Act was enacted 1/. It was founded on the philosophies of self-rule and self-reliance. Under the Act, the country was organized into provinces with new ones added. Under the Provinces, Area Councils were created and divided into Rural and Village Councils Units.

1/ People's Local Government Act, 1973.



The goals to be served by this elaborate system, as pushed by its propagators were many. High among them were:

i. breaking the forces of tribalism, which were viewed as obstacles to the processes of development,

ii. bringing decision-making to the grass-roots levels, to encourage effective involvement and participation in development, through mobilization of the resources of the rural masses, and

iii. facilitate the growth of the democratization processes through self-rule and self-reliance.

In 1983 a Regional Government Act was issued, adding to the above hierarchical set-up a Region tier on top of the provincial one. Accordingly, the country was divided into seven regions. During early 1986 a national conference on the future of Regional and Local Government was convened in Khartoum. The recommendations of this conference were adopted by the Government, and a new scheme for the organization of the Regions and the Local Governemnt set-up was put before the Council of Ministers for endorsement.

The changes in the system of government, accompanied by the abolition of native administration have seriously affected pastoral populations, and created what has come to be known as 'the administrative vacuum', the shortcomings of which could be highlighted in the following:

i. Increase in incidence of tribal conflict, due to a decline of grazing and water resources; encroachment on other tribal territories; damage of sorghum mechanized areas and irrigated schemes; without an instant presence of tribal power, to act on such situation as used to be in the past. As a result, bloodshed and loss of life have become a feature of these conflicts.

ii. The lack of security has induced tribesmen to own modern weapons and organize themselves to protect their livestock, with an increase in the incidences in which these weapons are being used.

iii. The appearance of armed robbery, especially in Darfur Region, with most of the cases reported to be committed by Bedayat gangs, a pastoral tribe which originated from Chad; becoming active with the occurrence of the recent political upheaval there. As narrated by a Zaghawa chief:

"in the past it was my duty as a tribal chief to raise my men once a robber is traced into my territory, because very soon he would be a common danger to all neighbouring groups. Also that I would be questioned by the D.C. at Kutum, as to why I did not act accordingly. Presently it is not my responsibility to do so, and if a group comes after a robber the most I can do is to offer them hospitality".

v. A very sharp drop in the collection of animal tax, since the system is entrusted to Local Government officers who are not educated in the psychology of the tribesmen, and only visiting tribal areas during the time of tax collection; not living with the pastoralists to know how the society functions. Also collection through the Local Government system is very expensive and inefficient, compared to its predecessor. It involves travel by vehicles, payment of incentives to the Local Government officers, and over-time to drivers and other accompanying workers.

2.7 Local Markets and Marketing Processes

2.7.1 Marketing Infra-structure

The main livestock markets of Northern Sudan are presented in Fig. 11, based on two criteria: an export function, and an internal distribution function to nearby consumption centres. Export centres normally combine both functions. The major markets for the pastoral tribes under the present survey, with the types of livestock marketed at each, are given below:

a. Omdurman

A national market for all types of animals, and a major market for the livestock of Western Sudan.

b. Eastern Region

i. New Halfa: emerged in the recent decade, as the main market of the region, for all types of animals.

ii. Gadaref: all types of animals.

iii. Kassala: sheep plus goats.

iv. Tambul: sheep, goats plus camels, recently it lost some of its importance as the major camel market of the Eastern Region to New Halfa.

v. Port Sudan: sheep plus goats.

d. North Kordofan Region

i. most of the intermediate centres of Dar Kababish, during darat period, mainly sheep.

ii. Mazroub and Umm Badir: camels.

iii. El Obeid: all animals.

e. North Darfur Region

i. Some intermediate centres of Mellit and Kutum districts, mainly sheep.

ii. Mellit: camels plus sheep.

iii. El Fasher: camels, sheep plus cattle.

iv. Umm Keddada: camels plus sheep.

2.7.2 Sheep Marketing

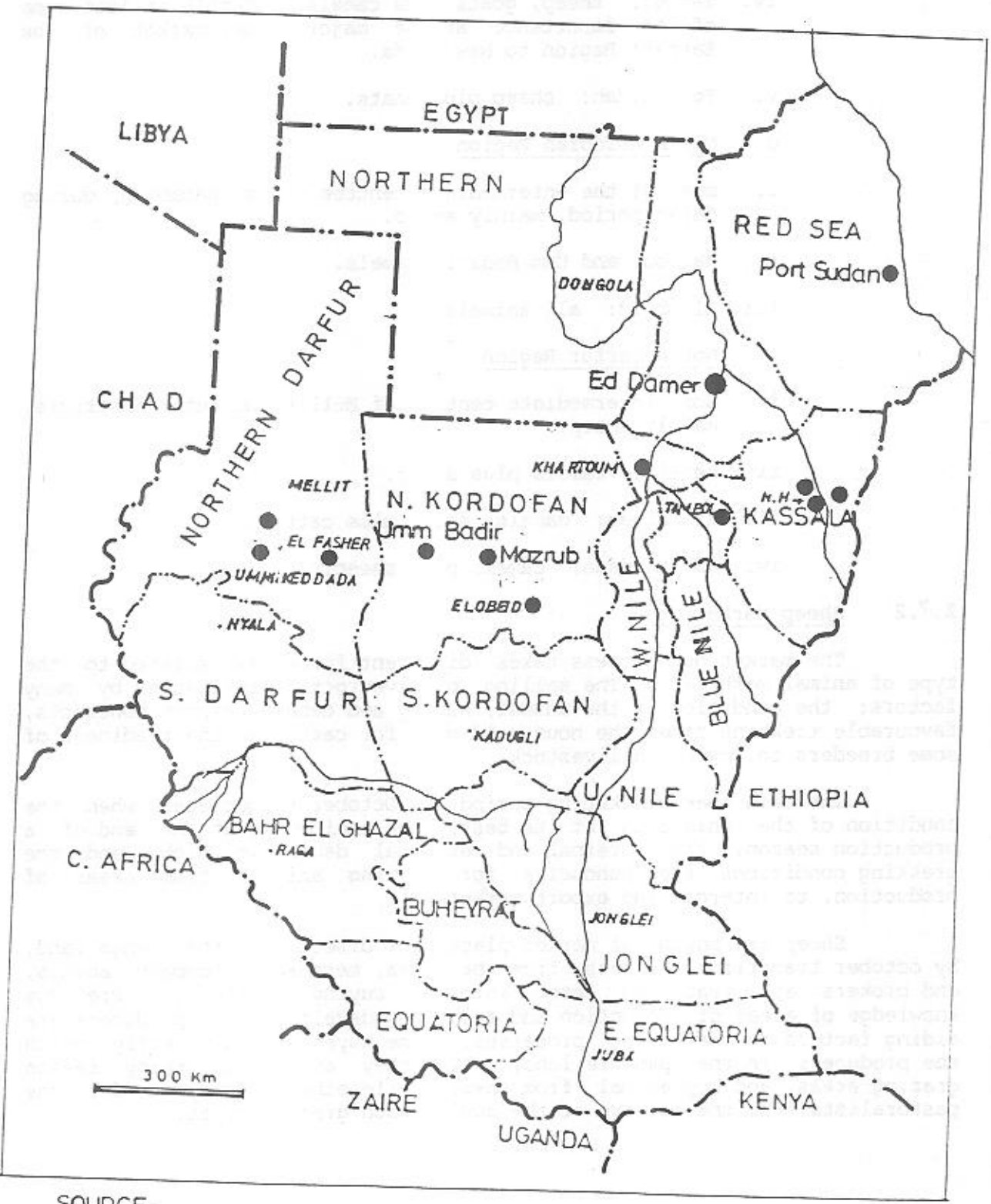
The marketing process takes different forms, as related to the type of animal marketed. The selling of livestock is influenced by many factors: the condition of the animal, supply and demand, export contracts, favourable trekking time, the household need for cash, and the readiness of some breeders to invest in livestock.

The main sheep marketing period is October to Decmeber, when the condition of the animal is at its best, the family is at the end of a production season, the internal and external demand is high, and the trekking conditions are conducive for driving animals from areas of production, to internal and export markets.

Sheep are bought at market places, or directly in the range land. by october traditional buyers, from the area, merchants, company agents, and brokers are ready to enter into the buying business. Previous knowledge of areas of production and relations developed with producers are aiding factors in the buying processes. Some buyers would directly reach the producers in the pasture land, while they are in the rainy season grazing areas, and buy animal from them; while others would wait for the pastoralists till they arrive at the cool season grazing areas.

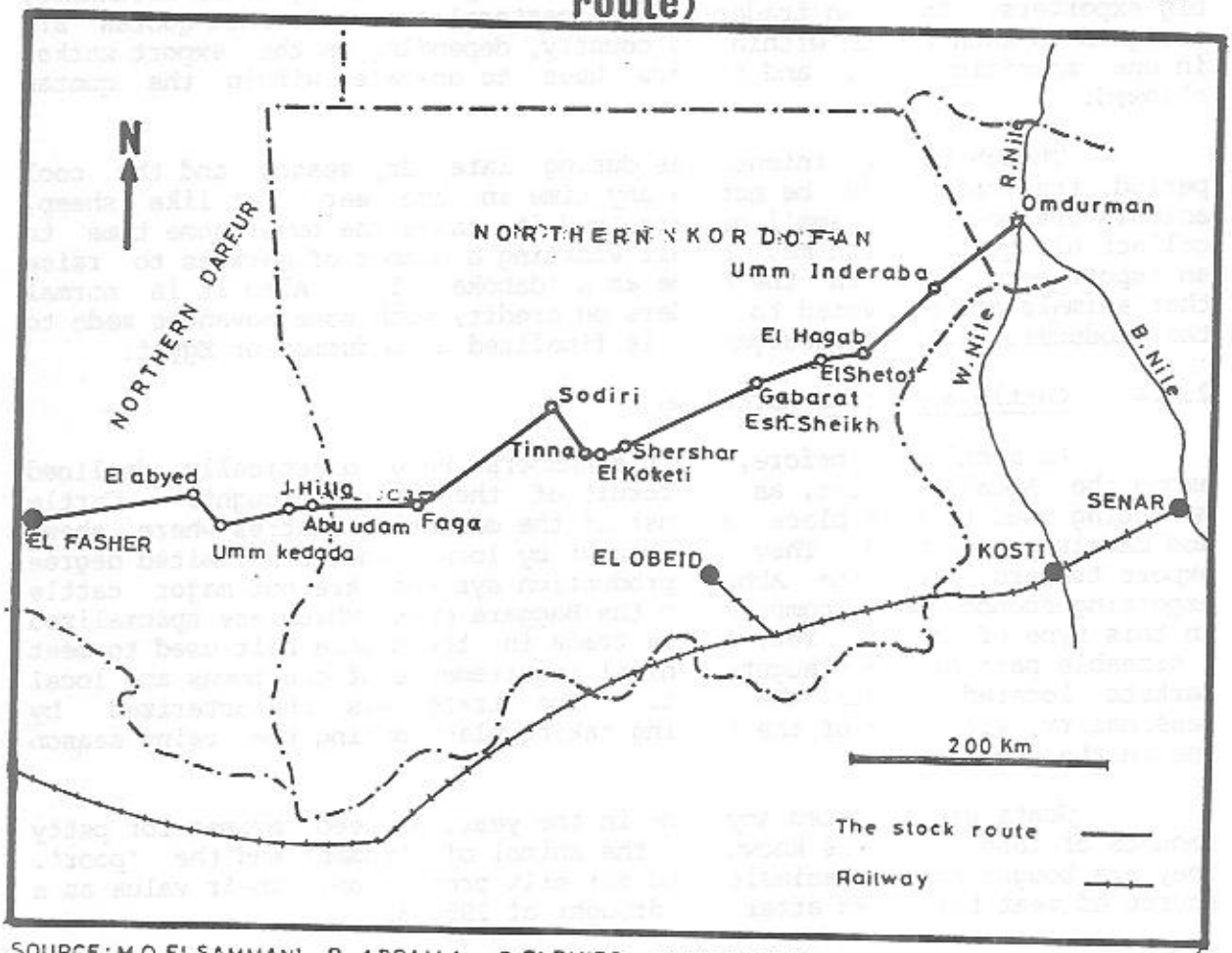
FIG(11)

LOCATION OF MAJOR LIVESTOCK MARKETS OF ABBALA PASTORALISTS



SOURCE:- Field survey findings

FIG. (12) The stock route elfasher omdurman (the northern route)



SOURCE: M.O EL SAMMANI , B ABDALLA , G.EL TAYEB , M.M. SULIMAN , Aug. 1984.

Buying is concluded through one of two systems; a direct transaction, whereby animals are bought and the value is paid to the producer, or through what is known as 'El Fasl'; whereby the value of the animals is settled, an advance is made to the producer, with the balance usually paid some months later, after the buyer markets the animals. Normally, the latter system is practiced when the market is saturated with animals, or because of a special relationship between a buyer and a producer.

2.7.3 Camel Marketing

Camel trade is oriented towards the Egyptian market, and to a lesser degree Saudi Arabia, and Libya. It is practised by local merchants, big exporters, Egyptian traders, and pastoralists. Defined quotas are assigned to each region within the country, depending on the export market in one specific year, and traders have to operate within the quotas allowed.

Though buying intensifies during late dry season and the cool period, the trade could be active any time in the year. Not like sheep, animals are bought in small numbers, and it takes the buyer some time to collect his quota, which may entail visiting a number of markets to raise an export herd, known in the trade as a 'daboka' 1/. Also it is normal that animals are delivered to traders on credit, with some advances made to the producer, till the consignment is finalized at Omdurman or Egypt.

2.7.4 Cattle and Goats Marketing

As mentioned before, cattle numbers have drastically declined among the Abbala groups, as a result of the recent drought. Cattle marketing used to take place at most of the marketing centres where sheep and camels are handled. They were bought by local, and to a limited degree export traders, since the Abbala production systems are not major cattle exporting economies, as compared to the Baggara ones, which are specialized in this type of animal. Yet, cattle trade in the Abbala belt used to meet a sizeable part of the slaughter-animal requirements of the towns and local markets located within the belt. The trade was characterized by seasonality, with most of the selling taking place during the rainy season and in the cool period.

Goats are marketed any time in the year, as need arises for petty amounts of cash. It is known as the animal of 'women' and the 'poor'. They are bought as meat animals, and for milk production. Their value as a source of meat has risen after the drought of 1984-85.

2.7.5 Organization of Marketing

Livestock marketing is organized through local markets, established at the district level, and supervised by the Local Government Councils. A sales fee is charged on the animals sold at the market places by market clerks. The amounts raised are collected by the Local

---

1. The ideal size of a 'daboka' is 115 heads, but could be anything down to 30 heads.

Government Councils, as a form of revenue. Another fee is the export tax, levied on the livestock collected for export.

An important function of the market place is the 'guarantor', a well known figure accepted by the tribe to guarantee sellers before buyers. He charges certain fees for his services.

The LMMC was set up to organize livestock marketing at national level. It links to the system of local markets, through its regional offices, and operates both internal and external trade. According to its establishment law it has the following functions:

i. formulation of internal and external livestock marketing plans and offers advices in this regard to the government, the producer and consumer,

ii. provides services and facilities to traders and agencies in livestock business to promote the industry,

iv. balances internal and external demand for livestock and meat, and

v. conducts researches and studies, to avail information on livestock supply and demand, and internal and external markets.

2.7.6 Livestock Trekking

The LMMC runs trains transporting livestock, mainly cattle from Southern Darfur, to the national market centre, Omdurman; and to the export harbour, Port Sudan. Recently, livestock is also being transported by trucks from areas of production, and from Omdurman to Port Sudan. Other than these activities, the greater part of the stock trade of the country is transported on the hoof. The time of trekking depends on the location and distance of the production areas, from the consumption and export centres. Stock traders target their operations to make the maximum use of the rainy season grazing conditions, to cover the distance between the two destinations. Figures 12, 13 and 14 exhibit the livestock trekking routes from Western Sudan, and the Eastern Region.

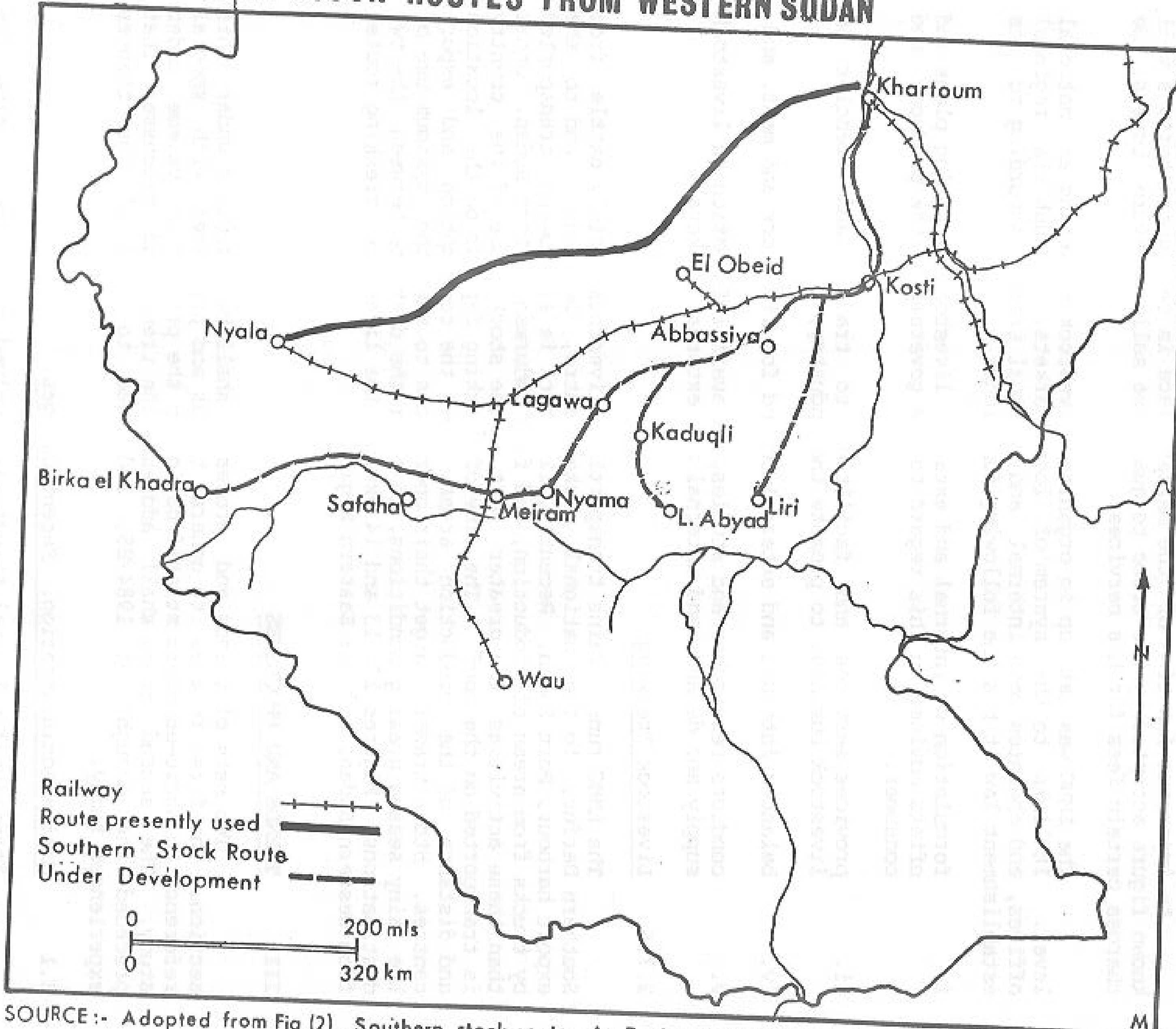
III. TRENDS AND PROCESSES

Two sets of trends and processes shall be discussed under this section. The first relates to general trends and processes, with special reference to socio-economic stratification in the production systems under study. The second group shall address the trend and processes that preceded the drought of 1984/85, and lead to some of the changes experienced today.

3.1 Native Administration: Recent Changes

Traditional political structures evolved over time. During the Turkish occupation period, 1821-1884, the tribal system was assigned a role in the administration of the country. The British revived this role, organized the tribes, and gave their chiefs self-rule over their areas. As described by a Zaghawa chief, the British gave power to an already existing traditional political system. This system culminated in the District Commissioner, which accounted for the strength of the system.

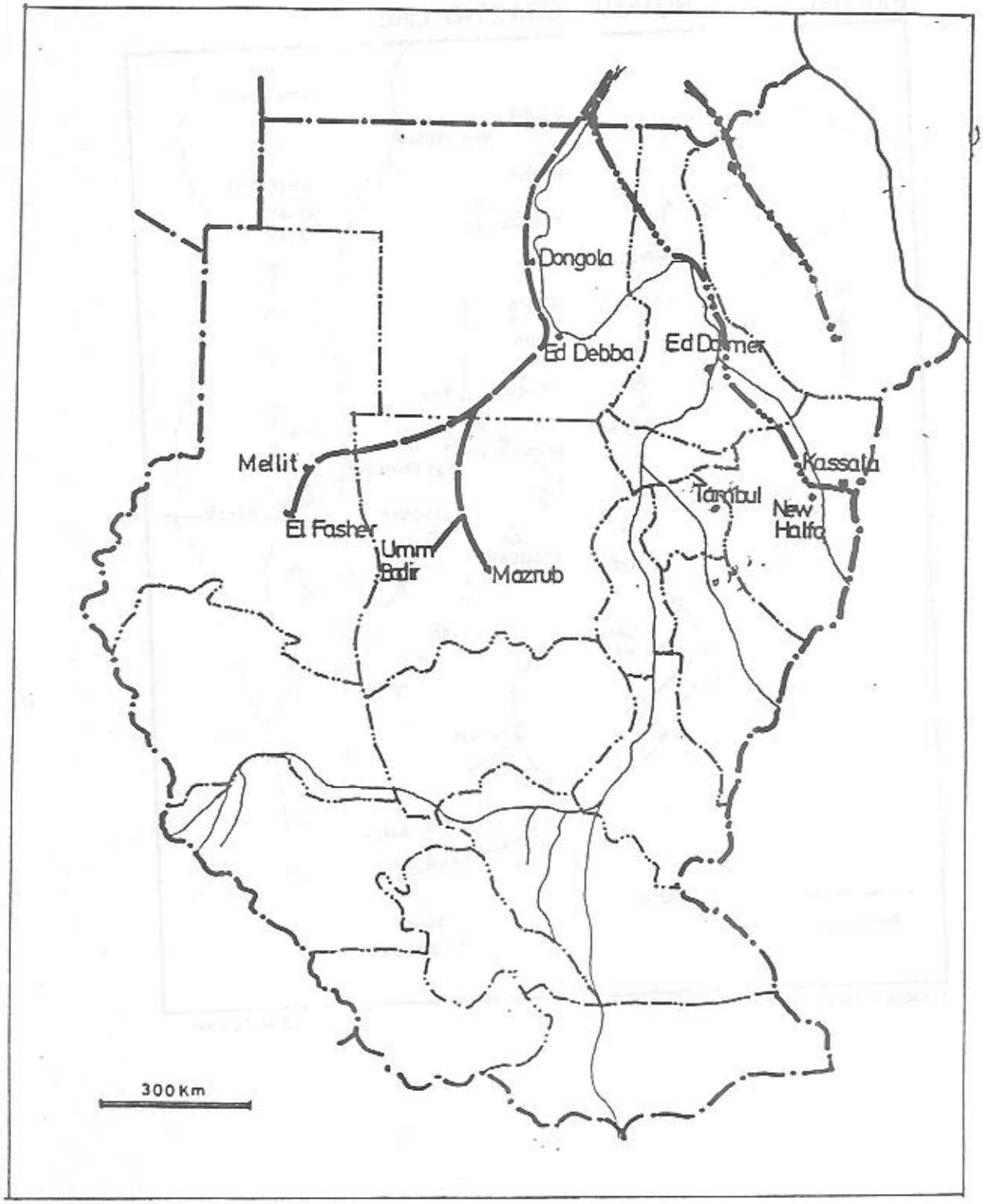
CATTLE STOCK ROUTES FROM WESTERN SUDAN



SOURCE :- Adopted from Fig (2). Southern stock route, An Environmental Impact Assessment, 1985

FIG (4.4)

CAMELS TREKKING ROUTES TO EGYPT



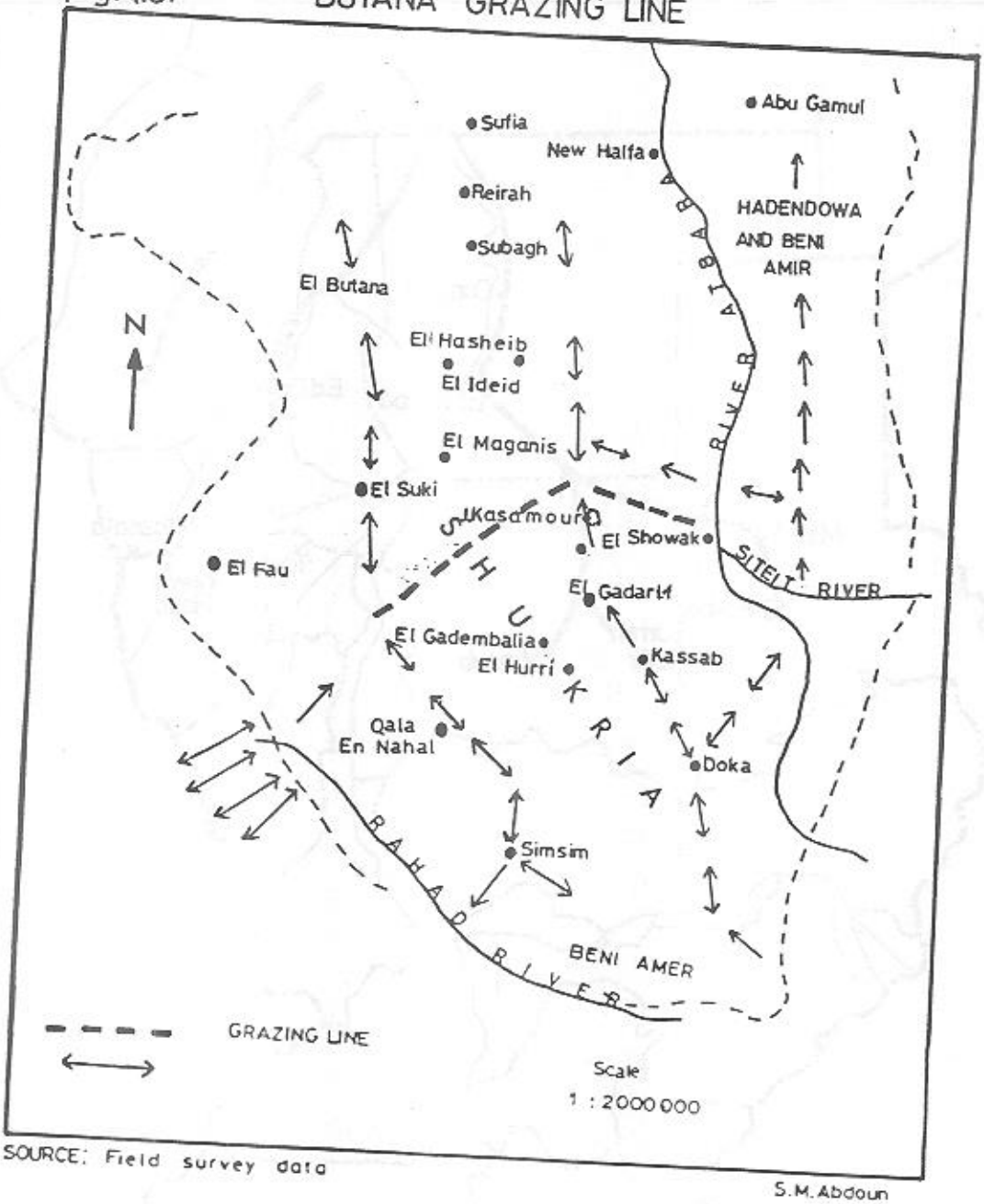
LEGEND

——— Trekking Route from western Sudan markets

———— Trekking Route from eastern Sudan markets

SOURCE:— Field survey finding

Fig. (15) BUTANA GRAZING LINE



SOURCE: Field survey data

S.M. Abdoun

The structure of the native administration followed the tribal hierarchy of: tribe, sub-tribe(s), and the agglomerations of related households within a sub-tribal unit. Concering with this order, the following structure of administration was founded:

i. Nazir, a paramount chief,

ii. sub-nazir or "sheikh khat", a senior chief (not existent in all tribes),

iii. Omda, a chief, and

iv. sheikh, head of village(s) or an agglomeration of nomadic households.

Figure 10 shows the native administration set-up of the Kababish. The system had administrative, taxation, judicial, and security powers, and was entrusted with the following responsibilities:

i. General administration of the tribes' area, as realted to maintaining peace and security, and the settlement of conflicts arising from resource use; with the same functions descending down to the lower tiers of the hierarchy.

ii. Organization and collection of a personal tax (abolished after independence) and an animal tax which normally followed three steps: revision, annually of the tax register book, with the Sheikhs and Omdas, to assess the amount to be taxed from each unit; collection of taxes by Sheikhs, and handing the amounts collected to Omdas, who would in their turn hand them to Nazirs (or under nazirs supervision deliver the sums raised to the district treasury).

iii. Running of courts which were operated at two levels: Nazara and Omodia, with some Omdas siting in the nazir's court, and Sheikhs in the Omda's courts as members. Courts were to look into all cases except those that involved loss of human life.

iv. Supervision of services in their areas and reporting on their performance.

v. Assist government departments in implementing their annual programmes, by disseminating information about such programmes and mobilizing labour efforts, including: opening of fire lines, digging of wells, and vaccination campaigns.

The Nazir and Omda were salaried officials of the local administration, while the Sheikh used to get up to 10% of the tax amount he would collect.

The administration vaccum in pastoral areas is a cause of concern in most regions. Gaps arising from the abolition of native administration were seriously considered in a scheme of revision by Kordofan Region, which saw that revtalization of native administration is a necessity. As a result of the Regions' efforts, the old system of native administration was reinstated in Kordofan in 1984, with some alterations.

Table 7: Summary of Tribal Grazing Movements during one year cylce

Tribe	Early Wet Season	Wet Season	Early Dry Season	Dry season
1. Shukriya		July - October Butana Plain Distribution governed by haffirs and natural ponds	November-February, New Halfa, Rahad irrigated schemes, and mechanized farming areas.	March-June Rahad-New Halfa, mainly on cotton remains.
2. Rashaida		June Area between Kassala town and Qoz Rajab with Khashm El Girba dam as dividing point between two locations. (1) Also Gash Delta Scheme.	December	River Atbara and Siteit.
3. Hadendowa	Their area experiences two rainy seasons : Summer rains July-October and Winter rains: March-July, so pattern is different from other tribs. - Summer migrations "Oleib grazing areas" on Red Sea Hills. - Winter migrations "Gunub grazing areas" on Red Sea coastal plain. - Other migrations; during summer and winter parallel to railway line between Haya and Dordeib, and during summer into Eriteria, and to Gash and Baraka Deltas.			
4. Kababish 5. Kawahla 6. Hawawir	June (2) - Central Kordofan: En Nahud District - Eastern Darfur: Umm Keddada District	July-October - Dar Kababish: Sodari District - North Darfur: Mellit, Kutum District(3)	November-December - Dar Kababish: Sodari District - Central Kordofan En Nahud, Bara Distr.	May-July - Central and Southern Kord. En Nahud, Bara Umm Ruwaba, Rashad, Dilling Rugel El-Fula and Kadugli Districts.
7. Meidob	June - Eastern and Central Darfur Mellit and El Fasher Districts.	July-October Northern and Eastern Darfur: Mellit, Kutum Districts, Umm Bayoda, Meidob hills and northwards.	November-December Northern and Central Darfur- Mellit and El Fasher Districts.	March-June Eastern, Southern Darfur: Umm Keddada, El Fasher, Ed Dain, Buram, Idd El Ghanam, Zalengi,(4)
8. Zeiyadia	June - Eastern and Central Darfur: Umm Keddada and El Fasher Districts.	July-October Northern Darfur: Mellit and Kutum Districts and northwards.	November-February Northern and Central Darfur: Mellit and El Fasher Districts.	March-June (Same as above) (5)
9. Zaghawa	June - Eastern and Central Darfur: Umm Keddada and El Fasher Districts.	July-October Northern Darfur: Mellit and Kutum Districts and northwards.	November-February Northern and Central Darfur: Kutum and El Fasher Districts.	March-June (Same as above)(6)

Remarks: 1) Before 10 years the Rashaida had the following mode of migrations :-

Rainy season: Area between Khashm El Girba and Gash Schemes, and area between Butana and River Atbara.

Dry season: Area of River Atbara and River Siteit into the interior of Eriteria, plus few going to Red Sea Hills.

2) These four movements are known by following terms among nomads of Northern Kordofan and Darfur, with also the same terms commonly used by Shukriya:

- Shogara = early wet season migration.
- Nishoog = Wet season migration.
- Darat = Early dry season "cool period" migration.
- Damar = Dry season migration (see also Fig. 17).

3) Previously Kababish and other North Kordofan, North Darfur groups used to migrate further north to Gizu grazing, erplained previously. This haulted for the last six years, but resumed this year (1989) with the good rains.

4) The Northern Darfur tribes had migrated to Southern Darfur Districts during the drought period.

5) Some adjustments back to Eastern and Central Darfur Districts took place during 1985, yet many herds still reach South Darfur.

Other regions are presently considering revisions on similar grrounds. The conference on Regionalism and Local Government referred to earlier, discussed this issue in depth and passed resolutions on new roles for native administration. It seems that the government is keen on this issues, and has already taken steps for the reinstatement of the native administration system in all regions of the country on new grounds.

More open use of once restricted tribal grazing resources is happening in all tribal areas primarily due to the relaxing of the grip of the native administration over the land. If we cite the Shukriya case, we find that in the past the Butana was divided into two grazing lands; communal pastures for all tribes coming to the Butana, and special pastures for the Shukriya tribe. Livestock from one was not allowed to enter into the grazing territory of the other. The wells in the Shukriya grazing area were not to be used by the animals of the other tribes, except travellers visiting for water. Trespassers into the Shukriya territory would be fined.

When native administration was abolished, things began to change in the Butana. The Shukriya grazing land long time back has come under continuous threat from other tribes. There is a noticeable increase in the number of cultivators in the Butana from outside the Shukriya tribe. Incidences of animal theft have risen considerably. Much of the good grazing has been degraded due to intensive use by animals. Also most of the old hafirs have diminished in capacity due to lack of maintenance and absence of supervision.

In places where tribal administration has maintained its power, we find that exclusion of herds owned by outsiders is still the rule. Two examples may be cited. The first is furnished by the case of Umm Sunta in Dar Kababish where the Nazir has his headquarters. The area around this centre which contains three bore-holes is fully reserved by the nazir for his livestock. The second example is Gereih Es Sarha Pastoral Scheme, which though officially developed with government funds as a pastoral co-operative, is wholly dominated by the Kawahla Nazir and his family.

3.2 Demographic Changes

There is a general trend towards sedentarization, which cuts across the various tribal factions in a pastoral population, instigated by a number of factors:

i. a physical separation between the household and the herd which has become a feature of pastoral production systems,

ii. provision of water sources which attract population and encourage settlement,

iii. adoption of farming, both under rain-fed and irrigation agriculture,

iv. pursuit of improved life conditions, including sending children to schools, access to health facilities, hygienic water supply, better housing, etc. which induced many of the rich pastoralists to choose settled life,

v. impact of migration in diversifying household income, and changing the social outlook of the migrant, and

vi. prolonged resource degradation which improverished many populations and forced them to settle down.

3.3 Land Changes

The large expansion of irrigation agriculture and mechanized farming in the clay plains has been coupled by an expansion of traditional crop farming under rainfed conditions in the qoz "sandy' country of Kordofan and Darfur. It is estimated that the acreage cropped in Kordofan increased from approximately 1.5 million acres in the early sixties, to 6 million acres by the beginning of the eighties. Such increases have resulted from the orientation of traditional farming to the world market, i.e. expansion in cash crops production.

Much of the expansion in cropped areas has taken place on the expenses of grazing. It has pushed crop farming into range lands, reduced the fallow period previously observed under the shifting cultivation system, with the result of increasing the acreage under crops in marginal areas. All of these effects diminished valuable grazing resources that were once available for the pastoralists.

The Butana plain could be cited as a case of land use conflict. Conflict between mechanized farming and grazing dates back to the mid 1940's. A plan to halt the expansion of mechanized farming activity at a certain line, which came to be known as "The Grazing Line" was drawn in 1948, and acknowledged by the regional authorities, Fig. 15. However and since then, the expansion of mechanized farming schemes, skipped this line north, mostly in the form of undemarcated schemes, (unplanned, hence illegally developed), many of which are owned by Shukriya and Badrab multi-business men 1/, combining farming, livestock raising and commerce.

Pressure on grazing land, taken for other uses, is not limited to the native population, and of recent there has been the refugee influx on many traditional grazing areas.

The decline in grazing resources has lead to an increase in conflict incidence between the pastoralists on one hand, and the pastoralist and the sedentary cultivators on the other. Many cases are filed annually against nomadic herders encroaching on cultivations, or cutting trees to supply forage to their animals. Some of the conflicts end in blood-shed and loss of life.

---

1. In a recent dicussion by the author with a group of them on issues of violation of the grazing line, they argued that if the land was not taken by them for cultivation, it would have been taken by others.

With regard to milk supply, both of the rural and urban communities in the past used to depend wholly on the animals raised by the household, or on the amounts provided by the milk sellers resident within these communities. Presently, the country is importing milk to agument supplies in both the rural and urban areas.

External Sudanese stock trade has flourished as of the late 1970's, with increased sheep exportation, and to a lesser degree, camels to Saudi Arabia and the Gulf States, and cattle to the Arab Republic of Yemen. The traditional camel export market of Egypt is maintained, however, reliable export figures are not available, since a sizeable part of the trade is done outside official channels. Some camel trade was carried out with Libya in the period 1969-73, then it was stopped because of the strained relations between the two countries which continued up to 1985. The present government has concluded a commodity exchange agreement with the Libyan government that includes export of livestock. The exchange value of stock export trade amounts to 60 million US$, making 13% of Sudan export value. The contribution of the livestock sector to GNP is in the order of Ls.600 million.

The impact of the export trade on the pastoral production systems could be summarized as follows:

i. A strong orientation of the producer to the external market.

ii. Promotion of sheep raising as the type of animal highly demanded by the market, which has created a dynamic situation of exchange between animals: camels into sheep, and attraction of investment in sheep raising.

iii. Development of commercial attitudes of production, and appearance of what could be termed as "the breeder-trader" who buys animals and holds them through the wet period, to sell in the next marketing season or the one after.

iv. Pushed the trend of stratification among producers into wealthy, medium and poor, by creating an internal dynamics of marketing.

v. Created a strong competition between the local and foreign consumer, which proved not to be in favour of the former. With a high profit margin, generated abroad, exporters are buying at prices not affordable by the local market, resulting in a rise of meat prices and a supply shortage.

vi. With selection of "Sadeis" rams as export animals, the local consumer is left with poor quality stock, with culle of owes making a high percentage of the daily slaughtered numbers.

vii. The development of export business, handled by companies and men with modern managerial capabilities, knocked out of business many of the traditional traders.

viii. Promoted the export trade of racing camels to Saudi Arabia, wholly handled by Rashaida stock traders.

Pastoral production being a sector of the national economy is affected by the overall performance of the latter. Inflation in prices of commodities is adjusted to by a rise in the value of sales animals, which may partly explain the annual increases in livestock prices. Price inflation has been going on since the mid seventies, and the nomadic areas are no exception.

Of the main items of trade on which a pastoral family spends, are millet for household consumption, and sorghum as supplementary feed for animals. For this reason pastoralists developed interest in farming and are annually cultivating. Some estimates of the amount of millet produced yearly by a 1 household in a normal year is in the order of 12 sacks 1/.

This discussion points clearly, to the strong interrelationship between crop production and livestock raising in pastoral economies. The figure of 12 sacks of millet, as an average household consumption requirement per annum applies, with some increase to medium and rich owners, who adopt similar strategies to maintain the household grain supply. Hence, the exchange value of livestock to grains is the major variable which determines the equlibrium between the two economies. With a successful harvest, or adequate grains in the market, at reasonable prices, less numbers of livestock are sold by the household to exchange their value into grains, and the reverse occurs when grains become scarce and their prices shoot up.

Crop and livestock market data indicated that withthe sharp rise in sorghum prices, the prices of livestock dropped tremendously during 1984, meaning that more units of livestock were exchanged for less units of sorghum. The cumulative loss in livestock numbers during 1984 and the years which preceded the drought, coupled with a rising demand for animals and the low prices of sorghum during 1985/56, reversed the trends during 1985/86.

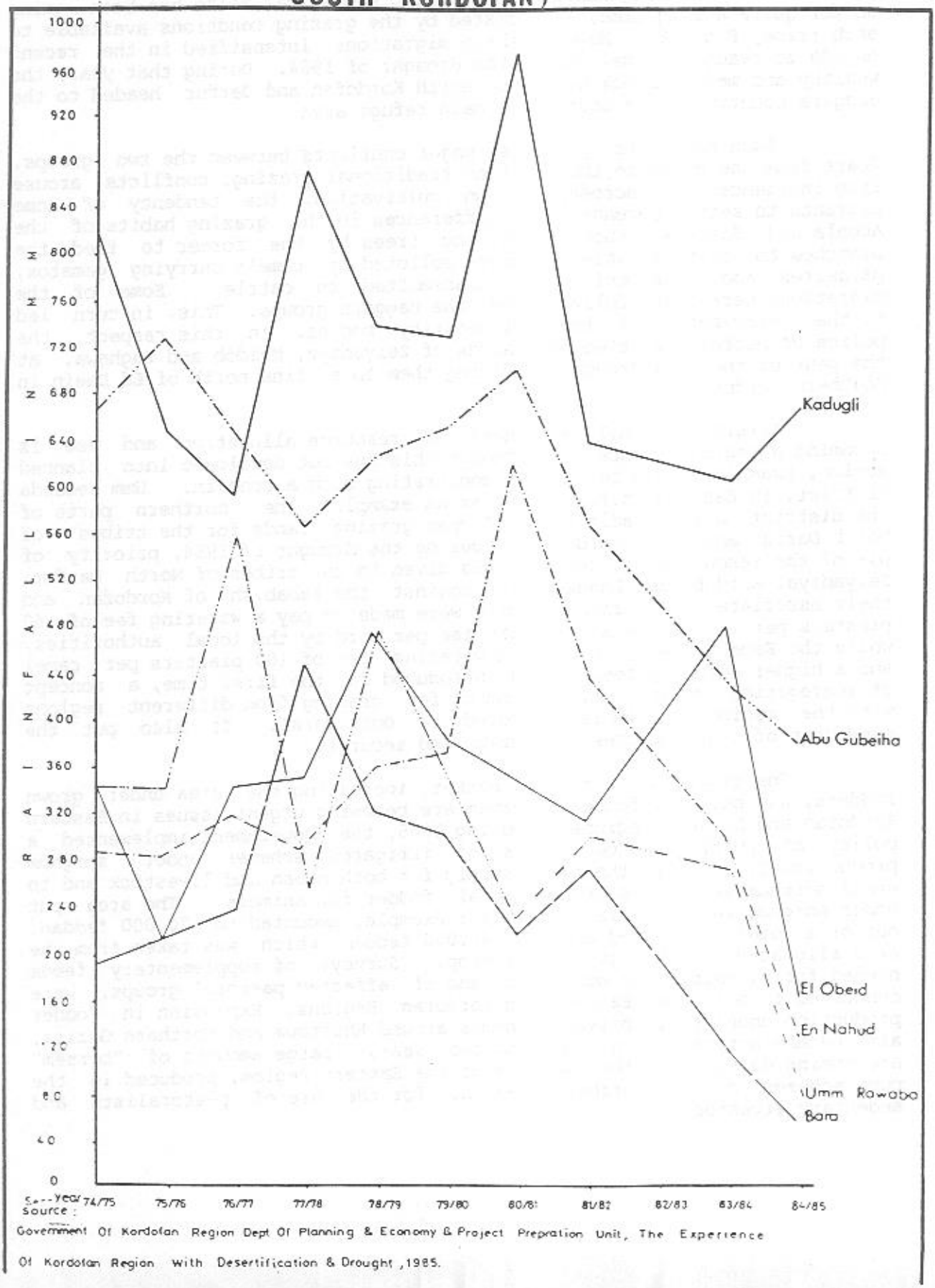
The United Nations Food Emergency Operation Programme Office at El Fasher, which was closely monitoring the situation of livestock and grain prices, furnished data for the first 6 months of 1986, Fig. 16, which substantiate the previous findings. From these data, 1986 looked to be a compensating year for those pastoralists who still own herds. It can be concluded that for the benefit of both the sedentarists (cultivators) and the pastoralists (livestock raisers) and the national economy as a whole, the two production systems have to be economically integrated at the national and the regional levels.

3.5 Changes in Resources Allocation and Control

Complementary to the picture sketched previously, of the major changes in resource use that accompanied the rise of irrigation and mechanized schemes, other changes in resource allocation related to land and water use shall be discussed, at three spatial levels: regional, tribal domain, and individual user.

1/ 1 sack is 95 kg.

FIG. 17 DISTRIBUTION OF ANNUAL RAINFALL IN SIX SELECTED STATIONS (THREE EACH IN NORTH KORDOFAN AND SOUTH KORDOFAN)



Source: Government Of Kordofan Region Dept Of Planning & Economy & Project Prepration Unit, The Experience Of Kordofan Region With Desertification & Drought, 1985.

Southward migrations into wetter ecological belts has been going on for quite a long time, as dictated by the grazing condtions available to each tribe, Fig. 5. However these migrations intensified in the recent decade to reach a climax during the drought of 1984. During that year, the wealthy and medium stock owners of North Kordofan and Darfur headed to the Baggara country in the south as a main refuge area.

Such movements, generated major conflicts between the two groups. Apart from the pressure they put on traditional grazing, conflicts arouse from incidence of encroachment on cultivation, the tendency of some migrants to settle permanently, differences in the grazing habits of the Abbala and Baggara, such as cutting trees by the former to feed the branches to animals, water sources polluted by camels carrying gamatox, parasites and ticks which are transmitted to cattle. Some of the migrations were fiercefully met by the Baggara groups. This, in turn led to the intervention of regional security bodies. In this respect, the police of Darfur collected the herds of Zeiyadiya, Meidob and Zaghawa, at the peak of the 1984 drought confining them to a line north of Ed Daein in Southern Darfur.

Arising regional awareness of resource allocation and use is becoming a regional concern. Though this has not developed into planned action, examples could be cited demonstrating such a concern. Umm Keddada district, in Eastern Darfur, provides an example. The northern parts of the district are traditional of open grazing lands for the tribes of North Darfur and North Kordofan. During the drought of 1984, priority of use of the resources of the area was given to the tribes of North Darfur: Zeiyadiya, Meidob and Zaghawa, as against the Kababish of Kordofan and their associates. The former three were made to pay a watering fee of 40 piasters per camel plus a security fee per herd by the local authorities, while the Kababish were charged a watering fee of 100 piasters per camel and a higher security fee. This introduced for the first time, a concept of segregation between animals coming for grazing from different regions with the region's animals favoured to outsiders'. It also put the precedent of charging fees on grazing and security.

The growth of a fodder market, increasing the area under grown fodders, and building fodder reserves are becoming urgent issues in Eastern Kordofan and Darfur Regions. During 1985, the government implemented a policy of putting large areas of irrigated schemes under sorghum production to increase the grain supply for both human and livestock and to avail sorghum stalks as an additional fodder for animals. The area put under sorghum in New Halfa Scheme, for example, amounted to 70,000 feddan, out of a total cultivated area of 145,000 feddan, which was taken from the area allocated to the groundnuts crop. Surveys of supplementary feeds needed for livestock around towns, and of affected pastoral groups, were conducted in both the Eastern and Kordofan Regions. Expansion in fodder production under small private schemes around Khartoum and Northern Gezira, also became noticeable in the last two years. Large amounts of "bersem" are coming daily, into the markets of the Eastern Region, produced in the pump schemes of the Northern Region, for the use of pastoralists and sedentary livestock.

All these examples demonstrate a growing dependency on new fodder resources, and emphasise the need to agument natural forage with grown fodders, which are indicators of the prospects for developing feeds industries.

Access to sorghum mechanized schemes under the cause of lost tribal land is represented by two cases: Shukriya and Rufa'a El Hoi. The first case was explained before, of Shukriya wealthy farmers laying hand on the land north of the grazing line, and turning it into sorghum schemes. As for Rufa'a El Hoi, the expansion of mechanized farming in the area of Agadi, Dali and Mazmum, which was a traditional grazing and land of the tribe, turned part of their territory into sorghum schemes. Recently, and in the name of the tribe, their old traditional leadership managed to secure a promise from the Central Region to 50 newly demaracted schemes. It is most probable that these schemes will be allocated to the richer segment of the tribe. However, it is a step towards acquiring back tribal land, though under another form of use, as well offering a possibility for the integration of crop production and livestock raising.

Developing access to grazing resources through owning well takes one of two forms: monopolizing the use of a water-yard, or digging a well in an area recognized as a communal grazing land. The former type is practiced by influential tribesmen, who through their prestigeous status establish a priority of access to watering their herds in a water-yard, though it is provided and managed by the government and is presumably open to the community. Digging of wells, on the other hand, is developing at many sites in Dar Kababish, as well as in the bordering area of Eastern Darfur which is conventionally recognized as a buffer zone open to all tribes. Individual well ownership, as a device for securing access to settlement and grazing sites, is becoming one of the headaches of the Kababish pastoralists in recent times, and the issue is continually raised in tribal conferences.

Attempting irrigated crops near traditional watering places; of limited occurrence, but is indicative of a new trend. This was attempted during 1984 at Umm Badr lake site in Dar Kababish. The year being a bad one, with no grazing and no livestock to utilize the lake water, the nazir of the Kawahla hinted to some of his followers to use the water for irrigating crops. Small parcels of land were put, under sorghum, fodder and vegetables. Similar experiments were reported to take place at Wadi El Milk. The experience is also verified by the author's recent visit to Dar Kababish, where he found at Gabrat Esh Sheikh two enclosures set by destitute families, to grow vegetables at the bottom of the wadi.

The above changes have emerged from the recent drought. Yet, the practice of growing irrigated crops in small or large acreage has expanded considerably in the last decade or two in the semi-arid belt. Sites like Mellit, Sag En Naam, Wadaa etc. in North Darfur, Tinna and Kherian area in North Kordofan, and the many wadis of the Red Sea Hills, offer a potential for small water harvesting and spreading schemes, to improve the water supply situation and expand crop and fodder production.

Growing interest in grazing enclosures; practiced by the Rezeigat tribe of Southern Darfur who began to establish these enclosures about the mid 1970's. The activity started as a small farmed area enclosed in the bush with dead thron branches. Gradually sites grew in number, and increased to sizeable acreage, to be utilized as grazing reserves as well. The setting up of such enclosures has lead to conflicts between the owners and the nomads utilizing the area. With the grazing they avail, for individual owners' stock, they offer a model of "traditional" ranching which is open to promotion.

The left-over from the sorghum crop after harvest is put to four modes of usage. The most familiar one is to leave it free to be grazed by nomadic livestock, which was the practice up to a very recent time. A new mode, of use which emerged in the last five years, is to sell schemes remains to livestock owners. A scheme of 1500 acres is sold at Ls.500, 1986 price. A third mode is to burn the stalks which is practiced by many scheme owners, for fear of introducing new weeds, transported in animal droppings, which would involve extra weeding costs. The fourth mode of use is the preserving of the left over, by scheme owners for their own herds. This last practice has developed considerably among scheme owners during the last decade, especially those of Shukriya origin.

Sorghum stalks are becoming an important source of grazing for pastoralists herds in the Eastern Region. Livestock owners complain of being charged fees for the left over, and of the practice of burning the stalks. The huge amounts of readily available fodders in these schemes present a scope for the integration of crop-farming and livestock raising, which requires adopting policies that shall lead to such integration.

This shall be discussed under five production variables: water supply, salt, fodders, veterinary drugs, and salaried herders.

(a) Water Supply

Water sources may be examined under three types:

(i) Freely obtained water; normally available during the rainy season and is obtained from the direct rains, or that collecting in natural bodies; pools, wadis and lakes. Some of these bodies may last for some time after the rains, and are usually utilized during the cool period "darat' grazing. Free water is also obtained from the canals of the irrigation schemes, and the rivers, by those groups coming in contact with these systems. Finally, it is obtained from hafirs provided by the government for open communal use, though recently some district councils started charging prices on hafir water.

(ii) Privately owned water; in form of hand-dug-wells and small hafirs. Hand-dug wells are existent in Wadis and other appropriate sites that have shallow ground water aquifers, or replenished annually by water courses. Some wells are permanent, while others are temporary; dug or mended at the beginning of the dry season. Small capacity hafirs exist in the Butana, owned by sub-tribal units or individual households. They are annually filled from water courses or from locally designed catchments. They normally last up to the end of the cool period, December-January. Water from the two sources is freely obtained, but involves a cost of extraction in the case of the former, and of maintenance in the case of the latter.

(iii) Government managed water sources; including water-yards (made of 1-4 tube-wells) hafirs, dams, and permanently lined hand-dug wells. The government provides and maintains all four types. No fees are charged on the water of the last three sources, except for recent interventions by some ditrict councils, charging fees on hafir water. Water-yards stand as one of the major sources of water supply for nomadic livestock during the dry period. The rates charged vary from one region to the other, and are continuously increased.

Within the above frame, the changes that have taken place in relation to pastoralists access and use of water sources, may be summarized as follows:

i. More dependency on artificially provided water sources during the dry period, for those groups operating away from rivers, whether water is obtained freely or at cost.

ii. Rise in the cost of water extraction during the dry season - October to mid-July - for which a livestock owner budgets in his annual herd expenditure.

iii. This cost may be in the form of a herder's salary, being employed in extracting the water, or as a cash payment for obtaining the water.

iv. Increase in the number of privately owned wells with the owners extracting water to sell.

v. Growth of a large labour force at the well-fields, employed in the digging and maintenance of wells and the extraction of water, partly induced by the marginalization of many pastoral groups.

vi. Use of diesel driven pumps, privately owned and operated for the extraction of water for sale, e.g. Tinna in Dar Kababish, Brush, Jebel Hilla and Umm Keddada in Eastern Darfur.

vii. Bribing of water-yards clerks to get priority of access to the yard, or to operate the pumps to supply a herd in critical need for water.

viii. Purchase of petty amounts of diesel to accompany the herd, so as to be handed to a water-yard clerk to run the pump, in case the water station is out of fuel.

x. Purchase of water at very high prices, to maintain the herds grazing at good range sites; as high as 80 piastres per 4 American gallon tin is paid for watering sheep at Mazroub for example,

- continuous rises in the prices of water.

(b) Salt

Salt is a very important item in sheep breeding, and for camels too. It is taken by animals dissolved in drinking water to compensate some of the salt deficiencies in forages. It is obtained from Port Sudan, Shershar and Gaa (in Northern Kordofan) or from the Meidob area in Northern Darfur.

Sheep are given salt three times a month in the dry period (December to June), while the number of times increases during the rainy period, up to three times per week. A flock of 300 sheep requires 75 pounds of salt for the 7 months of the dry period, and about 500 pounds for the 5 months of the rainy season. With more inclination towards sheep raising, pastoralists are spending considerably on salt. At 1985 prices, the above amounts required for a flock of 300 sheep would cost Ls. 200.

(c) Purchased Fodders

With the decline in range resources, pastoralists are resorting to purchasing fodders to supplement natural forage. Three types of fodders are in use:

i. Hay, more practiced by West Sudan groups. Up to late 1960's, hay was only collected or purchased in small amounts to feed the few animals kept at the camp site. Presently, it is very familiar to see large amounts of hay stored at settlements or at camps, as supplementary fodders, or to be used as a source of feeding when need arises. Trade in hay has grown considerably since 1980, at both the intermediate centres and the major towns of North Kordofan and Darfur. A camel of hay fetched Ls. 12 in Dar Kababish in 1983. Today'sprice at El Fasher is Ls. 50. The growing trade in hay is employing many of the poor pastoralists, selling it at market places.

ii. Grown Fodders, presently finding their way to most pastoral groups. The familiar type used for quite a long time, is the remains of crops of one's own farm, collectd and stored for use during the dry period. Later on, nomads of the Eastern and the Central Regions adopted grazing of the left-over of cotton in irrigation schemes, and of sorghum (also pastoralists of Kordofan) in mechanized farming areas, which we discussed at length.

Abu 70 (Sudan grass) and Bersem are in wide use, with varying degrees in different regions. While the two types are fed to animals in the Eastern Region, we find that Sudan grass and sorghum stalks, were heavily resorted to, by North Kordofan and Red Sea Hills nomads, during the drought time. They were transported in large amounts from areas of prodution to save herds, or maintain them on the way to markets. Feeding on grown fodders has now become an established item in nomads' annual production expenses.

iii. Indutrial fodders; these are mainly oil seed cakes with the cotton seed type as the leading one. Its use began to spread in the early 1960's. Presently it is a common trade item in small centres' shops. It is either bought locally from these shops, or imported in large amounts from the major market centres. Cakes are fed to animals in small amounts, as a supplementary feed, mixed with impounded sorghum. With the shortage in oil seeds experienced by the country during the last three years, cakes prices have escalated, from Ls. 20 to the sack in 1983 to Ls. 100 in 1989.

(d) Veterinary Drugs

The use of vaccines is widely spreading in pastoral areas. Poastoralists are annually bringing their herds for vaccination, for which they pay minimal rates compared to the cost of the service. They also take their animals to veterinary hospitals and dispensaries for treatment, which they get free. A new dimension added to this picture is the development of veterinary drug stores (locally known as pharmacies) selling drugs to pastoralists. Owners of pharmacies rate their performance as successful, due to the lack of drugs at the Department of Animal Resources, which still provides a good part of the drugs and vaccines. Drugs that are mostly purchased are antibiotics, plus those used for the treatment of Trypanosomisies and Helimenthies. The problems faced by the pharmacies include: lack of foreign currency for the importation of drugs, unlicensed trade in drugs, smuggling of drugs to the neighbouring countries, the high selling prices fixed by the government, and the high tax levied on the pharmacies.

(e) Salaried Herds

As a Rashaida tribesman commented "paid herders are becoming kings and we have to meet their terms". Dependency on salaried herders has grown tremendously during the last 10 years. The main forces that led to this, include: animals demanding situation for labour, more education among family members and migration for employment in better paying jobs. These factors created a labour shortage from inside the family, with most households resorting to salaried herders. With a rise in the demand for labour, herders terms of payment have changed, from being paid in animals to cash payments. Monthly salaries differ from one tribe to the other. On the average it is Ls. 150 and Ls. 300 for a "murah" of sheep and a "murah" of camels respectively. In addition to the salary, the herd owner has to meet the cost of food, buy the herder clothes twice a year, and provide him with a donkey or a camel to ride on.

Though the household is still the main supplier of labour for the management of the herd, it is observed that male household members are weighing the comparative advantage of traditional employment in herding, with employment opportunities outside the pastoral economy. The range for such opportunities has widened in recent years, with the possibilities of emigration to the neighbouring poetroleum countries, where there is an increasing demand for herders to look after racing camels, which have become a fashion to own in these countries. With this should also be mentioned, the other forms of casual employment available there.

Education of nomad's children is also causing frustration among the young, to pursue traditional kinds of employment like livestock herding. This, with the other socio-economic transformations taking place in the nomadic societies, have added to the labour problems of herd management. Presently, those who are not facing such problems among the nomads are households which have adequate numbers of grown up sons who can meet the alternatives of availing labour for the herd, besides emigration from among them by those interested.

It can be concluded with regard to the labour situation that women and children are still pursuing their traditional role of tending small animals and livestock, that for one reason or the other are associated with

the nomadic dwelling. The head of the household and one or two of his grown up sons, if available, would be managing the main herd assisted by salaried herders.

In many instances, herders own a few animals, which they combine with the livestock they are paid to look after. Among the Kababish, a good herder is even financed by his employer to buy animals and build a herd, or raise profit from the buying and selling of livestock, as an inducement to continue in the service of his employer.

3.6 Social Changes

Under this section changes in income distribution, decision making, and decline in self-help mechanisms, shall be discussed, as some facets of change, taking place in pastoral communities.

The stratification of pastoralists into rich, medium and poor, in terms of livestock ownership, discussed at length, has generated disparities in income distribution in pastoral societies with regard to income raised from the herd. However, for many pastoral groups, owning livestock is no longer the yard-stick for measuring household prosperity, since other gainful economic activities are pursued widely, adding substantially to household income. The degree of change is variant from one community to the other, but generally has resulted in a diversification of pastoral economies, and the fusing of incomes raised from livestock and those activities outside livestock production into each other.

Major economic activities, other than livestock raising in which pastoralists are indulged include: agriculture, livestock trade, livestock export trade, transport, immigration for employment abroad, and migration as wage labour. Practicing any of the above is conditioned by a number of factors which apply differently to each case, such as the ecological zone in which a pastoral group exits, opportunities of investment in agriculture, built-in experience of exporting livestock and proximity to export markets, wealth status of the individual, connectivity to outside systems, etc. An attempt at assessing the degree of fusion of these activities under different tribal set-ups is furnished in Table 8.

The activities specified in Table 8 are practiced in varying combinations, with a tendency for agriculture and migration for employment to cut across all segments of the population, while the remaining four activities are mostly practiced by the wealthy pastoralists, except for trade in livesock, which is practiced too by medium owning groups.

Working out household or per capita income is a tedious undertaking without conducting detailed surveys. An alternative indicator for measuring of welfare level opted for was nomad's perception of a comfortable life. Among the Shukriya the indicators mentioned include:

i. Ownership of 80 and 300 heads of camel and sheep respectively.

ii. A shop at one of the main towns - New Halfa, Gedaref.

iii. Ownership of a mechanized farming scheme and a tractor for rent.

iv. Ownership of a lorry to be rented for transport.

v. Acquisition of a "hawasha', tenancy at New Halfa Scheme.

Table 8: Degree of fusion of non-herding activities under different tribal groups

Tribal Group	Agriculture			Livestock Trade			Livestock Export			Trade			Transport	Wage Labour		Emigration-for Employment		
	Traditional Rainfed	Mechanized	Irrigated	Sheep	Camels	Cattle	Sheep Saudi Arabia	Camels S.A.	Camels Egypt	Running shop	Trade in crops	Other business	(owning lorries)	Within area	Outside area	Saudi ARABIA	Libya	Yemen/IRAQ
1.Handendowa	x	x	x	x	x	x			x	x	x	x	x	x	x	x		
2.Shukriya	x	x	x	x	x	x				x		x	x	x	x	x		
3.Rashaida	x		x	x	x		x	x	x	x	x	x	x	x	x	x		
4.Kababish	x			x	x				x	x							x	x
5.Kawahla	x			x	x				x			x	x	x	x	x	x	x
6.Hawawir	x			x	x				x				x	x	x	x	x	x
7.Meidob	x			x	x				x				x	x	x	x	x	x
8.Zeiyadiya	x			x	x				x	x			x	x	x	x	x	x
9.Zaghawa	x			x	x				x				x	x	x	x	x	x
10.Baggara	x		x			x									x	x	x	x

Remark: i) Practice of an activity is indicated by a (x) sign.
ii) Baggara cited for comparison.
(x) This applies to Baggara of the White and Blue Nile Sections.

Source: Field Survey Results.

This is how the well-to-do Shukriya presently look, ascertaining the transformation from pastoralism that has occurred in this society, as a result of the rise of mechanized farming in Southern Gedaref and the establishment of New Halfa Scheme in the Butana area.

A similar assessment of welfare was tried for two groups among the Rashaida: a well established one, and some of those impoverished by the 1984 drought. The results are as follows :-

(a) The well to do group:

i. Exporting camels to Egypt,

ii. breeding 100-300 heads of camels,

iii. owning a small Toyota pick-up to rent for transport,

iv. owning a tenancy at New Halfa Scheme, and

v. cultivating a reasonable acreage under rain-fed agriculture.

(b) The impoverished group:

i. Provision, organization and improvement of pastures,

ii. development of water supply for humans and animals,

iii. supply of vaccines and drugs for animals and improvement of medical treatment, with education of children,

iv. secure adequate grain supply, and

v. having "productive" sons contributing to family welfare, "since sons' vitality is not measured in numbers, but in concern about the family".

There is a general weakening in group decision-making, which could be attributed to a decline in the reciprocating relations that used to prevail among nomads, as well as to the rising concern about individual welfare. This could be partly related to the general decline in eco-system grazing capabilities, which made nomads lose some of their spatial and organizational integrity, and also to the way the traditional economy has opened up to incorporate other activities unknown to nomads before. Such changes have altered the old production relations and in place of the communal outlook, the household is emerging as the level at which decisions are taken.

This does not exclude that at higher levels, and in matters that concern the tribe and sub-tribe, as related to group interests, and resource allocation and use, the appropriate institutions at the tribe's level, step in to perform their roles. Despite the dissolution of native administration, the Shukriya leaders continued offering services to their followers, such as assisting in the education of children, processing of immigration travel documents, opening their homes for the needy during the drought time, etc. The Shukriya interpret this continued relationship, between the leadership and the tribesmen, despite the abolition of native administration, as one of blood relations, more than of the once existing

administrative link. That is why nomads' elites in towns are burdened by solving kins' problems, and are concerned about assisting in offering services to their areas.

Some of the old practices that evolved with nomadism, such as giving away animals to the needy to assist in building herds, or lending a milk cow to a relative or a poor to live on its milk, seem to be vanishing at least among the groups we studied. Many factors are behind that, but most important among these is the rising economic value of animals, the change in production relations, and that the once observed norms related to status and prestige have changed too.

Despite this, nomads are still co-operating in many facets of life, especially when the element that calls for co-operation is the wellbeing of a wider group, or requires labour which is beyond the household ability. Nomads co-operate in:

i. raising fighters during tribal scrimmages,

ii. organizing riding groups to trace robbers,

iii. assisting animals in the crossing of water courses during rainy season,

iv. shearing of sheep which demands communal labour,

v. allowing those needy of wool to shear sheep and camels to obtain their requirements,

vi. digging and maintenance of wells,

vii. weeding and harvesting of crops, through traditional "nafir" system,

viii. assisting in rug weaving, undertaken by women, and

ix. in some cases development of consumers' co- operative on agnates group lines, e.g. Shukriya, Lahawiyeen in New Halfa Scheme, Beni Gerar in Dar Kababish.

PART TWO

GOVENMENT PLANNING, NOMADS' ATTITUDES AND REHABILITATION ALTERNATIVES

I. GOVERNMENT POLICIES AND PROGRAMMES

1.1 Main Features of Policies and Programmes

Government policies reflect the following features :-

i. Negligence of the Traditional Sector

There prevailed for quite a timea state of negligence of the traditional sector of agriculture, which embraces the three major activities: traditional crop farming, pastoral nomadism, and forestry production, as compared to what is known as the modern sector: irrigation agriculture and mechanized farming. This remained a feature of the policies of the different governments since the country's independence. It could be partly attributed to the fact that, this sector continued meeting most of the needs of its population, and contributing substantially to GNP without major inputs from the side of the government. Hence, its credibility was little questioned. The only time it was critically examined, was after the recent drought, when the issue of rehabilitating the traditional sector has become a policy priority.

ii. Misconceived Approaches

Pastoral production systems were rarely looked at as totally integrated systems. They were approached as factors of production: e.g.land, grazing, water supply, animal health, marketing, etc., and in the process, the human element was accorded little weight.

iii. Sectoral Development

As a result of the above view of pastoral systems, sectoral development was the type of policy adopted for the upgrading of pastoral economies, centred around improvement of animal health, range conservation (through opening of fire-lines), provision of water sources, and improvement of the marketing infra-structure.

iv. Conflicting Targets

The implementation of the aforementioned sector programmes, has often lead to conflict in the objectives targeted by these programmes. Prophylactic measures have controlled diseases, but have resulted in an increase in livestock numbers beyond range capability. Provision of water sources has availed water for the stock, but has been accompanied by overstocking and overgrazing. More animals are being produced but with limited off-take, and so forth, demonstrating the conflict in development objectives arising from the absence of comprehensive planning.

ii. The Gash Schemes: (also the Baraka Schemes):

The Gash Delta is inhabited by Hadendowa, a major branch of the Beja tribe. About 400,000 acres of the land in the Delta are cultivated. In spite of the fact that most of the cultivators come from the Hadendowa, the majority of that tribe still practice nomadism and keep large numbers of camels. "It is generally thought that the proejct has not helped much towards the sedentarization of many Hadendowa" 1/.

iii. "The White Nile Scheme:

The Hassania and Hussinat tribes live south of Khartoum on both of the banks of the White Nile. They were semi-nomadic and numbered 250,000. Construction of Jebel Awlia Dam inundated some of their land. The White Nile Scheme Board provided irrigation by Government pumps, and alloted 15 acres each to the displaced tribesmen. Some private schemes are also encouraged to award tenancies to these tribesmen. This resulted in large scale disposal of their livestock. By 1938 an animal census revealed "only 20% of the livestock of the tribe remained. The rest has been sold off". In the earlier years of the scheme some of the nomads left their holdings and went back, but now a large number are getting settled on the lands 1 alloted to them" 2/.

The three examples quoted, demonstrate clearly that these projects focused on land settlement, and that from the sentences underlined there was no scopeforaccommodating the animals. Not only that, but it was considered an achievement to get rid of the animal, or keep it out of the area of the schemes. On these philosophies other settlement projects that came after were executed, confirming the failure of the concept of the settlement of pastoralists without their animals.

iv. Settlement of Hadendowa 1948

Due to scarcity of rains in their area, 500 Hadendowa families were moved and settled in Gedaref, with each family alloted 50 feddans. The Government appointed an agricultural inspector for the scheme and prepared and ploughed the land for the settlers which was cultivated with sorghum. At the end of the first year, 80% of the settlers deserted the scheme due to an attack by malaria which caused many deaths.

v. Settlement of Hadendowa 1958

Designed in the form of small schemes in an area of 1000 feddan, land was alloted to a mixture of Beja tribes: Hadendowa, Artiga, Amrar, Ashraf etc. The project was founded on the idea of providing the settlers with tractors, with the cost to be paid back in installments. After 5 years of operation, due to fluctuations in production etc., most of these schemes were deserted and only three exist at present.

v. Lack of Long Term Vision

Planning in the area of pastoralism has mostly addressed short term objectives, or solving problems as they arise, which explains further why conflict in interests occurred. The ecological factor, leading to grazing instability and tribal conflicts has never been resolved through permanent solutions of organizing and improving pastures, but through the conventional practice of holding tribal conferences, which might be repeated every year for the same conflicting tribes.

vi. Limited Involvement of Beneficiary Population

Planning in the area of pastoral economies, even within the mix of sectoral approaches, is practiced as a top-down exercise. Nomads are rarely consulted, and their efforts and resources are only marginally drawn into any of the above mentioned programmes. They are approached to facilitate the implementation of departments' activities that are assumed to benefit the targetted population.

vii. Instability of Organizational Networks

In 1985 a new Ministry of Animal Resources was founded. The last time this Ministry existed, was in 1975. During these 10 years, the Ministry was dismantled, with the Range and Pasture Department annexed to an Administration of National Resources under the Ministry of Agriculture; while Animal Health, animal production and Veterinary Laboratories and Research were kept together constituting an Administration of Animal Resources. This seriously affected the activities of the two sections being divorced from one another, with the result that they pursued unintegrated programmes, undermining thus their organizational capacities to perform under a sector approach.

1.2 Settlement of Nomads as an Adopted Policy

There has been continuous talk about the settlement of nomads since the country's independence; most of which lacked the right conceptualization of the pastoral issue. As in the previously explored policies and programmes, where the emphasis has been on the production factors, in settlement ideas the emphasis has been on the pastoral community, i.e. settlement of populations without their animals.

A review of the previous work carried under settlement ideas could be sketched as follows:

i. "The Gezira Scheme:

This scheme was developed on an area of 5 million acres of rich black cotton soil was mostly inhabited by nomadic and semi-nomadic tribes before 1928. With the irrigation of about 2 million acres of land under the Gezira and Managil Extension Schemes the population of nomads in that areas has dropped from 90% to 7% only. "Even these few live outside the irrigated areas"1/.

---

1. Request to the United Nations Special Fund for assistance in studies on and pilot projects of community development for settlement of Nomads in the Sudan, Local Govt. Office File 1962, pp. 7-8.

vi. Settlement of Beja 1972

Executed in Gedaref district, at Umm Barakeit village in Fashaga area near Sudan-Ethiopia border the project embraced a mixture of Beja elements on an area of 3000 feddans. The scheme provided tractors, and a village settlement developed at Umm Barakeit. After 5 years 80% of the settlers went back to their areas of origin. The 20% who remained continued as pastoralists raising cattle and practising rain-fed agriculture, being encouraged to stay there by the availability of pasture.

vii. The Settlement around Gedaref Town by families from Hadendowa, Amrar and Beni Amer, who permanently live there with their cattle, is sustained by selling milk to the town population. This pattern of settlement is found around the major urban centres of Central Sudan. It has started to disappear in Western Sudan due to the scarcity of grazing around most towns.

viii.New Halfa 1962 has been developed for the resettlement of the Nubians whose land was inundated by the High Dam. Nubians, the Shukriya and their associates, plus some of the Beja and Rashaida, were alloted tenancies in the scheme. The very special location of New Halfa Scheme in relation to the Butana, the River Atbara area, the sorghum mechanized area, and in proximity to Gash and Baraka Schemes, gave settlers of nomadic origin the advantage of practicing the two types of economy: irrigated agricutlure and pastoralism.

ix. Gireih Es Sarha 1969: Developed in the Kawahla area at Gireih Es Sarha, west of Umm Badr in Dar Kababish, as a range management project founded on the idea of a pastoral co-operative. The co-operative was planned to comprise 50 families who would contribute shares to establish a consumer shop, a flour mill, and allocate funds for the other inputs (water-supply, development of a small irrigated farm, salaries of guards, etc.). Other inputs including planning of the schemes, fencing, provision of water, and management personnel durng the first years of the proejct were provided by the Government. Despite the non-adherenece to the management plan and the dominance of the Kawahla Nazir and his family over the scheme, it proved to be a successful experiment in terms of conserving a rangeland for the use of a limited number of herds.

x. Suki Experiment 1972: due to rain failure in 1970, 350 families from Hadendowa, Beni Amer, Amrar and Busharin tribes were alloted tenancies at Suki Scheme, which was newly developed at that time. A special village was developed for the settlers. Due to land levelling problems, 150 tenancies were not efficiently irrigated. This induced 130 families to sell-out their tenancies and return to their home land. The remaining 220 families seem to have adjusted to the new conditions. In their village they operate a multi-purpose co-operative, composed of a consumer shop, a flour mill, and a bakery.

xi. Hamshkoreib Experiment 1951: started in 1951 by Sheikh Ali Betai who attracted Hadendowa elements to Hamshkoraib village for Koranic studies. It is a form of spontaneous settlement, with 6 centres like Homshkoraib being established (Dresta, Tawabeit, Tahdai, Oseis, Talkcok,

Adardeib, and Yoderdet) which presently have education, health, and veterinary services. The population of these establishments continued practising the same traditional economy they knew before, i.e., livestock raising and limited sorghum farming.

xii. The Rahad Scheme 1973: tenant farmers for the Rahad Scheme were mainly selected from the indigenous population that utilized the area before. This incorporated many nomadic elements, with the Shukriya and other related tribes allocated 25% (3000) of the scheme tenancies. Similar to the New Halfa case, tenants of pastoral origin at Rahad are practising livestock raising side by side with irrigation agriculture.

xiii. Rashaida settlement 1977/78 at Mastora village: the village is located about 7 km. from Kassala town, with two more villages nearby, inhabited by Rashaida. All three villages have grown as spontaneous settlements, aided by their proximity to Kassala town. They have a population of 17,172 persons. The majority of the population of Mastora is made up of wealthy Rashaida owning livestock or transport vehicles. The two other villages are inhabitated by poorer Rashaida depending for their living on wage labour or casual jobs in Kassala town. Mastora has attracted some services e.g. a water-yard, 2 consumer co-operatives, a dispensary, and many shops.

1.3 Evaluation of Policies, Programmes and Settlement Experiences

i. Acting on Strained Ecosystems

Through individual departmental programmes all livestock types have been supported on both range lands and irrigation schemes. Equally, livestock marketing has developed for the internal and external markets. However, all of these developments have been based on the existing inherent capabilities of the pastoral ecosystems, with very limited intervention from the Government side to upgrade these capabilities.

The continuous rise in livestock numbers from the mid 1950's, reaching its peak in the mid 1970's, followed by a period of instability up to the beginning of the 1980's, and a decline from that time on, is an unmistakable indicator that the available grazing resources were burdened at the time of the rise, and strained afterwards by the large numbers beyond their carrying capacities.

The long assumed policy of utilizing range lands as they exist should be questioned, since the once prevailing animal/range relationship has been drastically disturbed. Also the land/tribe relationship has become confused. The two factors are testified to by scarcity of grazing, irregularity of grazing cycles, increasing conflict incidence, death of livestock, etc. The old concept of nomadism as the best system of range utilization seems to be shaken. A more efficient system should be developed in its place to organize the use of the land resources, and to improve the grazing capabilities to ensure sustained livestock production.

ii. Integrated Approaches to Pastoral Production Systems

The long adopted practice of approaching pastoral improvement in a disintegrated manner with unco-ordinated inputs should be altered. Pastoralism as a mode of life, and as a production system, is an integrated concept in the minds of nomads. They raise livestock, practice

cultivation, market animals, etc. within a total system. This system is being dismantled under the current development strategies, which emphasize production factors and miss the internal balancing processes keeping the system together. Planning with an integrated view to pastoral issues should be accorded priority in future programmes.

iii. The Spatial Dimension to Complete the Functional One

Integration of concepts will not yield results, if not applied to a self-contained spatial context. All nomads act in space which engulfes a tribe's domain and auxiliary areas annexed to that domain, to meet the livestock grazing requirements in the different seasons. Development inputs e.g. water supply, pasture improvement, veterinary services, community services and the likes provided as independent functions, will not attain targetted goals if not specially integrated. Hence it is recommended that the spatial dimension, based on the tribal unit, be adopted as a vehicle for planning the development of pastoral systems.

iv. Involvement of Pastoralists in Shaping their Future

Nomads have changed considerably, but it seems that governments are not taking notice of that, and are not appreciating that many of the positive factors of change could be utilized to improve the nomads' lot. On the contrary, nomads are still approached as if they are immature populations, for whom 'things' have to be done. Long back, nomads were ruling themselves long before the current policies; and under the native administration they managed well. It is essential, that pastoralists should be involved in shaping their future path, through recognizing their place in regional and national politics, and by assisting them to organize themselves.

v. Building of More Effective Technical and Organizational Capabilities

The newly formed Ministry of Animal Resources, and the Ministry of Agriculture, Food and Natural Resources, are required to revolutionaize their approaches to the whole issue of pastoralism, by revising the old concepts that have been applied for quite a long time. Animal health as a dominating function in the development of livestock economies in the past, from which the veterinarian drew his credibility, is short of achieving a healthy livestock economy. It must include all the other variables under which a pastoralist produces at present, that make a livestock production system work efficiently: range and pasture, water supply, improved breeds, better animal products, livestock marketing, crop production, and in the centre of all this, the pastoralist himself as an organizer of production and a beneficiary of the activity.

Tenant farmers' unions in the country are organized by the Ministry of Agriculture, to which tenants take their problems and dialogue. On parallel lines, the pastoralists should be organized into more effective pastoral unions, and a dialogue should be opened with them.

To achieve these objectives the two Ministries need to organize themselves, both centrally and regionally, develop linkages with the parallel institutions catering for the development inputs related to pastoral economies, and promote socio-economic research as a vital tool for understanding and planning for the pastoral communities.

vi. A Realistic Look at Settlement Approach

The long inventory of settlement projects undertaken in the country and elaborated under Section 6.2.3, was meant for two purposes; to document these experiences, and to prove that not all the ideas tried were successful. This is essential, because whenever the question of nomadism is raised, settlement is immediately singled out as the solution. The ex-grovernment (1969-84) for example, devoted a whole chapter in its party charter to the settlement of nomads as the solution to the problems of this sector of the population, which was propagated throughout the 16 year life-time of that government. The misconceptions attached to settlement, as the only solution, have to be corrected.

From the list of projects furnished previously, the experience of the country in settlement of nomads emphasized land settlement, as highlighted before; with only two projects, Hameshkoreib and Gireih Es Sarha, founded on a pastoral concept. In all of the other projects, there was no place for animals. Attempts to integrate livestock raising in the Rahad, the last developed scheme, are still staggering. Thanks to the location of New Halfa, Rahad, Gash, and Baraka scheme, pastoralists settled in these schemes can to continue raise animals.

If the objective is land settlement, then there is no question about implementating as many projects as the country can afford. Yet, this option seems unfeasible with the present tight irrigation water situation in the country plus the fact that undertaking such projects requires a large capital and foreign exchange expenditure. This of course does not exclude designing small projects, for pastoralists who have lost their livestock and are presently living as destitute groups.

There is little in the experience of the country on the settlement of nomads on range lands which is the concept that needs to be promoted, since the majority of nomadic tribes are presently found where the greater part of the livestock of the country is produced. Applying the planning concepts, explored previously, under the need for a spatial consideration, shall provide solutions of this type as has been observed:

"Most of the projects for settlement of nomads have attempted to settle them on irrigated land. Such a settlement has two drawbacks. First the nomad has no experience of irrigated type of intensive agriculture and finds himself lost in 10 to 20 acres that may be alloted to him... The big irrigation projects, generally, have not provided grazing areas, or such a rotation of crops which may enable him to maintain a sufficient number of livestock... Very few projects have tried to deal with the question of sedentarization by developing the grazing potentialities of the area and improving the potentialities of rainfed agriculture which may in an

average year, not only provide grains for the consumption of men but also lots of fodder to support animals". (Request to the United Nations Special fund for assistance in studies on and pilot projects of Community Development for Settlement of Nomads in the Sudan) 1962 pp. 9-10".

II. ATTITUDES OF PASTORALISTS

In discussing pastoral attitudes, we shall concentrate on proposals made by the nomads to improve their life conditions. Two sources of information shall be referred to in this respect, the interviews made during the survey with tribal leadership and groups, and the recommendations of conferences held by some tribes during the last three years.

2.1 Range and Pasture Development

Pastoralists are recommending:

i. organization of use of pastures through formulation and application of laws that lead to domarcation of range lands of various tribes, and integrate pasture activity with other land uses including cultivation and forestry. (Applicable to all tribes);

ii. demarcate migration routes in form of passage corridors when passing across other tribes' land (Messeriya),

iii. redefining of the grazing line through consultation between pastoralists and sorghum growers (Shukriya),

iv. conservation of range resources, through control of fires by maintaining existing fire-lines, opening of new ones, building awareness about fire damage, increase the annual allocations for fire- control, application of new methods of opening fire-lines, and punishment of fire doers. (Messeriya),

v. development of reserved pasture projects on the model of Geireh EsSaraha Scheme. (Kababish- Messeriya),

vi. regulate ownership of cattle in the dry northern belts (Kababish, Zeiyadiya, Meidob, Zaghawa),

vii. develop range reserves for bad years (Kababish, Zeiyadiya, Zaghawa),

viii. limit expansion of Gerif' cultivation in the lake area behind Roseires Dam and reserve it for grazing (Rufaa El Hoi),

ix. check expansion of Gerif cultivation on the River Atbara (Rashaida),

x. conservation of existing forests, afforestation of wadis and development of shelter belts around settlements (Kababish, Shukriya, Zeiyadiya, Meidob, Zaghawa),

xi. oblige scheme owners to develop shelter belts around schemes (Shukriya),

xii. prohibit forest denudation for fuel wood production in eastern area of Dar Kababish (Kababish), and

xiii. provision of security on Chad, Central Africa/Sudan border and Ethiopia/Sudan border (Baggara tribes of west Sudan, Zeiyadiya, Zaghawa, Meidob, and Rashaida),

2.2 Fodder Production and Use

i. Develop district fodder stores for regular use and for bad years (Hadendowa, Shukriya, Rashaida, Kababish, Zeiyadiya, Meidob, Zaghawa),

ii. hay bailing (Rashaida) and sorghum bailing (Kababish) for regular use and for bad years,

iii. provision of adequate amounts of sorghum and industrial feeds at reasonable prices for the coming 5 years to supplement fodder requirements. (Kababish, Zeiyadiya, Meidob and Zaghawa),

iv. utilize ground and surface water in the form of small irrigated schemes, for the production of fodders plus other crops (Hadendowa, Shukriya, Rashaida, Kababish, Zeiyadiya, Meidob, Zaghawa), and,

v. increase the area under fodder crops in New Halfa Scheme (Shukriya),

2.3 Livestock: Animal health

i. Improvement of veterinary services, through provision of adequate personnel, transport and drugs (all tribes),

ii. extend the experiment of the resident veterinary assistant at the level of the omodia, as a cheap way of delivering veterinary services. (Messeriya),

iii. create a revolving fund to which pastoralists shall contribute, to be used in purchasing drugs at district level, under the supervision of the veterinary officers (Messeriya),

iv. encourage the private sector to develop veterinary pharmacies at district level, with the essential support required given by the government, so that medicines could be made available at reasonable prices (all tribes), and,

v. conduct a livestock census to furnish, besides the regular type of data, special data on livestock concentrations during dry season (Shukriya),

2.4 Livestock: Animal Production:

i. Increase livestock off-take to reduce pressure on range, and achieve optimum carrying capacities (all tribes),

ii. improve breeds and fodders, organize exhibitions and accord an annual price to good breeders (Shukriya),

iii. introduce fattening schemes through pilot projects (all tribes),

iv. utilize milk of nomadic herds, especially at places and times of herd concentration, through teaching nomads to process it into marketable products, (all tribes), and

v. organize veterinary extension services, to work with nomads, to facilitate implementing animal health and animal production programmes (all tribes).

2.5 Agriculture:

i. Promote integration of agricutlure with other uses, forestry, range, wild-life, in planning of new development scheme, to achieve better land use (all tribes),

ii. check practice of cultivation in northern parts of Kababish, Zeiyadiya, Meidob, and Zaghawa land, and rgulate its exapnsion around existing settlements in southern belts of same territories (Kababish, Zeiyadiya, Meidob, and Zaghawa),

iii. improve cultivation practices, and introduce quick maturing varieties of millet and sorghum (tribes of semi-arid belt, with a special role in rehabilitation of destitute population),

iv. harness surface and ground water of wadis and low- lying aquifers, to develop small scale projects, on principles of integrated land use for production of grains, fodders and vegetables, with a forestry component; to meet household grain supply, provide for raising a small herd, generate cash for the family, and improve ecological cover (tribes of semi-arid belt with a special role in rehabilitation of destitute population),

v. enable tribes which do not possess land to have access to rain-fed areas to cultivate (Rashaida),

vi. give opportunity to wealthy pastoralists to possess mechanized sorghum schemes, and organize other integrated groups among them into small production units under similar schemes, to achieve a north south integration at regions level (Kababish, Messeriya, Hawazma, Shukriya, Rufaa El Hoi), and,

vii. increase areas of corridors opened for passage of animals across sorghum mechanized scheme areas, and allocate schemes lying on these corridors to pastoralists to put under sorghum fodder for production (Messeriya, Hawamza, Rufaa El Hoi, Shukriya),

2.6 Water Supply:

i. Maintenance of existing water-yards and hafirs (all tribes),

ii. check digging of private wells for purpose of laying hand on land in communal grazing areas (Kababish),

iii. assessment of grazing capabilities around existing water-yards, and closing of those sites which are severely degraded for some period, to allow vegetation to rejuvinate (Kababish),

iv. apply a system of alternating use of water yards to regulate grazing, by closing some sites and opening others, according to a yearly programme (Kababish),

v. improvement of the water-supply situation in dry season grazing areas (all tribes),

vi. restrict cultivation on livestock passage corridors to rivers (Rufaa El Hoi, Rashaida),

vii. involvement of pastoralists in selection of new sites to be provided with water, and in the management of existing water sources (all tribes),

viii. building of bridges at water courses where nomadic herds annually find difficulty in crossing (Baggara groups),

ix. exploitation of the 20 wells drilled by Chevron Company in southern Messeriya area, for domestic and agricultural uses (Messeriya), and,

x. provision of extension services among pastoral groups to induce them to use more hygienic water (Messeriya, Shukriya),

2.7 Health:

i. Adoption of the community health worker system, presently applied in Kordofan Region, based on a nurse trained from the area, in delivery of health service (all tribes),

ii. improvement of existing hospitals, dispensaries and dressing stations in pastoral areas, and those visited by pastoralists, to perform as referal centres for the community health worker (all tribes),

iii. provision of transport facilities, to maintain communication between various health levels (all tribes),

iv. encourage development of pharmacies at major centres in pastoral areas, using funds contributed by nomads, with the necessary government support (Messeriya),

v. improve quality of water sources, through minimizing pollution by animals (all tribes), and,

vi. launching of a bilharzia and malaria control programme in New Halfa Scheme (Shukriya).

2.8 Education:

i. Provide mobile schools run by teachers, trained from among nomads (Shukriya),

ii. improve existing schools in nomads areas, especially the boarding facilities where pastoralists' children are kept, with nomads contributing funds for such improvements (all tribes),

iii. pilot project whereby a school-managed flock of goats, contributed by pupils' families, to maintain a milk supply for children (Kababish), and,

iv. organize literacy, women and adult education programmes (all tribes).

2.9 Administration:

i. Reinstatement of native administration, to assume administrative and judicial roles (Messeriya),

ii. co-ordination between districts and regions, to solve problems arising from boundary tress-passing (all tribes),

iii. activition of tribal conferences, as an effective means to resolve conflicts, with adoption of the resolutions passed by the conferences (all tribes), and,

iv. improvement of tax collection through involvement of native administration, (Zeiyadiya, Zaghawa, Meidob, Shukriya).

2.10 Organization:

i. Upgrading of performance of existing pastoral unions, through more recognition by government and regional authorities, and by giving them a more active role in developmental programmes (Rufaa El Hoi),

ii. reorganize pastoralist unions on new grounds to offer services to members (Shukriya),

iii. assigning the tribe quotas in sheep exported to Saudi Arabia, by facilitating for representative of the tribe to travel there, and negotiate contracts (Rufaa El Hoi),

iv. involve tribe in sheep trade to Saudi Arabia, by assigning quotas to traders within tribe, to reduce unlicensed trade across the Red Sea (Rashaida),

v. approach tribe's leaders first in matters involving change (Kababish), and

vi. raise funds and develop consumer cooperatives, to maintain a regular supply of goods at reasonable prices (Shukriya, Kababish, Messeriya).

2.11 Discussion of Pastoral Attitudes

It is apparent from the above disposition that pastoralists could identify priorities, and are involved in development issues. Most of what they recommended integrates well with the planner and agency goals when related to the current programmes undertaken by most departments engaged in pastoral development. A major question in this concern is in implementing what is recommended, which approach to be adopted; the agency one, or an agency-pastoralist's formula which still has to be reached.

Arriving at this formula shall be one of the main challenges to implementing a rehabilitation strategy. Nomads for a long time have been educated to wait for the government to initiate and do things for them. Under the philosophy of the present study, this situations is to be changed by encouraging the nomads to initiate and contribute to project execution. Pastoralists have not practised this before, but in the many interviews held with them, they showed their readiness to be involved. Realizing this, will very much depend on effective guidance that would maximize the opportunities for the pastoralists to initiate and participate in development.

The other comment to be made is that outside tribal institutions nomads are less organized. Few of them have pastoral unions or associations and co-operative societies rarely exist in most of their communities. The few unions that do exist, like the ones of Shukriya and Rufaa El Hoi for example, are superficial organizations, dominated and run by some tribal elites, who manipulate these organizations for personal benefits with no substantial gains to members. Equally, the few co-operatives that exist are organized on kinship lines. In some cases they are successful, in others they are not, since accountability weakens under situation of blood ties. This major weakness in the organizational structure of pastoralists seems to leave us with one option. That is, to base future development institutions on the social organization units of the society: the individual, the household, the group of agnate households within a sub-tribe, the sub-tribe and the tribe, as actors in development. On this network of units modern institutions such as pastoralists' unions, co-operatives, etc. can be superimposed.

III. STRATEGIES TO ASSIST PASTORALISTS

3.1 Introduction

In formulating strategies we shall be guided by the discussion presented under the two previous sections. Strategies shall be grouped under sub-titles. Present actors and recommended ones shall be specified.

borrow from it, once their projects are passed by the Regions' panel. The use of the fund could be organized on lines of Sudan Agricultural Bank credit experience, especially with reference to Umm Ruwaba experiment 1/. International assistance in co-ordination with the Department of Rural Economy of the Faculty of Agriculture University of Khartoum, and Sudan Agricultural Bank, is required to develop this fund.

3.4 General Development Strategies

3.4.1 Range, Pasture and Livestock

i. Conservation of range lands, through maintenance of existing fire-lines, survey and opening of new lines, and close supervision of fires. Priority in this regard should be given to the southern belts, where the range resources are more vulnerable to fires, as compared to the northern semi-arid belt. The old mechanism of annually executing this activity, by the Administration of Range and Pasture as the executing agency, and omdas in the districts as supervising bodies, could be revitilized.

ii. Pasture Reserves

This is suggested to be undertaken by wealthy pastoralists as individual investors, and by medium size owners as a group of developers, putting their resources together. Reserve sites should be selected within sub-tribal land, with the consent of the sub-tribe secured to reduce conflict to the minimal possible. The reserves should be demarcated, guarded, or perferably fenced, by owners to be used on a rotation basis, for hay-bailing, or closed as stand-by grazing sites for bad years.

iii. Introduction of Fodders in Irrigated and Mechanized Schemes

The present complementarity between natural grazing and the use of grown fodders in the Eastern Region could be further strengthened by increasing the area under grown fodder. This shall be approached through small piloting activities with a close monitoring of the fodder market under pastoral production systems. Expansion in areas shall be determined by elasticity of fodder demand.

iv. Sheep Ranching

Sheep ranching is recommended for Butana, North Kordofan and North Darfur. Sites to be selected for ranches could follow the same principles stated under pasture reserves. A ranch can be an individual's property or owned by a group of pastoralists.

---

1. In this experiment, farmers borrow from the bank branch at Umm Ruwaba town collectively, as a village community, and pay back collectively.

v. Mixed Farming Projects

These projects can be founded on surface and ground water sources. The focus should be on the big wadis of North Kordofan, North Darfur, the Butana plain, Tokar Delta on the Red Sea area, and the low lying ground water aquifers where feasible. These projects are targeted to be undertaken by individuals and groups of pastoralists. They will be in the form of small oases arising in these drylands. Crops grown ought to be of varied types, including grains, fodders and vegetables. Livestock will be dependent on the range lands, and utilize the fodders produced in these schemes as supplementary feeds.

vi. A Network of Fodder Stores:

Fodder stores need to be developed at the district level. Individuals and groups shall be encouraged to develop their own stores. Government must provide adequate supplies of fodders and stabilize prices. Pastoralists can purchase their fodder requirements from the district stores. All network of stores shall be owned by the tribe(s) in a district.

vii. Private Sector Drug Stores

The rise of private sector drug stores has filled the gap in veterinary drugs in the pastoral areas in the recent decade. The strategy needs to encourage the establishment of more drug stores at district level, under the supervision of the Ministry of Animal Resources. Drug prices should not be inflated by custom imports duties. Pastoralists are secretly administering many kinds of medicines to their animals. Some of this innoculation is prohibited according to veterinary law. Since drug use is already practiced, instead of applying it wrongly, pastoralists could be educated in medicines through veterinary extension work. The veterinary assistant, selected from a tribal background, who may be himself owning a herd, could provide invaluable services to pastoral groups, and bridge the gap between the veterinary dispensary/hospital and the tribesman.

vii. Livestock Marketing

The present marketing system seems to be adequately serving the pastoral economy. It is competitive, accessible to the producer, and some of the pastoralists are involved in it, as buyers and exporters. More benefits could accrue to pastoralists from the present system, if they are more effectively represented on regional basis in the LMMC, and they are availed the opportunity to negotiate contracts for sheep export with Saudi Arabian buyers, similar to the way camel trade is handled in the Egyptian markets.

ix. Processing of Animal Products

Some amounts of milk are available from the herds during the rainy season, but most raisers prefer to leave it for the newly born animals. During the dry season, the amounts produced are negligible, and are saved for the young animals. Exceptions are to be found under the irrigation

schemes, where milk is sold or processed into cheese in lage amounts. Similar developments could be promoted under the mixed farming model. The art of cheese-making could be disseminated widely, so that those interested could process seasonal surpluses of milk. Selling of milk in towns, benefiting both pastoralists and town dwellers, could also be promoted through the proposed network of fodder storage facilities.

x. Promotion of Handicrafts

Pastoralists produce a variety of handicrafts based on wool weaving and leather works. Some of these products, in crude form, find their way to markets. ILO recently attempted to innovate rug-making through supporting the establishment of a Women's Rug-Making Co-operative in Tinna in Dar Kababish. Handicraft centres, linked to individual producing ladies, as extension and collection centres for marketing products, could be promoted. These centres may directly sell to handicraft shops in Khartoum, or develop their own marketing facilities.

3.4.2 Agriculture

i. Grain Production

Grain production, for meeting household needs and availing fodders for livestock, is an integral component of livestock production systems and a requisite for the stability of the herd and its competitive value. Maximizing pastoralists opportunities for producing controlled amounts of millet, under the precarious rainfall of the semi-arid belt, is to be accorded a high priority. Manipulation of agro-meteorological data, improved farming practices, provision of adequate supplies of short maturing seeds (FAO has been organizing supply of seeds for the last four years), and organizing storage of grain surpluses from good years, for use in bad ones, shall help in improving the situation in places like North Kordofan and North Darfur, and the Red Sea Hills area.

ii. Accessibility to Mechanized Farming Schemes:

Kordofan and Darfur nomads, as individuals and as groups, are showing interest in owning mechanized sorghum schemes in the southern parts of these regions. If availed of the opportunity, this shall develop into a similar model to the one of the wealthy Shukriya. It can channel investment generated from livestock sales into a viable economic activity, expand the base of regional development, integrate livestock and crop farming, increase production of grains and fodders, and generate employment for the pastoralists.

3.4.3 Water Supply

i. Focal Points for Organization of Land Use

Water-yards do not only serve the direct function of supplying domestic water for human needs, and water for the herds, but could be manipulated to improve range conditions and utilization. It is recommended that surveys of range conditions around existing water-yards, coupled with assessment of their use within systems of tribal migrations should be

conducted, to avail the information to be utilized for designing plans of alternate use of water sources. The plans should aim at rejuvenation of the vegetation cover around degraded water-yards, through conservation and improvemental measures.

ii. Running of Water Sources by Pastoralists

Pastoralists could be involved in the running of water-yards, and in the management of the range resources around them. Costs of operating water-yards have escalated considerably in the last decade. In many instances water revenues are not covering the cost of operation and running. It is recommended that Regional Rural Water Corporations, the body in charge of water provision, should cater for the maintenance and technical running of the water-yards on cost price, to be charged to pastoralists' organization which will run the water-yards and fix their own water prices. Under an USAID assistance programme to Kordofan Region, CARE Organization rehabilitated a number of water-yards for sedentary population on self-management principles.

3.4.4 Services

i. Finance: From a Rate on Borrowing for Development

Pastoralists would be encouraged to contribute to the provision, maintenance and running of community services. Funds for this purpose could be raised from charges on borrowing from the development fund specified earlier, to be collected at the time of the payment back of the installments. The two sources of finance should be kept separately. Funds for services could be collected by district councils and allocated to services development, in consultation with the pastoralists organizations.

ii. Health: Primary Health Workers

Delivery of health services in pastoral areas would be founded on the primary health worker; selected from a nomadic background from the same tribe, trained in primary health care, provided with basic drugs and linked to a dispensary at a centre, to perform in camps as a mobile worker. Sudan had run this type of service, the nurse on a camel back, dating back to the thirties in Dar Kababish. Presently, a Primary Health Care Programme is supported by USAID, in co-ordination with WHO in Kordofan Region. Much could be drawn from the experience gained through this programme, in setting up an efficient primary health care service for pastoralists. The other network of health services' comprised of dressing-stations, dispensaries and rural hospitals existing in pastoral districts should be upgraded in terms of personnel, equipment, drugs, and transport to provide an efficient referal system for primary health workers.

iii. Education: The Boarding School

Most pastoralist communities, exist as sedentary groups, for the greater part of the year, in dispersed camps near permanent settlements. The type of school that proved to be more suited to their conditions is the one with a boarding facility, where children are kept when families are

migrating. It stands at present as a more practical type of education than the mobile school founded on a trained teacher migrating with the camp. It avails for the children a regular education founded on national curricula, and at the same time enables them to join their families during vacations. SChools annual schedules of opening and closing are timed with the nomadic calender in pastoral areas to suit the last requirement.

Since this type of education is already an established system in pastoral areas, it is more feasible to improve on it than devise a new system. Accordingly, it is recommended that the existing schools accommodating pastoralists' children would be supported, especially with regard to maintaining and running of boarding facilities. Boarding facilities have recently suffered from an acute shortage of food supplies, especially so in the drought-prone areas, due to scarcity of commodities and lack of funds in the districts, to regularly pay contractors supplying food to the schools.

3.4.5 Special Development Strategies for Marginalized Pastoralists

i. Settlement Alternatives

Marginalized pastoralists, cannot be brought back, at least in the near future, into the pastoral production systems as a sustaining means of livelihood. Many of them have previously experienced settlement. The marginalization processes did not result from the last drought only.

Spontaneous settlement, by the majority of them, founded on limited millet production, few shoats and casual employment, had hardly met their life-needs. Under present- day conditions they are even worse. Their status has to be viewed in the context of their negative contribution to regional and national economies. Strategies addressing their problem should be founded on objectives that aim at transforming these populations into productive elements. Settlement seems to be the only option for fulfilling the above strategy. Four settlement options are suggested:

(a) settlement within area of origin,

(b) settlement in nearby areas with similar ecological conditions to area of origin,

(c) settlement in southern humid belts, and

(d) settlement in irrigation schemes, mechanized farming areas, other productive areas, and major towns, where communities of displaced populations presently exist.

Adopting any of the above options shall depend on the assessment of the following variables:

- ecological resource base i.e. land, surface and ground water, and rainfall,
- perception of beneficiary population, expressed in group interest,

- political acceptance by the recipient population, and,
- the cost of settlement.

Groups of North Kordofan and North Darfur show an inclination to be settled within their indigenous areas. They recommend the model of mixed farming explored earlier; maybe because it is the only one known to them of the four alternatives sketched above. They suggested incorporating into it a restocking component, which could be explored based on OXFAM experience with restocking in the Eastern and Kordofan Regions.

Adopting this last alternative, or any of the above recommended ones, can only be feasible throgh more elaborate surveys leading to project formulations. In this regard, each case needs to be treated within its own merits. Donor organizations may assist in launching these surveys, and in the preparation of the settlement projects proposals. The study already made by EEC on settlement proposals in Western Sudan during 1985 could be reviewed in this context.

3.5 Conclusion:

A final comment on the above strategies, is that, they are forwarded as an outcome of a research exercise. From this angle, they are not necessarily representative of the Sudanese Government's official point of view, on the question of enhancement of pastoral economies. The author has not come across a comprehensive treatment of the issue of pastoralism comparable with the present findings. This does not exclude the partial treatments of the various facets of pastoral economies which were attempted before, and the policies and programmes adopted by the government to cater for some improvements in this respect. In fact, the author had drawn much from the previous research and programming efforts in reaching some of the major findings of the present study.

IV. PROPOSED RESEARCHES AND STUDIES

i. Surveys for assessment of range of resources of Sudan.

ii. Preparation of land use design plans.

iii. Formulation of land use laws and regulations.

iv. A livestock census to furnish two sets of data: general type data, and special data on dry season livestock concentrations.

v. A study leading to reformation of taxation systems.

vi. Preparation of plans of reserved areas and ranches, mixed farming models, and of organization of resource use around water yards.

vii. Research on farming practices and short-maturing seed varieties in semi-dry belts - could be carried out in conjunction with WASRP.

viii. A study for the establishment of pastoral development and services funds.

ix. Survey of resettlement alternatives and designs of project proposals.

x. Research on improving camel production (already undertaken by World University of Canada-Ottawa in Darfur Region) and marketing.

REFERENCES

Abbo, H.H., (1958),
Survey of the Butana, Land Use Department Files, (Unpublished Office Report).

Abdel Ghaffar, M., (1984),
Symptoms of Spread of Livestock Diseases as Related to Enviromental Change, First Eastern Region Veterinary Conference for Development of Animal Resources (in Arabic).

Abdel Magsoud, Z., (1970),
The Butana Region, (Unpublished Ph.D. Thesis - in Arabic), University of Cairo.

Abu Sin, M.E., (1975),
A Survey and Analysis of Population Mobility within Northern and Central Sudan, (Unpublished Ph.E. thesis), University of London, Bedford College.

Abu Sin, M.E. & El Sammani, M.O., (1986),
Socio-economic Aspects of Integrated Resource Management, with Special Reference to the Forest Resources of Kassala Province, Eastern Region, The Case of the Rawashda and Wad Kabu Forests, Government of the Democratic Republic of Sudan, Netherland Government, FAO.

Abu Sin, M.E., El Sammani, M.O., & Mustafa, M.M., (1984),
A Socio-economic Study and a Strategy for Development of the Nomadic Groups of the Project Area, Blue Nile Integrated Agricultural Development, El Damazin.

Ahmed, A.M., (1976),
Project of Community Development, for Settlement of Nomads in the Sudan, S.N.P.C.

Amin, N.O., (1984),
Evaluation of the Gerih El Serha Settlement Scheme, (Punblished M.Sc. thesis), Institute of Environmental Studies, University of Khartoum.

Arab Authority for Agricultural Investment and Development, (1982),
Feasibility Study for Feedlot Complex Project in Western Omdurman/Sudan, Volume 2 - Background, Arab Organization for Agricultural Development, Khartoum.

Arab Organization for Agricultural Investment Development, (1983),
A Reconnaisance Study of Resources and Agricultural Investment of the Eastern and Nothern Regions of the Sudan. The Arab Organization for Agricultural Development, Khartoum.

Assad, T., (1970),
The Kababish Arabs, London, C. Hurst and Company. Baasher, M., & Abu El Azayim.
Past and Contemporary Policies of Development of Range and Animal Production in Sudan and Implications on Eastern Region, Development. The First Eastern Region Veterinary Conference for Development of Animal Resources, (in Arabic).

Baasher, M., & El Sammani, M.O., (1986),
Report on Development of Pasture and Fodder in Eastern Region, FAO.

Barbour, K.M., (1961),
The Republic of the Sudan, University of London Press Ltd., Warwick Square, London.

Beshir, M.A., (1985),
Introductory Booklet on the River Atbara Area, New Halfa Publishing Press, (in Arabic).

Dani, M.A.M., (1984),
People's Councils as Instruments of Regional Planning in the Sudan, (Unpublished Ph.D. thesis), Department of Geography, Faculty of Arts, University of Khartoum.

Democratic Republic of Sudan, Ministry of Agriculture and Irrigation, (Undated),
A Note on Agricultural Sector in Areas of Economics of Production and Consumption with Regard to Animal Resources and Irrigation, (in Arabic).

Democratic Republic of the Sudan, Ministry of Agriculture, Food and Natural Resources, (1974),
Southern Darfur Land-Use Planning Survey, Development Plan, Annex 5, Social Organization, Hunting Technical Services Limited and Sir M. MacDonald & Partners.

Democratic Republic of the Sudan, Ministry of Agriculture, Food and Natural Resources, (1985),
Agricultural Situation and Outlook - Annual Report 1984-85, Department of Agricultural Economics.

Democratic Republic of the Sudan, Ministry of National Planning, (Project Preparation Unit), (1978),
New Halfa Irrigation Project Rehabilitation Studies, Phase I Annex 8 Sociology, Agrar-Und Hydrotechnik GMBH Essen - W/Germany.

Democratic Republic of the Sudan, Ministry of Planning, (Project Preparation Unit), (1980),
New Halfa Rehabilitation Project Phase II, Volume I Support Measures Phase, Annexes I-8, Annex 8 Soiology, Agrar-Und Hydrotechnik GMBH - Essen - W/Germany.

Doxiadis Associates, (1965),
Land and Water Use Survey in Kordofan Province, The Project Areas' Nomadic Tribes, Head Office: 24 Strat. Syndesmou, Str. Athens, 136.

Doxiadis Associates, (1965),
Land and Water Use Survey in Kordofan Province, Survey of the Dry Season Nomadic Concentrations with an Emphasis on the Hamar Tribe, Head Office: 24 Strat. Syndosmou Str. Athens 136.

Doxiadis Associates, (1965),
Land and Water Use Survey in Kordofan Province, Report on the Hawazma Tribe, Head Office 24 Strat. Syndesmou Str. Athens, 136.

El Hassan, Ahmed Mohamed, (1981),
The Environmental Consequences of Open Grazing System in the Central Butana, (Unpublished M.Sc. thesis), Institute of Environmental Studies, University of Khartoum.

El Hassan, M.O., (1971),
Lower Order Planning Units for Rural Development in the Sudan, African Studies Seminar Paper No. 11, Sudan Research Unit, Faculty of Arts, University of Khartoum Press.

El Sammani, M.O., (1972),
Investment of Rural Communities in Water Resource planning and Management in the Sudan, (Unpublished M.A. thesis), Reading University.

El Sammani, M.O., (1985), (edit.),
Kordofan Resource Inventory and Development Prospective by Rural Council, prepared jointly by Institute of Environmental Studies, Univresity of Khartoum and the Government of Kordofan Region.

El Sammani, M.O., (edit.), (1985),
El Khuwei-Mazroub-Tinna Study Area North Central and Messeriya Study Area. Southern Kordofan, Final Report, Environmental Training and Management in Africa (ETMA), Environmental Management in the Sudan, Institute of Environmental Studies, University of Khartoum, Sudan, pp. 151-153 and 183, 186 and 187.

El Sammani, M.O., Abdalla, B., El Tayeb G., and Suliman, M.M. (1984),
Nomads of the Semi-Desert Belt of Northern Kordodan and Darfur Regions, Vol. I, Economic and Social Research Council of the National Council for Research, Report No. 15.

El Sammani, M.O., & Abdel Nour, H.O., (1986),
An Integrated Approach to the Problems of Drought and Desertification in Kordofan Region, A Paper presented at Workshop for Drought in Kenya, pp. 1-2.

Fadalla, A.H., (undated),
Settlement of the Rashaida Tribe, Seminar on Delivery of Social and Economic Service to Pastoralists, Sudan Socialist Union, (Unpublished paper in Arabic).

FAO, (1985),
Report on the Workshop on Livestock Policy, Range and Feed Utilization Guidelines for Drough-Prone African Countries, Khartoum/Sudan.

FAO, (1985),
Production Yearbooks and Tradebooks, FAO.

Galal El Din, M.E., (1974),
Population and Housing Characteristics in Villages of Phase I of Rahad Scheme, Ministry of Agriculture, Food and Natural Resources (in Arabic).

Government of Eastern Region, (1983),
Indicators of Range Problems of Eastern Region, Department of Range and Pasture, Seminar for Combating Desertification (in Arabic).

Government of Eastern Region, (1984),
Population of the Eastern Region Based on 1983 National Census, Department of Statistics (in Arabic).

Government of Kordofan Region, (1983),
Final Proceedings and Recommendations of the Seminar on Upgrading and Promotion of Services for Kordofan Nomads, Department of Nomads Affairs, (in Arabic).

Government of Kordofan Region, (1985),
The Experience of Kordofan Region with Desertification and Drought, Department of Planning and Economy (MEF) and Project Operation Unit (MANR).

Government of Kordofan Region, (1985),
Desertification and Drogught in North West Kordofan (Sodiri), Department of Planning and Economy (in Arabic).

Government of Kordofan Region, (1985),
Inventory of Animals at El Obeid Town and Surrounding Villages, to Assess Requirements of Grown Fodder, Concentrates and Water Supply, Department of Planning and Economy and the Administration for Natural Resources (in Arabic).

Government of Kordofan Region; (1985),
Survey of Fellata Forest (El Obeid) of camps of Environmentally affected Refugees, Department of Planning and Economy, (in Arabic).

Harrison, M.M., (1955),
Report on a Grazing Survey of the Sudan, Khartoum.

Harrison, M.N., and Jackson, J.K. (1958),
Ecological Classification of the Vegetation of the Sudan, Forests Bulletin No. 2, Khartoum, Ministry of Agriculture.

Hewison, J.W., (1958),
The Role of Animals in the Life of the Sudan, Land Use Department Files (Unpublished Office File Report).

International Fund for Agricultural Development, (1981),
Report of the General Identification Mission to the Democratic Republic of the Sudan, Report N.1. SUID 1, Rome, Sept. 1, 1981.

Johnson, D.L., (1974),
The Nature of Nomadism, Dept. of Geography, University of Chicago.

Khalil, S.S., (1985),
A Study of Environmental Refugees in the Sudan: The Case of Drought Affected Migrants of North Kordofan to the Prepheries of Omdurman, (Unpublished M.Sc. thesis), Institute of Environmental Studies, University of Khartoum.

Khogali, M.M., (1980),
Sedentarization of Nomadic Tribes in the North and Central Sudan, University of Khartoum Press, 1980.

Lebon, J.H.G., (1965),
Land Use in the Sudan, The World Land Use Survey, Monograph No. 4, Geographical Publications Limited.

Ministry of Finance and Economic Planning, (1985).
The Economic Review, 1984-85, Department of Economic Research, (in Arabic).

Mohamed, Y.A., El Sammani, M.O., and Shadad, M.Z., (1982),
North Kordofan Rural Water Supply Baseline Survey, for the Co-operatdion American Relief Everywhere (CARE), The Institute of Environmental Studies, Univresity of Khartoum in Co-operation with Program for International Development, Clark University Worcester, Massachusits 01610.

Musa, Fathia Salih, (1984),
The Impact of Settlement of Nomadic People: Expereince from Kassala Province in Eastern Sudan, (Unpublished M.Sc. thesis), Institute of Environmental Studies, University of Khartoum.

National Council for Social Welfare, (1980),
A Study of Settlement of Nomads in Eastern Region, National Council for Social Welfare, Khartoum.

Project of the Govrenment of the Democratic Republic of Sudan, (1981), Model Women's Rug-Making Co-operative Northern Kordofan Province, Associated Consultants, August, 1981.

Report of the Soil Conservation Committee, Sudan Government, McCorquodale and Co. (Sudan) Ltd., 1944.

Republic of Sudan, Ministry for Social Affairs, Population Census Office, (1958),
First Population Census of Sudan 1955/56, Notes on Omodia Map, printed by R. Kiesel, Salzburg, Austria.

Request to the United Nations Special Fund for Assistance in Studies on Pilot Projects of Community Development for Settlement of Nomads in the Sudan - Local Government Files (Unpublished Office Document), 1958.

Sorbo, G.M., (1974),
Nomads in the Scheme - A Study of Irrigation, Agriculture and Pastoralism in Eastern Sudan, Univresity of Bergen.

Stebbing, E.P., (1953),
The Creeping Desert in the Sudan and Elsewhere in Africa, McCorquodale & Co. (Sudan) Ltd.

Sudan's Southern STock Route, An Environmental Impact Assessment, Institute of Environmental Studies, University of Khartoum, and Worcester Massachussetts, 1985.

Uilenberg, G., (1957),
Note on the Number and Species of Livestock-Kordofan, Land Use Department files (unpublished Office Report).

United Nations Commission for Refugees, (1976),
Settlement Project for Ethiopian Refugees from Eritrea in East Central Sudan, Confidential Preliminary Report, Hunting Technical Services Limited.

WHO (1973),
Seminar on Health Problems of Nomads, Shiraz/Isfahan.

List of Persons Interviewed/Consulted by Author*

1) Eastern Region:

i) Government Officials:

- Syd/Mohamed Osman Saeed,
  General Director, Mechanized Farming Corporation, Gedaref.
- Dr. Abdel Moneim Mohamed El Hassan and Dr. Suliman Taha,
  Animal Resources Department, Gedaref.
- Syd/Ahmed Mohamed El Hassan, Range and Pasture Inspector,
  Gedaref.
- Syed/Saddig Yousif Beshir, Director Range and Pasture
  Administration, Kassala.
- Dr. Diya El Din Hassan, A/Director Animal Resources
  Department, Kassala.
- Syed/Mustafa Abbas Mukhtar, Managing Director, Gash Delta
  Scheme.
- Syd/Babiker Mohamed Ali Hussein, Deputy Director, Gash Delta
  Scheme.
- Syed/El Tahir Ahmed Badawi, A/Director for Administration,
  Gash Delta Scheme.
- Syed/Shakir Farah Saeed, Managing Director, New Halfa Scheme.
- Syd/Osman Beleil, Managing Director, Rahad Scheme.
- Syd/Osman Ali Mohamed Saeed, Range and Pasture Inspector,
  Rahad Scheme.
- Dr. Omer El Khalifa El Siddig, Inspector Animal Production,
  Rahad Scheme.
- Dr. Badr El Din El Wasila, Abdel Aziz, A/Director, Animal
  Production, Rahad Scheme.

---

* Many more were consulted by the research assistants during the various surveys, names of whom are not included because the list shall be too long. Thanks for their information during the surveys.

ii) Shukriya Bawadra Wealthy Farmers and Livestock Raisers/Gedaref:

- Syd/Ahmed Mahmoud Mohamed Eisa, Umm Shagara Village.
- Syed/Hassan Mahmoud Mohamed Eisa, Umm Shagara Village.
- Syd/Adam Abdalla, Umm Shagara Village.
- Syed/Imam Abdalla, Idd El Tin Village.

2) Kordofan Region:

- Syd/Ibrahim Ali El Tom. A main figure in the Kababish ruling family.
- Syd/Sheikh El Bikri Sheikh El Kabashi, MP, Eastern Kababish.
- Syd/Beshir Gadallah, ex-Inspector of Education, Sodiri District.
- Syd/Abdel Wahab Mohamed Ahmed, Medical Assistant, Gabrat Esh Sheikh.
- Syd/Awad Suliman, Transport Contractor Food Aid Gabrat Esh Sheikh.
- Syd/Hassan Fadlalla, Senior Accountant, Sodiri District Council.
- Groups of nomads at Umm Inderaba, Gabrat Esh Sheikh, Tinna, Gemmama, Sodiri, Hamrat El Wuz, Umm Badir.

3) Darfur Region:

- Syd/Mohamed El Amin A/Rahman, Director Natural Resources Administration.
- Syd/Hamdoon Ahmed Mohamed, Director Soil Conservation Department.
- Dr. Adam Mohamed Adam, Director, Animal Resources Department.
- Syd/Mohamed El Hassan Ahmed Mukhtar, Development Officer, Socio-Economic Division, Savannah Development Project.
- Adam Ibrahim Khalil, Director Range and Pasture Department.
- Executive Local Government Officer, Mellit Council.
- Groups of nomads from Zeiyadiya and Meidob Tribe met at Mellit.
- Groups of Nomads from Zeiyadiya met at Umm Keddada.

M/T8475E/1/1.90/300