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INDUSTRIAL DEVELOPMENT REVIEW SERIES

THE DEMOCRATIC REPUBLIC OF THE SUDAN

Prepared by the
Regional and Country Studies Branch
Division for Industrial Studies

V.85-20240

INDUSTRIAL DEVELOPMENT REVIEW SERIES

THE DEMOCRATIC REPUBLIC OF THE SUDAN

Preface

Within the framework of UNIDO country surveys and studies, a series of industrial development reviews on developing countries is prepared by the Regional and Country Studies Branch of the Division for Industrial Studies.

The reviews provide a general survey and brief analysis of each country's industrial development, both as a service to those within UNIDO and other international agencies concerned with industrial policy, planning, and project development and implementation, and as a ready source of information for Governments. It is hoped that the reviews will prove useful as well to financial and industrial enterprises, both public and private, to research institutes and to aid agencies in developed countries. The reviews also aim at providing a basis for undertaking in-depth studies of specific aspects of industrial policies, strategies and programmes in the developing countries and at providing a basis for informed discussion and analyses of industrial development trends and policies.

The reviews draw on information provided by the UNIDO data base, material available from national and international statistical publications, and other sources. While up-to-date national statistics are not always available on every aspect of industrial development, the reviews will be updated periodically and efforts are being made to improve the data base and to monitor industrial progress and changes in industrial policy on a regular basis.

The present review was prepared towards the end of April 1985 on the basis of information available at UNIDO headquarters. It is divided into two rather distinct parts. Chapters 1 and 2 are analytical, giving first a brief overview of the country's economy and its manufacturing sector and then a more detailed review of the structure and development of its manufacturing industries. Chapters 3 and 4 contain various kinds of reference material - which it is hoped will be useful to readers - on national plans and policy statements relevant to industrial development, on the country's natural, human and financial resources for industrial development and on the more important

governmental and other institutions involved in industrial development. It also contains relevant basic indicators, graphical presentation of manufacturing trends and statistical and other appendices.

It should be noted that the reviews are not official statements of intention or policy by Governments or by UNIDO, nor are they intended to represent an official assessment by UNIDO of industrial development in the countries concerned. Readers are invited to comment on the findings and analyses and thereby assist UNIDO in improving and updating the reviews.

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Regional classifications, industrial classifications, trade classifications and symbols used in the statistical tables of this report, unless otherwise indicated, follow those adopted in the United Nations Statistical Yearbook.

Dates divided by a slash (1970/71) indicate a crop year or a financial year. Dates divided by a hyphen (1970-71) indicate the full period, including the beginning and end years.

References to dollars ($) are to United States dollars, unless otherwise stated.

In tables:

- Three dots (...) indicate that data are not available or are not separately reported;
- A dash (-) indicates that the amount is nil or negligible;
- A blank indicates that the item is not applicable;
- One dot (.) indicates that there is insufficient data from which to calculate the figure;
- Totals may not add precisely due to roundings.

The following abbreviations and acronyms are used in this document:

AIDO	Arab Industrial Development Organization
CPDCs	Centrally Planned Developed Countries
EEC	European Economic Community
GDP	gross domestic product
IBRD	International Bank for Reconstruction and Development
IDCAS	Industrial Development Centre for Arab States
IMF	International Monetary Fund
IRCC	Industrial Research and Consultancy Centre
MVA	manufacturing value added
NOCS	National Oil Company of Sudan
NCR	National Council for Research
ISIC	International Standard Industrial Classification
SITC	Standard International Trade Classification

THIS REVIEW IS BASED UPON INFORMATION AVAILABLE AS AT END APRIL 1985

BASIC INDICATORS 1
The economy

GDP (1981):	$6,461 million					
Population (1982):	20.2 million					
Labour force (1981):	5.84 million					
GDP per capita (1981):	$341					
Annual growth rate of GDP:	1960-70	1970-80	1981	1982	1983	1984
(per cent)	1.29	3.1	5.1	3.6	2.0	2.0

GDP by sector of origin: (per cent)	1960	1970	1981
Agriculture	52.8	35.2	27.4
Industry	6.7	11.5	8.1
Manufacturing	(6.7)	(11.4)	(7.8)
Services	28.5	46.2	57.2
Utilities and construction	11.9	7.0	7.8

Inflation rate: (per cent per year)	1960-69	1970-81	1982/83	1983/84
	3.9	15.2	30.0	25.0

Currency exchange rate: (Sudanese pound equivalents to $1)	1976	1978	1979	Oct./Nov. 1984	Feb. 1985
	0.36	0.40	0.50	2.08	2.45

BASIC INDICATORS 2
Resources and transport infrastructure

In 1982

Resources

Cash crops:	Cotton, groundnuts, sesame, gum arabic
Livestock:	18.8 mn cattle, 18.1 mn sheep, 27 mn chicken (1981 FAO estimate)
Minerals:	Chromite, gypsum, anhydrite, talc, gold, copper and iron (not yet mined)
Fisheries:	27,660 tons (1981 catch)

Transport

Roads:	490 Km paved 3,854 Km gravel (1983) 1,200 Km Khartoum to Port Sudan road completed
Railways:	5,493 Km (1983)
Ports:	Port Sudan
Airports:	Port Sudan; Khartoum

BASIC INDICATORS 3
Foreign trade and balance of payments

Exports	total value:	$623.5 million (1983)
	main goods:	Cotton, gum arabic, sesame, ground nuts
Imports	total value:	$1,354.4 million (1983)
	main goods:	Machinery and transport equipment, sugar, petroleum products
Balance of payments (current account) deficit:		$317 million (1983)
External public debt:		
	total:	$9.0 billion (1984)
	Percentage of GNP:	90 percent (1983)

Debt service:	1974	1978	1980	1983
Percentage of GNP:	1.7	1.3	1.2	2.1
Percentage of total exports:	13.3	13.7	9.3	17.8

Foreign currency reserves:	
total:	$17 million (1983)

BASIC INDICATORS 4
The manufacturing sector

Manufacturing value added:	$450 million (1981)	
MVA Per capita:	$27.0 (1981)	
Employment in manufacturing[a/]:	184,500 (1981)	
As percentage of total labour force:	3.6 percent	
Sectoral composition of MVA (per cent)	1967/68	1977/78
Mainly consumer goods:	59.8	61.3
Chemicals:	11.9	20.1
Other manufactures:	28.3	18.6
Trade in manfactures (1981)[b/]		
Total value - Exports:	$1.18 million	
- Imports:	$886 million	
Share of manufactures (1981)[b/]		
- in total exports:	0.76 per cent	
- in total imports:	54.14 per cent	

a/ Including mining.
b/ SITC 5 to 8 less 67 and 68.

BASIC INDICATORS 5
Trade in manufactured goods

In 1981

TOTAL MANUFACTURED EXPORTS: $1.18 million

Principal manufactured exports	Per cent of total	Destination (in per cent)				
		Developing countries	Developed market countries			Centrally planned developed countries
			EEC	USA	Japan	
Petroleum products	(34.09)a/	38.84	61.16	0.00	0.00	0.00
Soft vegetable oil	(19.65)a/	0.00	100.00	0.00	0.00	0.00
Tea	(6.51)a/	42.23	57.55	0.00	0.00	0.00
Sugar preparation	(5.71)a/	0.30	99.70	0.00	0.00	0.00

TOTAL MANUFACTURED IMPORTS: $886 million

Principal manufactured imports	Per cent of total	Origin (in per cent)				
		Developing countries	Developed market countries			Centrally planned developed countries
			EEC	USA	Japan	
Non-electrical machinery	(17.67)	24.94	65.43	0.00	3.80	2.53
Petroleum products	(14.29)	88.50	11.22	0.00	0.00	0.00
Transport	(13.44)	20.52	62.24	0.00	14.29	0.44
Sugar	(13.17)	14.51	85.44	0.00	0.00	0.00
Textile	(9.99)	80.06	2.60	0.00	11.04	0.93

a/ Calculated as a proportion of all processed exports except cotton.

BASIC INDICATORS 6

Inter-country comparison of selected indicators

Indicator	Unit	Egypt	Ethiopia	Libya	Somalia	Sudan	Yemen Arab Republic	Yemen, PDR
I. Demographic indicators								
Population (1982)	millions	44.3	32.9	3.2	4.5	20.2	7.5	2.0
Population growth (1970-82)	per cent per annum	2.5	2.0	4.1	2.8	3.2	3.0	2.2
Infant mortality (1982)	per 1000	104	122	56	184	119	163	140
Area	'000 km^2	1,001	1,222	1,760	638	2,506	195	333
Density (1982)	persons/km^2	44	27	2	7	8	38	6
II. Economic indicators								
GDP (1981)	$ billion	26.4	4.01	28.3	0.54	9.29	3.21	0.63
GDP (1982) per capita	$	503	115	4,415	119	341	428	315
GDP growth (1970-81)	per cent/annum	8.4	2.2	2.4	3.8	6.3	3.6	...
Agriculture (1982)	per cent of GDP	20	49	2	...	36	26	12
Industry (1981)	per cent of GDP	34	16	68	...	14	17	27
Manufacturing (1981)	per cent of GDP	27	11	3	9.6	7	7	...
Services (1981)	per cent of GDP	46	36	30	...	50	56	61
Exports (goods) (1981)	per cent of GDP	32	17	57	...	9	10	...
Gross domestic investment (1982)	per cent of GDP	30	11	32	...	16	43	...
External public debt (1982)	per cent of GDP	52.8	19	...	78.4	47.7	36.1	80.2
III. Industrial indicators								
MVA (1981)	million $ at constant 1975 prices	3,749	358	482	52	450	...	...
Growth of MVA (1973-81)	average annual per cent	5.8	2.9	16.9	6.1	0.18	...	...
Share in world MVA (1981)	per cent	0.18	0.02	0.02	0.00	0.02	...	...
Share of manufactured exports in total exports (1982)	per cent	8.35	0.50	0.37	0.51	0.76	...	...

EXECUTIVE SUMMARY

After recording substantial increase in GDP in the mid-1970s, the Sudanese economy faced decelerating growth until 1980. A three-year austerity programme suggested by the IMF replaced the ambitious Six-Year Plan and produced modest economic recovery in the early 1980s. In recent years, the Sudanese economy has been constrained by several internal and external factors. Sudan's current economic and financial crises are due to falling agricultural export earnings, mounting trade deficits, alarming debt service ratio and low level of domestic savings.

Agriculture continues to be the backbone of the Sudanese economy, providing livelihood for 80 per cent of the population. Agriculture's share of total labour force is 65.8 per cent, and its share of total exports is 95 per cent. The country's efforts to achieve rapid economic progress and economic transformation are dependent on the performance of the agricultural sector; most productive activities outside agriculture are dependent on agriculture as a source of raw materials, and as the principal earner of foreign exchange needed for importing essential intermediate material inputs and spare parts.

In the structure of GDP the contribution made by the agricultural sector fell sharply over a twenty-year period since 1960, while that of the service sector made a distinctly upward swing from 28.5 per cent in 1960 to 57.2 per cent in 1981. The share of MVA in GDP increased from 6.7 per cent in 1960 to 15.3 per cent in 1973, but declined thereafter to 7.8 per cent in 1981. The composition of MVA has changed, as reflected in a substantial increase in the share of food, beverages and tobacco from 32.9 per cent in 1967/68 to 40.1 per cent in 1977/78. While textile industry suffered a decline in its share of MVA, chemicals made a massive increase during 1967/68-1977/78. A sudden spurt in machinery industry is evidenced by its increased contribution of 8.1 per cent to total MVA in 1977/78 against 0.1 per cent in 1967/68.

Exports comprise raw and semi-processed materials while imports are mainly manufactured goods. A drastic decline in the production of cotton, Sudan's principal export, has been one of the main causes of the current economic situation. The share of manufactures in total exports is negligible.

Today the manufacturing sector of Sudan is facing severe shortages of trained manpower, raw materials and foreign exchange needed for importing essential intermediate inputs. Production costs have increased due to a series of devaluations of the Sudanese pound. These, coupled with infrastructural bottlenecks, have led to a drastic fall in capacity utilization and resulted in a recent closure of 74 manufacturing enterprises. The continued underutilization of capacity in many industries, most of them in basic consumer goods branches such as sugar, cotton, textile and food products, is a matter of concern in view of the fact that Sudan is spending her scarce foreign exchange for importing basic consumer goods although the country has sufficient installed capacity to meet the domestic demand. A sustained effort to utilize more efficiently the existing capital stock already invested in the manufacturing sector will promise possibilities for saving on imports and increase domestic production.

Within the framework of a mixed economy, Sudan is shifting her policy from progressive expansion of public sector to greater participation by private sector in manufacturing activity. The growth pattern of Sudan's industry is mainly directed towards import substitution of basic consumer goods. Manufacturing activity is confined mainly to processing of materials derived from agricultural produce, e.g., vegetable oils, cotton textiles, sugar, hides and skins. There is ample scope for additional processing of agricultural materials both for domestic and foreign markets.

In September 1983, the Government initiated new policy measures to lay a foundation for the Islamic banking system. It is reported that the ruling transitional military council, which seized power on 6 April 1985, is favouring the abondonment of the Islamic banking system. The new Government is also concerned about the speedy implementation of the austerity programme recommended by the IMF, the United States and other international creditors, to which Sudan owes $9 billion.

The discovery of oil in the South raised hopes of Sudan's status as a future oil exporter. However, the situation today is in contrast to those hopes. The operations of the American Company Chevron have recently been suspended. In May 1985 the new Sudanese regime ordered the dissolution of a joint venture on oil production between the former Government and a leading Saudi financier.

Data on industrial development are relatively scarce. The overall immediate need is to develop a sound data base of reliable industrial statistics for consistent analysis. This will also serve as a basis to monitor the process of industrial development in Sudan on a continuous basis.

1. THE ECONOMY OF SUDAN

1.1 Recent economic trends

The economy of Sudan grew modestly at an annual average rate of 2.3 per cent between 1960 and 1981. Sudan experienced fairly substantial growth in the mid-1970s, with GDP growth of 10 per cent in 1974 and 9.4 per cent in 1976. This high pace of economic growth was interrrupted in the late 1970s and the Sudanese economy registered negative growth rate in 1979/80. In 1981 Sudan was again back on the positive growth track with modest economic recovery, rising slightly to 3.6 per cent in 1982. GDP suffered a downturn in 1983/84 and it is likely that there will be a real decline in GDP in 1985.

The efforts initiated in the 1970s to transform Sudan into a status of the "bread basket" of the Arab world, with the aid of a massive financial assistance from Arab donors, seem to have been inhibited by the prolonged drought and the country's infrastructural bottlenecks. Today drought and famine affect 4 million Sudanese and some 1.5 million refugees from neighbouring countries.

Shortage of skilled manpower, dearth of foreign exchange needed for importing spare parts, and chronic shortage of raw materials culminated in underutilization of installed capacity to the tune of 70 per cent in many industrial units. Sudan's endeavour to make optimal use of the installed capacity in the industrial sector looms as a great challenge. According to recent data, there are 74 non-operating "sick" enterprises within the manufacturing sector.

Export revenues increased by 28 per cent in 1983-84, with cotton contributing about $344 million. Imports declined by 8 per cent. Sudan's current deteriorating balance of payments position has resulted more from a decline in agricultural export earnings than from an increase in imports. The overall trade deficit may reach $945 million in 1985, but the Government hopes that this will be reduced by $120 million due to remittances from expatriate Sudanese following the devaluation of the Sudanese pound against the US dollar

in late October 1984 and in February 1985. Deteriorating terms of trade are likely to persist as import prices rise inexorably while export commodity prices are currently low. Sudan's cotton sector, the principal foreign exchange earner, recorded an increase in production from 1.006 million bales, in 1983 to 1.880 million bales in 1984. But Sudan's revenue from cotton production may suffer from the expected fall in the international price of cotton following improved prospects for the world cotton crop production in 1985.[1/]

The declining trend in the price of cotton coupled with the recent devaluation of the Sudanese pound may make Sudanese cotton an attractive option. But the supply response will be slow if the drought prolongs. The exports of groundnuts and vegetable oils have been adversely affected, partly by the bumper harvest in the US in 1984.

The deterioration in the terms of trade has deepened the external debt service difficulties. The total outstanding debt increased from $3.9 billion in 1980 to $9.0 billion 1985. It has been estimated that without substantial rescheduling, debt service payments over the period 1983-86 would reach an alarming ratio of 85 per cent of total export earnings. It will eventually result in the inability of the country to fulfill its external debt service obligations and in exposing the creditors to "country risk" in international lending. Almost 40 per cent of the debt service obligations are related to Arab creditors. Sudan is the second biggest recipient of British aid, after India, and the third largest recipient of US aid.

Appendix Table A.1 shows the significant increase in total external debt and debt service payments during 1974-85. Though the bulk of Sudan's debts are owed to official creditors, the amounts sourced from private creditors have been increasingly rapidly in recent years. According to World Bank projections, the total debt service jumped from $144.4 million in 1983 to $736.0 million in 1985. By 1983, 17.8 per cent of all export earnings were being used for this purpose. Debt service could be absorbing 80 to 90 per cent of export earnings during the rest of the 1980s, even if payment arrears were consolidated and rescheduled on fairly generous terms.

1/ The International Cotton Advisory Committee estimates world production at 75.66 million bales in 1985, up from 67.61 million bales estimated for 1984.

Under the auspices of the IMF a series of rescheduling agreements with the major creditors have been concluded. The 1984 rescheduling agreement with Sudan's creditors covered principal interest and arrears, and included a six-year grace period for repayments. Standby agreements have also been signed with the IMF. The 1984 standby agreement amounts to $95 million during 1984-85. Sudan may be conditioned to repay not less than $30 million to the IMF in 1985. In the absence of interim financial packages from donors (the US has already provided two interim financial packages in 1984), Sudan will have to reschedule her external debts in 1985. Many creditors suspended aid to Sudan in late 1984 because of a steady deterioration in the economic and domestic situation. The new transitional military council which seized power on 6 April 1985, vowed to carry out the austerity programme suggested by leading creditors. One of the conditions attached to IMF loans is the reduction in the subsidies on prices of bread, gasoline, oils and other essential goods, reductions of imports and other demand restraining measures. The new Government has indicated that it will approach IMF conditionality with caution. An agreement with the IMF seems to be essential for the country's economic future. A few days after the assumption of office by the new Governmet in April 1985, Saudi Arabia released $62 million pledged but undisbursed aid.

The creation of the National Oil Company of Sudan (NOCS) in September 1984 was intended to establish a 50:50 joint venture company between the State and a leading Saudi financier. The agreement between the former Government and its partner gave NOCS control over much of Sudan's mineral resources in return for a commitment to explore and process mineral resources and to make Sudan a future oil exporter. The practical implementation of this joint venture was constantly inhibited by insurmountable technical and financial difficulties. The new regime disapproved the agreement which conferred a wide range of rights on NOCS, and in May 1985 it ordered the dissolution of the joint venture company.

The ambitious Six-Year Plan (1977/78-1982/83) was replaced by an austerity programme in 1978 - the essentials stemmed from a crash programme suggested by the IMF to rehabilitate the economy. The new programme included rehabilitation of existing plants and schemes, a moratorium on new development projects, expansion of infrastructure, correction of cost price distortions, and fiscal and monetary incentives to encourage exports.

The budget for 1984/85 anticipates revenues of S£1,650 million, an increase of S£325 million. Tax revenue is expected to increase from S£1,261 million to S£1,315 million. Total expenditure is estimated at S£2,663 million, 9 per cent higher than 1983/84. The budget deficit is to the extent of S£1,023 million compared to S£864 million in the previous year. To meet the burden of current expenditure, the Government has become increasingly reliant on deficit financing. These budget estimates may be adjusted following the devaluation of the Sudanese pound in late 1984 and in February 1985.

The major new policy initiatives of the former Government were the introduction of the Zakah taxation system and the revision of banking laws and procedures. The previous Government envisaged a gradual Islamisation of the banking system in September 1984. The new regime, which acts as a transitional caretaker Government, seems to have determined to abolish the Islamic banking system. A return to Western-style banking is likely to result in large movement of funds out of the Islamic banks into the international banks which practice traditional banking operations. In response some of the 1 million Sudanese working abroad have resumed remittances of their earnings, a major source of foreign exchange.

In searching for a possible cure for the current financial problems, it is important to remember that the financial crisis did not have its origin in the financial sector. Consequently, the ultimate solution to the current economic crisis will have to be found in economic recovery rather than financial adjustments.

1.2 Economic structure

Agriculture is the mainstay of the economy. It provides the livelihood of 80 per cent of a population of 20.2 million, employment for 65.8 per cent of the labour force and accounts for about 27.4 per cent of GDP and 95 per cent of all exports. Sudan being a new-comer in the sphere of industrialization, continues to remain heavily dependent on agricultural production. The country's agricultural potential is still far from being fully realized - only 10 per cent of the total arable land is being cultivated and only 3 per cent is under irrigation. The most important domestic cereal

crop is dura (a variety of sorghum). The country's growth stemmed largely from modern capital-intensive irrigation development on the Nile.

Table 1 distinctly depicts the upward swing in the contribution made by the service sector to GDP. Its strikingly increasing contribution from 28.5 per cent in 1960 to over 57 per cent in 1981 demonstrates Sudan's "pseudo development", i.e., having a large service sector at low level of development. Compared with the predominence of agriculture, industry is small, accounting for 8.5 per cent of GDP in 1981. The manufacturing sector accounted for only 7.8 per cent of GDP in 1981. Total labour force in 1982 was 6.2 million, of which 6.7 per cent was in manufacturing and 21 per cent in services. Value added per worker was $839 in agriculture, $2,929 in industry

Table 1. Distribution of GDP by sector or origin, 1960-81

(at 1975 prices)

Year	Agriculture	Mining and quarrying	Manufacturing	Utilities	Construction	Services	GDP
	(Percentage)						(Million $)
1960	52.3	0.0	6.7	5.7	6.2	28.5	2,984.6
1961	53.5	0.0	6.7	5.4	5.7	28.6	4,281.0
1962	52.5	0.0	6.7	5.2	5.8	29.7	4,629.1
1963	47.0	0.0	7.2	5.2	6.9	33.6	4,651.1
1964	43.3	0.0	7.6	5.1	6.7	37.2	4,702.5
1965	43.1	0.0	8.3	4.9	4.9	38.6	4,668.0
1966	33.6	0.2	11.0	4.7	5.0	45.5	4,388.9
1967	34.5	0.2	11.2	4.3	4.21	45.5	4,195.3
1968	33.7	0.2	10.8	4.1	4.4	46.8	5,162.8
1969	35.6	0.1	13.2	4.1	4.3	42.5	4,503.3
1970	35.2	0.1	11.4	3.5	3.5	46.2	4,529.5
1971	33.8	0.2	12.0	3.5	4.0	46.4	4,902.4
1972	34.3	0.3	8.8	2.6	3.2	50.8	4,695.2
1973	33.7	0.5	15.3	1.8	4.5	44.2	4,684.2
1974	37.4	0.3	9.5	1.7	4.2	46.8	5,009.01
1975	36.1	0.3	8.9	1.6	5.1	47.8	5,102.8
1976	29.2	0.3	7.9	2.2	5.0	54.9	5,392.6
1977	31.2	0.3	7.3	2.1	4.7	54.3	6,003.2
1978	33.1	0.3	7.0	2.2	4.1	53.3	6,283.4
1979	28.5	0.3	7.6	2.3	4.9	56.6	6,090.4
1980	27.5	0.3	7.7	2.3	4.8	57.2	6,147.5
1981	27.4	0.3	7.8	2.4	4.8	57.2	6,461.3

Source: Statistics and Survey Unit, UNIDO. Based on data supplied by the UN Statistical Office with estimates by the UNIDO Secretariat.

and $3,396 in services. Manufacturing activities are confined mainly to processing agricultural products. Although a few mineral deposits have been found in sufficient quantities to warrant commercial extraction, Sudan's mineral sector is relatively unimportant as it contributes less than 1 per cent to GDP and employs around 1 per cent of the country's total labour force.

The structure of Sudan's external trade is characteristic of a predominently agricultural economy at the embryonic stage of industrialization. Exports are dominated by raw and semi-processed materials and imports are mainly manufactured goods. Cotton remains Sudan's principal export, but earnings fluctuate according to output which largely depends on weather conditions and the world market price. Other principal exports are groundnuts, sesame, gum arabic (gum hashab only), dura, sheep and lambs, groundnut cake and meal, hides and skins. Since a dramatic decline in cotton production during the past decade has been a principal cause of the nation's current problems, revival of the cotton sub-sector should be central to any economic recovery strategy. Petroleum products and sugar accounted for over a third of all imports in 1980.

The expansion of sugar cane production is one of the cornerstones of the "bread basket of the Arab world" theory. Today Sudan is seeking to export both oil and sugar. The world's largest sugar plantation refinery complexes at Kenana has already commenced operation. Formidable technical and financial constraints seem to hamper the prospects of Sudan becoming an oil exporter in the near future.

Principal imports are machinery and equipment, transport equipment, manufactured goods, medicines, chemicals, etc. Industrial products accounted for 83 per cent of Sudanese imports in 1982. Sudanese exports are destined for Saudi Arabia, Italy, Japan, Federal Republic of Germany, People's Republic of China, France, Netherlands, USA, Egypt and Republic of Korea. Imports originate mainly from Saudi Arabia, UK, USA, Kuwait and the Federal Republic of Germany.

A massive trade deficit, slow pace of agricultural export earnings and increase in import expenditure have led to profound adverse effect on the balance of payment position. The current account deficit which had been

around $10 million in 1972/73 rose to $470 million in 1974/75 and to over $700 million in 1980/81. In 1983 it stood at $219 million. The two-tier exchange rate was abolished in November 1981.[1/] Sudanese pound has been devalued in succession and the lastest was in February 1985 which fixed the par value at $1 = S£2.45.

The high levels of external borrowing and deficit financing have been necessitated by a large decline in domestic saving rates. Gross domestic savings measured as a ratio of GDP declined from an annual average of 9 per cent during 1974/75-1977/78 to minus 1 per cent in 1981/82. Currently net domestic savings are estimated at zero and the entire national investment programme is financed by the inflow of foreign capital and remittances from Sudanese working abroad. During the period 1977/78- 1981/82 net private sector savings (private sector investment minus private sector savings) fell from S£30 million to minus S£498 million. The delcine in domestic savings in both public and private sectors has been influenced by the easy availability of Arab surpluses. There is some evidence to show that foreign capital was directly substituted for domestic savings, particularly in the public sector. There is a need for substantial increase in the domestic saving effort.

In analysing the role of the manufacturing sector within the economy, it is important to bear in mind that in the short and medium term, manufacturing revitalization is only feasible if accompanied by the generation of investible surplus within the manufacturing sector itself.

1.3 Overview of the manufacturing sector

At the time of independence (1956), the share of the manufacturing sector in GDP was barely 1 per cent. This had increased to over 8 per cent by the mid-1970s, but subsequently there has been a relative decline. Currently manufacturing accounts for about 7.8 per cent of GDP.

1/ Since September 1979 a two-tier dollar related exchange rate was followed. The official rate for specified exports and imports was fixed at $1 = S£0.50 and the parallel rate for all other transactions was $1 = S£0.80.

Traditionally the manufacturing sector produced simple conumer goods involving the processing of agricultural raw materials. Until the nationalization of key manufacturing units in 1970 the industrial sector was dominated by private enterprises. Today the public sector plays a leading role but private and foreign investments are encouraged. The Government has shifted the emphasis from progressive expansion of public sector to greater participation by private sector.

The Government has been following an import-substitution strategy and the degree of industrial protection has been high. The production of key industrial products - such as sugar, yarn and vegetable oils - has continued to rise, despite substantial capacity underutilization.

The textile and cement industry have in recent years suffered setbacks. The textile industry is capable of meeting domestic needs and of generating a small exportable surplus if 100 per cent capacity utilization were possible. The industry is currently operating at a capacity utilization rate of 30 per cent and there are shortages of skilled manpower, spare parts and power supplies. The cement industry is also operating at about 30 per cent of capacity. The Government has put forward plans for a re-organization and expansion of both the textile and the cement industries.

Sudan's manufacturing industry faces chronic shortages of: trained manpower - partly due to expatriation of labour attracted by opportunities for higher earnings abroad;[1/] foreign exchange needed for importing spare parts, raw materials and intermediate materials; and energy supplies. According to a recent survey conducted by UNIDO[2/] there are 74 non-operating establishments. The majority of these estbalishments are food, beverages,

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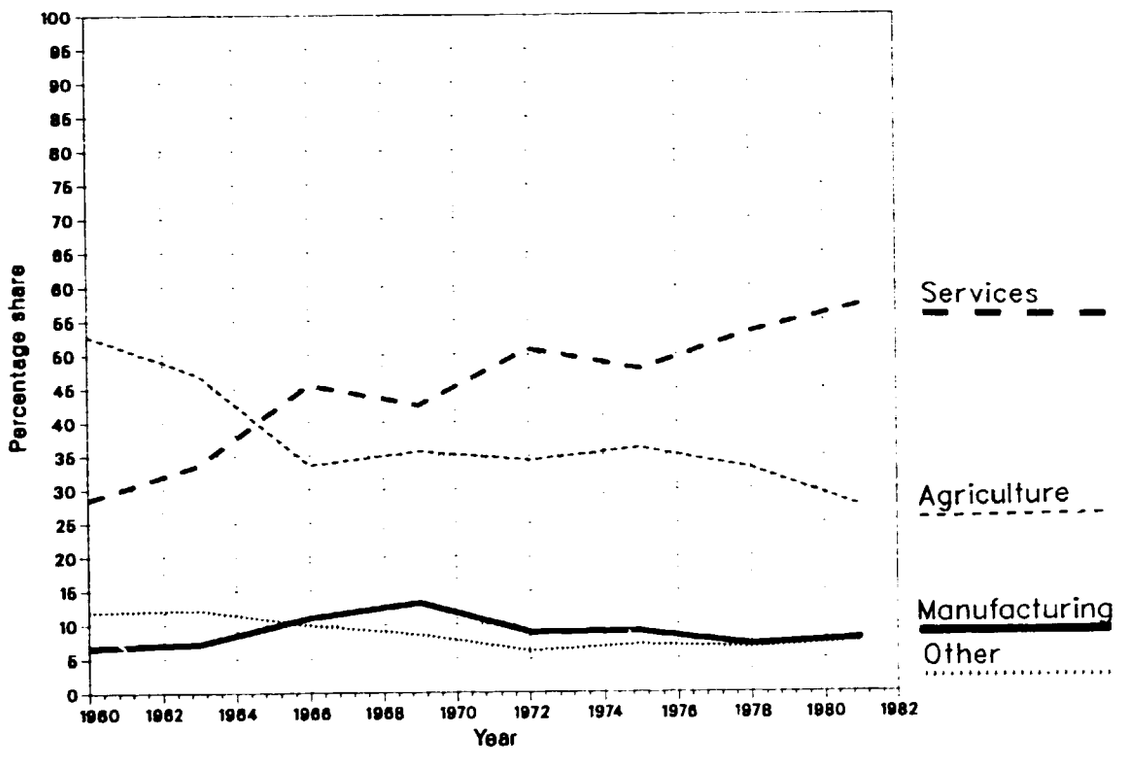
1/ In recent years the number of emigrants with skill and high academic qualifications has increased and now reached a magnitude of significant proportions of impinging on the skills necessary for the implementation of development targets. Within a period of three years 6,091 permits were issued by the Department of Labour to work abroad. For a comprehensive survey of educated manpower situation, see Ahmed Salim, "The Manpower Situation in the Sudan", Labour and Society, Vol. 5, No.3, July 1980, pp.291-308.

2/ Industrial Survey: Sudan, DP/SUD/80/006 (unpublished interim Report drafted in 1984).

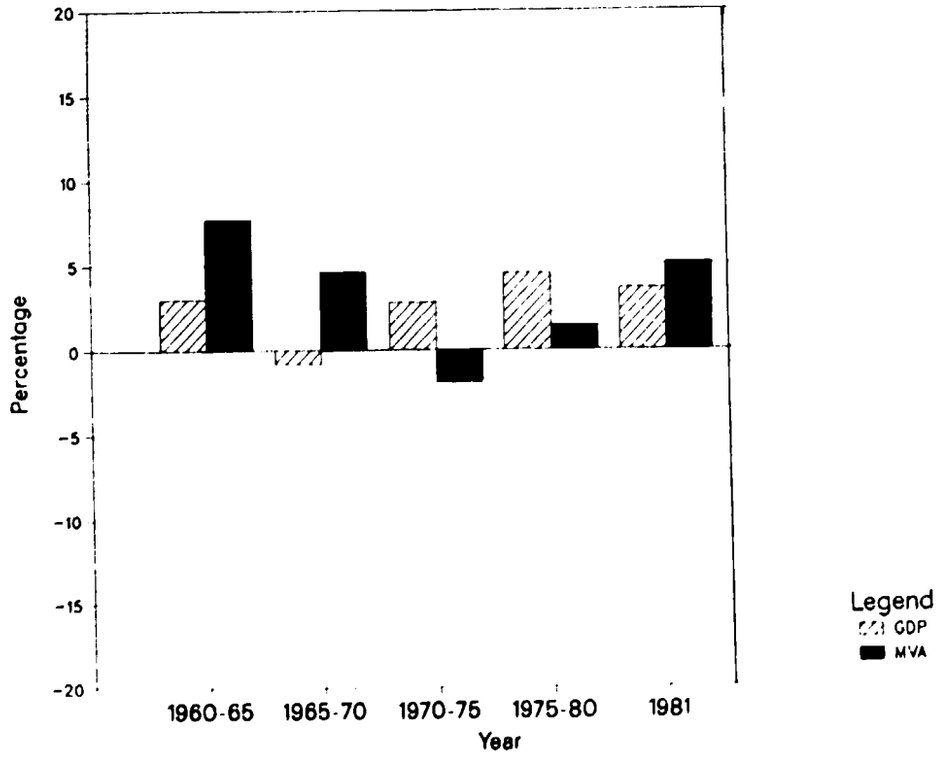
textiles, and leather manufactures which account for over 76 per cent of non-operating manufacturing units. The survey shows that each industrial unit suffers from more than one cause and the causes of h_ghest frequency are: shortage of raw materials, 26.9 per cent; shortage of power and fuel, 18.8 per cent; marketing problems, 17.3 per cent; industrial disputes, 12.2 per cent; depreciation of machines, 8.6 per cent; and emigration of labour, 6.6 per cent.

MANUFACTURING TRENDS

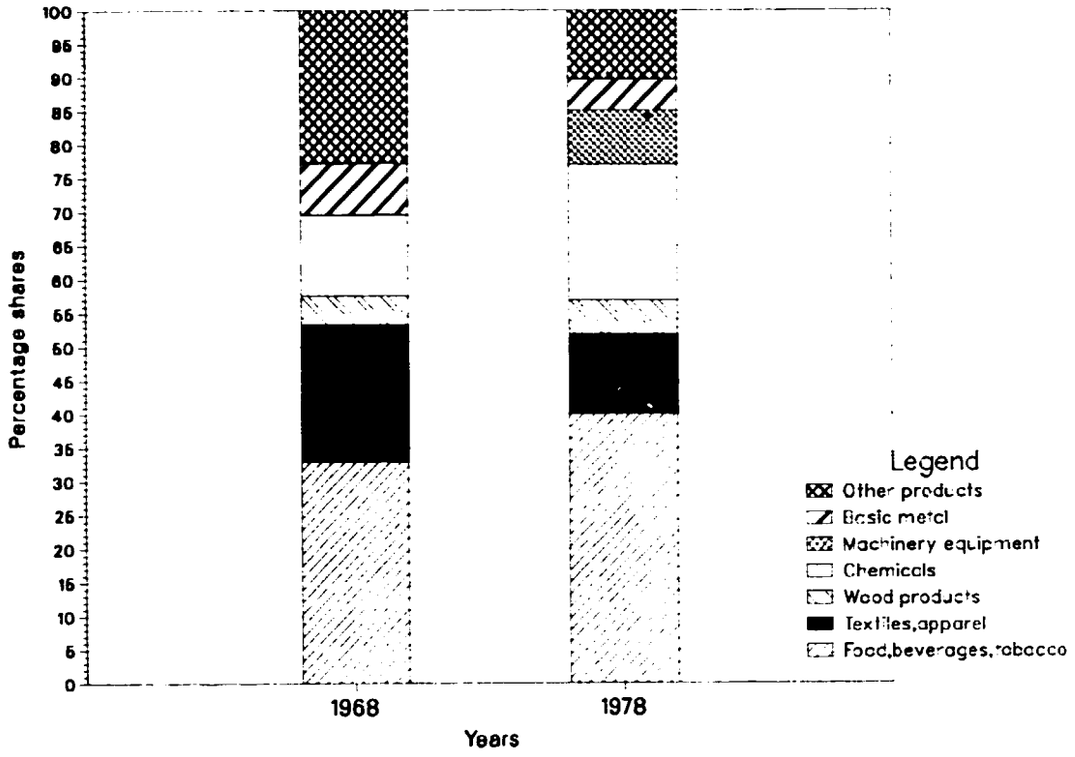
GDP BY ECONOMIC SECTOR, 1960-1981



ANNUAL RATES OF GROWTH OF GDP AND MVA, 1960-1981

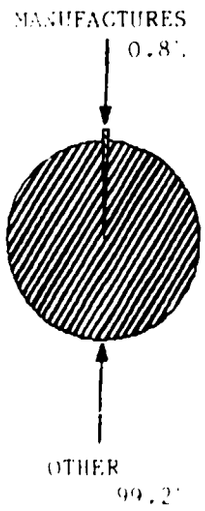


COMPOSITION OF MVA BY MAIN BRANCHES, 1968,1978

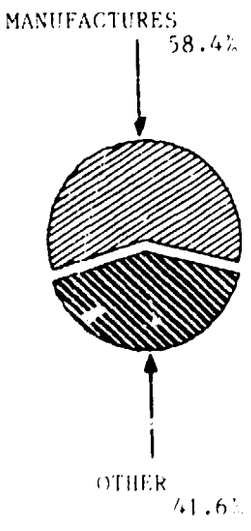


MANUFACTURED EXPORTS AND IMPORTS IN 1981

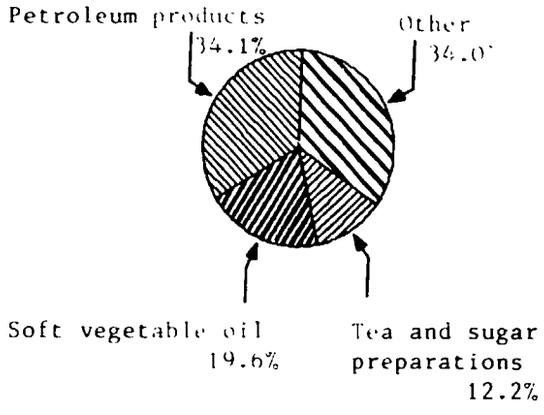
SHARE OF MANUFACTURES IN TOTAL EXPORTS



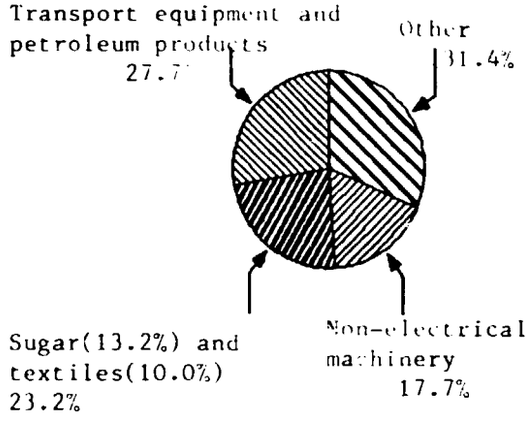
SHARE OF MANUFACTURES IN TOTAL IMPORTS



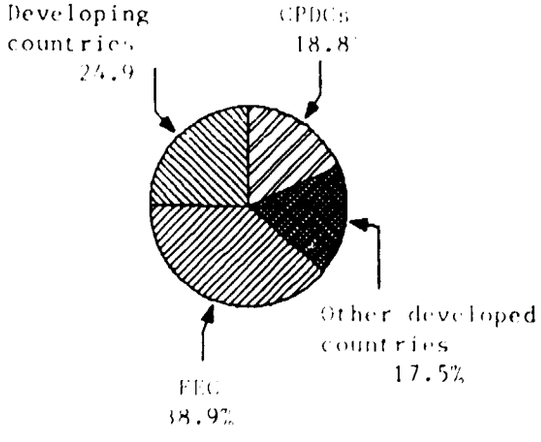
COMPOSITION OF MANUFACTURED EXPORTS



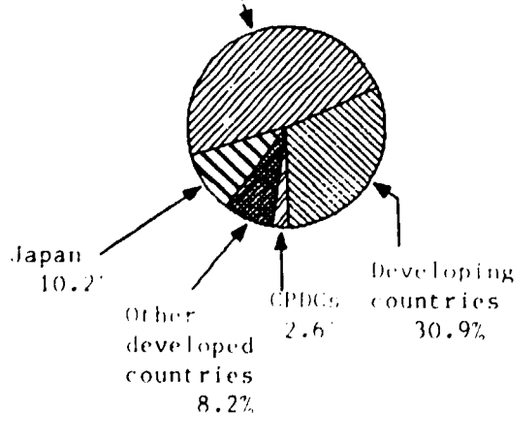
COMPOSITION OF MANUFACTURED IMPORTS



DESTINATION OF MANUFACTURED EXPORTS



ORIGIN OF MANUFACTURED IMPORTS



2. STRUCTURE AND PERFORMANCE OF THE MANUFACTURING SECTOR

2.1 Growth and structural change

The highly bewildering nature of statistics pertaining to the Sudanese manufacturing sector prevents a consistent analysis. Data on output, investment and value added are gathered by public enterpises, the Department of Customs and Excise (Ministry of Finance) and by the National Accounts Section of the Department of Statistics. The Department of Statistics undertook a survey of manufacturing industry in 1979, but final consolidated results are still awaited. In 1980 a project was initiated by UNIDO with a prime objective to develop, organize and introduce a framework of industrial statistics, using the methodology applied by the Arab Industrial Development Organization (AIDO), and to estbalish classified stock of essential data on sub-sectoral activities. To parry ambiguity and inconsistency until the survey is complete, this section explains the growth of manufacturing sector with the aid of data contained in the UNIDO data base and analyses structural change within manufacturing sector over a ten-year period on the basis of data sourced from official documents of Sudan.

The real growth of manufacturing output increased marginally at the rate of 0.78 per cent per annum during 1963-1981 as against a growth rate of 6.45 per cent in Africa as a whole. A declining trend in growth of MVA resulted in a reduction of the manufacturing sector's contribution to GDP, particularly during the first half of the 1970s, from 11.4 per cent in 1970 to 8.9 per cent in 1975. MVA per capita, measured at constant 1975 prices, declined from $28 in 1963 to $27 in 1981. In Africa it grew at 2.77 per cent per annum during the same period.

It is evident from Table 2 that the manufacturing of consumer goods is predominent in the structure of manufacturing value added in Sudan. The major part of the consumer goods industry is destined for meeting the basic needs, namely, food and clothing. There has been a substantial increase in the share of food, beverages and tobacco in total MVA from 32.9 per cent in 1967/68 to 40.1 per cent in 1977/78. There are still ample opportunities for progress in these branches of manufacturing in Sudan. The main industry within the group of food manufacturing industries is that of oils which accounted for 76 per cent of total value added within the group in 1967/68.

Table 2. Structural change in manufacturing value added, 1967/68 and 1977/78

(Percentage)

Sub-sector of manufacturing	1967/68	1977/78
Food, beverages and tobacco	32.9	40.1
Textiles and apparel	20.4	11.8
Wood products	4.3	5.0
Paper and paper products	2.2	4.4
Chemicals	11.9	20.1
Non-metallic minerals	4.4	5.0
Basic metal industries	7.6	4.6
Machinery equipment	0.1	8.1
Other	16.2	0.9

Sources: IDCAS, Report on Democratic Republic of Sudan: Industrial Survey and Industrial Investment Opportunities, August 1969 - April 1970, Part V, pp.9 and 10; Government of Sudan, Department of Statistics, Ministry of Finance.

Textile industry was second in rank in the structure of MVA in 1967/68. As its share declined from 20.4 per cent in 1967/68 to 11.8 per cent in 1977/78, it was placed at third position in the order of importance. Chemicals made a massive increase in their share of MVA, from 11.9 per cent in 1967/68 to 20.1 per cent in 1977/78. The machinery equipment industry was at its embryonic stage of development in 1967/68, with 0.1 per cent contribution to MVA but a spurt in its activity over a ten-year period is evidenced by its increased contribution of 8.1 per cent to total MVA in 1977/78. A glance at Table 2 reveals that leather and leather products are not included in the list of manufacturing sub-sectors. From a decline in the share of other industries from 16.2 per cent to 0.9 per cent during a ten-year period it may, therefore, be concluded that leather and leather products lost their relative importance

during the period concerned. But this inference seems to be inconsistent with production data furnished in Appendix Table A.2 and factory level production data given in Appendix Table A.3. Reconciliation requires detailed field examination of the reliability and validity of data sources.

More up-to-date and detailed information can be provided in terms of changes in the branch share of output. Appendix Table A.2 measures change in output volumes of selected industrial products over the period 1974/75-1982/83. In the food manufacturing branch, sugar is the only product which has a positive rate of growth since 1978. Production of flour, vegetable products, wine, beer and soft drinks generally declined after 1979/80. Textile production fell significantly in 1980/81. Output of all chemical products, with the sole exception of tyres and tubes, have declined after 1979/80. The cement industry has been in decline since 1978/79. Statistics on machinery and equipment remain incomplete.

In general, it is clear that all the major branches of manufacturing industry have declined since 1977/78. The decline has affected the intermediate goods industry - particularly cement but also some chemical products - more severely than food manufacturing. The intermediate goods branches, however, remain important constituents of the manufacturing sector and the recent discovery of sizable quantities of crude indicates that potential also exists for the growth of a domestic petrochemical industry.

The pattern of structural change within the Sudanese manufacturing sector is vividly illustrated with the aid of a star-diagram in Appendix A.8. It is based on the calculation of structural change indices. For each branch an index for the periods 1965-70, 1970-75 and 1975-80 is calculated from the base year 1965. The index number determines the distance from the origin of the star-diagram. A quick glance at the diagram reveals the rapid expansion of non-electrical machinery. Non-metallic mineral products and industrial chemicals have also tended to expand. Iron and steel, wood products and furniture, plastic products and textiles declined rapidly. These structural change indices seem to be consistent with structural change in value added presented in Table 2, except in regard to leather products which are listed under other products. However, factory level production data given in Appendix Table A.3 does not create ambiguity when compared with the index of value added given in Appendix A.8.

2.2 Performance and efficiency

The decline in manufacturing production inevitably led to a decline in the performance of manufacturing enterprise. During 1970-1981, the real growth of manufacturing output increased at a marginal annual average of 0.18 per cent. The rate of decline was highest in the textile and leather industries. Paper products and food manufacturing had positive annual real growth rates (of 7.4 and 8.0 per cent respectively) during this period.

Figures on net profits of individual enterprises are not available on a sufficiently wide range to permit generalization. Nevertheless, the fact that industry currently operates at about 30 per cent of its productive capacity is an indicator of low performance. Another indicator of the existence of low industrial efficiency is the growth of commercial credit and declining output of the manufacturing sector. The total outstanding bank credit grew from S£96 million in 1977/78 to S£275 million in 1982/83 in the private manufacturing sector. Public manufacturing increased the stock of outstanding domestic bank debt from S£13.2 million to S£97.9 million in 1982/83. The growth in domestic and international borrowing has not been accompanied by a corresponding growth in output and value added. This indicates low levels of returns on investment. The particularly rapid expansion of domestic credit during 1977/78-1982/83, a period where negative output growth rates were being recorded in most branches, indicates that rates of return on capital employed were falling drastically during this period.

Capacity utilization in manufacturing plants is estimated at 30 per cent. The economic cost of underutilized capacity are twofold: first, the rate of return on investment is low and resources will have to be generated from other sectors to repay the loans that financed the development of these manufacturing enterprises; second, underutilization means foregone production. Many of these enterprises are in the sugar, cotton, textile, cement, leather and food products industries. The major constraints that inhibit Sudan's endeavour to reach an acceptable level of capacity utilization are: inadequate infrastructure - particularly power and transport; shortages of material inputs - both foreign and domestic; limited size of domestic market coupled with competition from imports; lack of managerial personnel and labour shortages; cost and price distortions; and incompatible choices of product, production techniques and location.

Choice of product and of production technology during the 1970s did not always reflect demand and resource characteristics of the national economy. The manufacturing sector became import intensive and geared to the production of goods - such as high quality textile - which could neither be absorbed by domestic demand nor exported because of the uncompetitive cost structure.

The additional variable costs exceeded the value of output - even ignoring the cost of capital - and 74 enterprises became so uneconomic that they were forced to close. A recent survey of these non-operating enterprises indicates that chronic shortages of raw and intermediate materials, power and fuel, marketing problems and uncompetitiveness were the most crucial barriers.

Many industrial plants with good potential for efficient production are finding it difficult to compete with imports. The Sudanese textile industry exhibits symptoms of crippling state of efficiency in manufacturing. It appears that the textile industry has sufficient installed capacity to meet 110 per cent of domestic demand. When the industry was operating at 25 per cent of its installed capacity in 1980, over 70 per cent of the country's domestic requirements were imported.

2.3 Exports and imports of manufactured goods

Appendix Tables A.4 to A.6 summarize the composition and direction of trade in manufactured goods. Manufactured exports have grown from $205,000 in 1970 to $4.9 million in 1980. In 1981, they fell to $3.5 million. Over the period 1970-81, the share of manufactured exports in total exports rose from 0.07 per cent to 0.8 per cent. If the widest possible definition[1/] of manufacturing is used the share of all processed exports can be seen to have dropped from over 70 per cent of total exports in 1970 to about 36 per cent in 1981. The share of manufactured imports (wide definition) in total imports has declined from 91 per cent in 1970 to 86 per cent in 1981. Using a more narrow definition the share of manufactures (SITC 5 to 8 less 67 and 68) in total exports and imports was 0.76 per cent and 54 per cent respectively in 1981. Declining terms of trade have been a major factor restricting the growth of export earnings by Sudan.

1/ See footnote to Appendix Table A.4.

The most important processed exports after cotton, which in 1981 accounted for 65 per cent of total exports, are petroleum products, feeding stuff for animals, soft vegetable oils and tea. Leading manufactured imports are petroleum products, transport equipment, textile yearn fabrics, iron and steel and electrical machinery.

Table 3 indicates that the share of non-processed goods for final use accounted for 82.04 per cent in total imports in 1981, which is somewhat surprising in a predominantly agricultural country, with the preponderance of agro-based industrial structure combined with sufficient installed industrial capacity to meet domestic demand for finished goods. On the other hand, the share of non-processed export goods for further processing is also equally high. The Table permits a verdict on the less successful import-substituting industrialization policy and shows the need to re-examine the case for a higher degree of import substitution through efficient use of the country's resource potential, as well as "export substitution" through a higher degree of processing local raw materials currently being imported in unprocessed form.

Over 64 per cent of total manufactured imports are obtained from the developed market economy countries - the EEC's share is as high as 48 per cent. Developed market economy countries buy 56.4 per cent of Sudan's processed exports, with the EEC accounting for 39 per cent. Developing countries in the region, particularly Saudi Arabia, are important sources of demand for Sudan's manufactured exports.

The Government's export expansion drive is currently mainly limited to the traditional agricultural exports - cotton, gum arabic, sesame and groundnuts. Manufacturing can make a significant contribution towards reducing the current account deficit by import substitution. It is paradoxical that while the domestic textile industry operates at about 25 per cent of capacity, Sudan imports large quantities of textiles to meet domestic demand. If the textile industry were operating at installed capacity utilization levels it could satisfy domestic demand as well as generate a small exportable surplus.

Table 3. Shares of exports and imports classified according to level of processing, 1970 and 1981, and trend growth rates, 1970-1975 and 1975-1981

CLASSES	EXPORTS				IMPORTS			
	CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)		CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)	
	1970	1981	1970-1975	1975-1981	1970	1981	1970-1975	1975-1981
A : Non-processed goods for further processing	92.65	86.68	7.80	1.64	7.24	1.88	11.76	3.76
B : Processed goods for further processing	5.84	7.21	0.09	14.43	14.96	12.48	19.87	4.25
C : Non-processed goods for final use	1.10	1.53	22.60	6.63	5.56	3.59	0.34	16.98
D : Processed goods for final use	0.41	4.58	74.29	0.10	72.24	82.04	28.34	6.71
Sum of classes: A+B+C+D in 1000 current US$	1970 291820	1981 500734			1970 307804	1981 1349055		
Total trade SITC 0-9 in 1000 current US$	291820	500806			311145	1518702		

SOURCE: UNIDO data base; Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

Note: Calculations are based on current us dollar prices.
Sum of classes and Total trade figures should be identical. Discrepancies or zero values are due to lack of countrys" trade reporting in general, but especially at the 3-, 4- and 5-digit SITC level.

Similarly the sugar industry is also potentially capable of meeting domestic demand. Currently import of raw sugar accounts for 10 per cent of all imports and import of refined sugar accounts for over two thirds of apparent consumption.

Successful import substitution within Sudanese manufacturing requires correcting fundamental sectoral imbalances. These relate to the ownership, investment pattern and size distribution of enterprises within the manufacturing sector.

2.4 Ownership, investment patterns and size distribution

The policy of the Government is to encourage both private and public sector manufacturing enterprises[1/]. Public ownership is found mainly in sugar, cement, textiles and leather industries.

Public enterprises dominate in non-traditional activities, but these enterprises have not generated anticipated profits; instead they have relied on governmental assistance to cover their deficits. The relatively poor performance of public enterprises has been due to unclear objectives, poor management, inadequate organization and control. Major public investments in manufacturing enterprises during 1976-81 are shown in Appendix Table 7. The installed capacity and actual production data related to major public and private enterprises are given in Appendix B.

Regarding the private sector, the Six-Year Development Plan (1977/78-1982/83) envisaged S£1.1 billion private investment (around 40 per cent of the total envisaged for the whole country) which was expected to be placed in cotton spinning, food, textile, paper, leather, chemical, engineering and electrical industries.

1/ A list of leading Sudanese companies is provided in Appendix D.

Table 3 summarizes the changes in planned public sector industrial expenditure over the period 1970-83.

Table 4. Public sector investment in industry, 1970-1983

Year	Investment (S£ million)	Per cent of total
1970-75	73.1	29.24
1977-78	57.2	18.63
1978-79	34.3	16.90
1979-80	60.6	21.26
1980-81	80.0	19.96
1981-82	153.6	36.05
1982-83	19.6	4.70

Source: Government of Sudan, Ministry of Planning.

The planned investments over the second half of the Third Five-Year Plan turned out to be highly optimistic. A large gap emerged between planned and actual levels of public industrial investment. Investment levels for 1982/83 were therefore scaled down to S£19 million representing only 4.7 per cent of total public investment. The share of industry in the Fourth Three-Year Plan to cover the period 1983/84 to 1985/86 is about 6 per cent.

The drastic reduction in public industrial investment has meant a relative shift in favour of the private manufacturing sector. This has been intercepted by the Government's policy of selling Government manufacturing assets to private entrepreneurs and of encouraging foreign investment. However, it is not ownership itself which determines productivity but production characteristics which are common to both public and private enterprises.

About 60 per cent of larger-scale and 30 per cent of small-scale firms are located in Khartoum province, with about two thirds of industrial employment and about half of the investment of the industrial sector. The small-scale firms of the southern region are widely dispersed. The Blue Nile

and the Kassala Province account for about one fifth of the investment. Foodstuffs and textiles are traditional subsectors in the northern Sudan, whereas woodworking and building materials are more important in the southern region.

Small-scale industry plays a major role in the manufacturing sector. Preliminary sample survey results collected in 1979 indicated that there were at least 15 small-scale firms to each larger one in the northern Sudan (small-scale: less than 25 employees; large scale: 25 or more employees). It is estimated that small-scale industries contribute about 20 per cent of the total industrial production. Plants with 500 workers or more employ about 64 per cent of the total industrial labour force but contribute only 32 per cent to manufacturing value added.

The small-scale enterprises are starved of funds and unable to employ an appropriate production technology. The large-scale firms are insufficiently integrated with agriculture although they rely on agricultural raw materials. They produce almost no agricultural inputs. Neither agricultural implements nor fertilizers are produced in any sizeable quantity. Because the large-scale sector employs such a small share of the total labour force it plays no part in channeling technological skills to agriculture. Since it produces a large range of inappropriate products, a growth in agricultural demand cannot sustain its expansion.

In sum, the manufacturing sector has contracted sharply during the last few years. There has been a deceleration in the growth of output, value added and manufacturing investment. The share of manufactures in Sudan's trade both in terms of exports and imports has fallen. There exists considerable scope for import substitution in the manufacturing sector. This involves the development of an incentive system for the direction of industrial investment into projects employing appropriate technology and producing appropriate products. Merely relying on economic liberalisation measures would not be adequate to bring about such a reallocation of investment. Fundamental and comprehensive policy changes are required to revitalise the manufacturing sector.

3. INDUSTRIAL DEVELOPMENT STRATEGIES, POLICIES AND INSTITUTIONS

3.1 Goals and objectives

Rapid industrial development was an objective of Sudanese economic policy since independence. The actual spending on the manufacturing and industrial sector during the Five-Year Plan (1970-1975) was higher than that on any other sector. The Six-Year Plan (1977/78-1982/83) envisaged a reduction in industry's share of total public investment. It called for public sector investment of S£1,570 million, more than twice the level of the previous Plan in real terms. This Plan incorporated the following industrial strategy:

- development of agro-industries based on local agricultural products;
- production of agro-allied products;
- promotion of small-scale industries utilizing local raw materials;
- establishment of export-oriented industries;
- development of mineral-based and basic industries;
- achievement of self-sufficiency in basic consumer goods;
- improvement of efficiency in production; and
- encouragement of both local and foreign private investment in the industrial sector.

The Six-Year Plan was superseded due to the continuing debt crisis. The Government, recognizing the severity of the economic problems, has launched major programmes for economic stabilization and structural changes. Since the imbalance between imports and exports is structural rather than transitory, its correcting needs a longer period. The trade deficit is currently averaging $1 billion per year. Rescheduling the foreign debt services has been given highest priority.

An austerity programme introduced in 1978 gave highest priority to the completion of ongoing projects that had high potential for improving the national balance of payments and to the rehabilitation of projects having high potential for economic viability. It also accorded priority to the creation of infrastructural facilities (transportation and communication) in order to support export-oriented production. An important goal of the programme was the promotion of greater participation of the private sector in industrial development and the speeding up of the exploitation of natural resources of the country, especially oil.

In order to improve the efficiency of industrial production, steps have been taken to upgrade management of public or parastatal enterprises. The emigration of skilled workers and managers to the Gulf States has had adverse effects on Sudan's development; consequently measures have been taken to monitor more closely the emigration of workers, to provide higher domestic wage incentives, and to re-orient the educational system towards technical education. The establishment of quality control systems as well as the strengthening of the collection, compilation and dissemination of industrial information and improvement of statistical data are additional measures expected to help improving efficiency in industry.

In the Three-Year Public Investment Programme, however, only S£57.5 million were allocated to manufacturing enterprises (Table 5). This amount represents about 4 per cent of the total. The bulk of the investment is intended to be used for the infrastructure, thereby providing essential pre-conditions for the expansion of industry.

Table 5. Manufacturing sector components of the public investment programme, 1980/81-1982/83

(in millions of Sudan pounds)

Project	Investment
Rehabilitation of Industrial Projects	22.2
Extension of Atbara Cement Factory	3.7
Hag Abdulla Spinning Mill	3.4
Khartoum North Fine Spinning	12.1
Mellut Sugar Project	3.2
Tonj Kenaf Bag Project	3.2
Gadow Spinning and Weaving	3.3
Other	6.4
Total	57.5

Source: Government of Sudan, Ministry of Planning.

The Plan has been successful in achieving many of its key targets. A positive GNP growth rate has been achieved during 1980/81 to 1982/83 and the production of key agricultural crops - cotton and sugar - has been stimulated. The manufacturing sector, however, still lags behind the rest of the economy.

In 1983/84 a new Fourth Three-Year Public Investment Programme was launched covering the period up to 1985/86 (see Table 6). This retains the policy framework and priorities outlined in the previous Plan. It endorses the industrial strategy outlined in the Third Three-Year Investment Programme as shown in Table 5. A total investment programme of S£2.4 billion is envisaged with a foreign investment component of about 54 per cent. The share of the manufacturing sector is 6 per cent with little variation during the three years. At current prices it is expected to rise from S£19 million in 1982/83 to S£59 million by the end of the Plan period. The share of foreign capital in manufacturing investment is expected to rise from 36.8 per cent in 1982/83 to 69.5 per cent in 1985/86. The average share of foreign capital during the Plan period is 62.8 per cent. Domestic manufacturing investment was expected to rise sharply from S£12 million in 1982/83 to S£28 million but declined subsequently to S£18 million.

3.2 Recent policy changes

In September 1983, the Government announced a programme of Islamization of the Country's banking system. This sytem had the effect of reducing bank liquidity and led to massive transfer of hard currency to accounts abroad. In February 1985 the Government froze all foreign currency accounts in an attempt to halt these transfers. Favourable credit facilities without usury (interest) were misused by customers to speculate on the market for dura, a staple food. It is reported that the new Government, which seized power on 6 April 1985, decided to abolish the Islamic banking system and to reintroduce the Western-style banking which operates on the basis of traditional banking practices. These recent changes may attract heavy inflow of ex-patriate funds, particularly due to the use of interest which is banned under Islamic Sharia law.

Table 6. Fourth Three-Year Public Investment Programme, 1983/84-1985/86

(in millions of Sudan pounds)

Sector	Estimated expenditure 1982/83	1983/84	1984/85	1985/86	Total	Percentage share
			A. LOCAL COMPONENT			
Agriculture	38	69	99	106	274	25
Transport	40	66	61	61	188	17
Manufacturing	12	28	21	18	67	6
Energy and mining	12	19	15	18	52	5
Water	7	10	20	22	52	5
Services	28	38	40	40	118	11
Regional development	50	56	74	85	215	20
Contingency reserve	-	4	42	44	126	11
Total (Local)						
At current prices[a/]	187	326	372	394	1,092	100
At constant prices[a/]	144	224	228	217	669	-
			B. FOREIGN COMPONENT			
Agriculture	65	117	174	192	483	37
Transport	75	103	68	79	250	20
Manufacturing	7	29	43	41	113	9
Energy and mining	24	65	38	39	142	11
Water	10	20	22	20	62	5
Services	17	35	35	39	109	8
Regional development	19	28	35	70	133	10
Contingency reserve	-	-	-	-	-	-
Total (Foreign)						
At current prices[a/]	217	397	415	480	1,292	100
At constant prices	166	273	255	265	793	
			C. LOCAL AND FOREIGN INVESTMENTS			
Agriculture	103	187	272	298	757	32
Transport	115	168	130	140	438	18
Manufacturing	19	57	64	59	180	8
Energy and mining	36	84	53	57	194	8
Water	17	30	42	42	114	5
Services	45	73	76	78	227	9
Regional development	69	84	109	155	348	15
Contingency reserve	-	40	42	44	126	5
Total:						
At current prices[a/]	404	724	787	873	2,384	100
At constant prices	310	497	483	482	1,462	

a/ 1981/82.

Another important recent development which is likely to increase the availability of resources for industrial investment has been the discovery of crude oil in many regions of Sudan in substantial quantities. Estimates of the reserves at Chevron's Unity field, where production began three years ago, are conservatively set at 230 million barrels. This could sustain a production rate of 50,000 b/d over a period of 18 years. Other major discoveries have been made by a French Company. Shell and Marathon oil companies have brought the Chevron into operations during 1983 and 1984. Operations of the Chevron, however, have recently been suspended. A 400 km pipeline is being built to transport oil to Port Sudan. It is expected to be completed by 1986 and will have a maximum flow capacity of 200,000 b/d. After difficulties during late 1983 and 1984 work has been resumed on oil exploration and the construction of the pipeline by the West Nile Petroleum Company.

The creation of the National Oil Company of Sudan in September 1984 was seen as an implicit threat to oil companies already operating in Sudan. In May 1985 the new regime ordered the dissolution of the 50:50 joint venture between the State and a Saudi Arabian entrepreneur. It is believed that international lenders are observing the ways and means by which policies are being formulated for proper utilization of Sudanese oil reserves. An efficient use of its oil reserves will create desired reactions from creditors and act as a catalyst.

3.3 Institutional framework for industry

The fundamental policy changes in Sudan during 1983 and 1984 will eventually lead to substantial institutional development. The institutional structure which is described below is likely to be restructured during the second half of the 1980s.

Of the various Sudanese institutions, the following have direct bearing on industrial development:

The Ministry of Finance and Economic Planning is involved in industrial planning and policy formulation. The Project Preparation Unit is responsible for feasibilicy studies of higher priority within the public sector. The Regional Planning Offices supply information and statistical data and

formulate and evaluate regional plans. The National Institute for Planning takes care of training personnel specialized in planning. It also undertakes research and data collection for planning.

The Ministry of Commerce, Industry and Co-operation is responsible for industrial policy formulation in consonance with the overall national objectives. It performs promotional and regulatory functions, such as granting concessions, price controlling, supervising public enterprises, participating in industrial planning, etc. The Ministry is assisted by the Technical Advisory Committee for Industrial Development. The Ministry makes recommendations concerning new industrial projects, determines factory prices of manufacturing products, allocates foreign exchange requirements, and collects and analyses information on manufacturing.

The main financing institutions for industrial development are:

- The Industrial Development Bank of Sudan, which provides long-term credit to industrial enterprises, particularly for smaller scale projects.
- The Sudanese Investment Bank, which is a public-private shareholding joint venture to cover investment operations in all sectors of the economy.
- The Sudan Development Corporation, which covers such activities as project identification, formulation, implementation and evaluation, mobilization of both domestic and foreign capital, provision of loans for direct industrial financing mainly for large-scale industrial investments, etc.
- The Sudanese Savings Bank taps funds from small savers for financing industrial development, inter alia, in rural areas.
- The Sudanese/Kuwaiti Investment Co. Ltd. is a private-public joint venture, the main objective of which is to promote joint ventures with the participation of the public sector and private investors.

The institutions dealing with Training and Manpower Development for industry include the faculties of engineering, economics and business administration at universities, the colleges of technology and technological studies, the technical and commercial schools, the handicraft centres, the management training and advisory centre, and the Khartoum Centre for Vocational Training.

The National Council for Research (NCR) co-ordinates research activities of various specialized research institutions. The Scientific and Technological Research Council is one of the specialized councils of the NCR dealing mainly with industrial technologies. The Industrial Research and Consultancy Centre (IRCC), one of the units functioning under NCR, provides technical advice to manufacturing firms and undertakes feasibility studies.

4. RESOURCES FOR INDUSTRIAL DEVELOPMENT

4.1 Human Resources

Sudan's population has been rapidly increasing since the 1960s. Data on the size and composition of the labour force are scanty and it is difficult to compare available data from surveys. On the basis of ILO estimates the size of the labour force in Sudan for 1980 was 5.7 million (including 300,000 unemployed and around 250,000 emigrant workers). Due to the increased participation of women, the labour force has substantially increased. The emigration of workers abroad has kept the unemployment rate at 6 per cent. The public sector employs around 6 per cent of the labour force. Table 7 shows employment by main sectors during 1976/77 and 1979/80.

The extension and improvement of the educational system has been one of the main social needs of Sudan. Although progress has been made in various fields ranging from increased literacy rates to an increased number of technical students, the demand for skilled manpower cannot be met by the existing educational system. Universities produce too few graduates in the technical areas required by the economy. The ratio of technicians to professionals is very low. In 1979/80, there were 1.4 million pupils in the six graded primary schools. Secondary enrollment was about 25 per cent of the age group at the lower level. The total number of the enrolled students at the higher educational level was about 27,000.

The Government prepared an ambitious scheme of educational reform in 1979 to attune higher education directly to the needs of the labour market and to raise the number of higher secondary places for vocational and teacher training to 33 per cent of the total by 1982/83.

4.2 Raw material resources

Sudan is one of Africa's richest countries in terms of natural resources. Agriculture plays the predominant role in the economy. Cotton production has been subject to frequent fluctuations and the output of other crops has stagnated in recent years. There is a considerable potential for increasing

Table 7. Distribution of economically active persons by sector, 1976/77-1979/80

Sector	1976/77		1979/80		Percentage change 1976/77-1979/80
	Persons ('000)	Percentage share	Persons ('000)	Percentage share a/	
Agriculture	3,435.3	68.5	3,432.6	65.8	- 2.7
Industry and mining	185.1	4.46	183.3	3.5	- 1.8
Utilities	45.6	0.91	59.2	1.1	13.6
Construction	92.3	1.84	107.6	2.1	15.3
Commerce and finance	245.7	4.9	220.8	4.2	-24.9
Transport and communication	169.0	3.37	198.8	3.8	29.8
Services	521.6	10.4	679.8	13.0	58.2
Unallocated	320.5	5.12	340.5	6.5	20.0
Total	5,015.0	100.0	5,222.6	100.0	207.5

Source: SYDP and IBRD estimates.

a/ Estimate.

productivity, but this depends heavily on the introduction of new technologies and on the development of infrastructure.

There are about 60 million feddans of forest resources containing various species of wood that provide opportunities for the development of wood and wood product industries and for the production of gum arabic. The potentially exploitable amount of wood is estimated at about 67 million m^3.

The coastal line of the Red Sea and the rivers constitute the basis for the fishing industry. In 1977/78 the production of fisheries (catch) totalled 25,000 tons. It increased to 27,660 tons in 1981.

Agriculture also provides the resources for the textile industry (cotton is the traditional main product), the food industry (sugar production, vegetable oils) and the leather industry. Cotton has been the most important agricultural crop and export earner. Sudan is the world's largest producer of long staple cotton. Cotton production has recovered dramatically since the decline in 1979 caused by falling international prices. Production has risen

from 518,000 bales in 1980/81 to over a million bales in 1983/84. Total land under cotton cultivation is expected to increase from 941.5 thousand feddans in 1983/84 to 1.015 million feddans in 1984/85. Productivity per feddan has also increased as have export revenues.

Another very important crop is sugar. The Kenana complex jointly financed by Sudan and Arab investors currently produces about 250,000 tons of sugar. It is expected to reach full capacity (330,000 tons) by 1985/86. Other Government-owned sugar producing and refining complexes are currently operating at 50 per cent capacity. A rehabilitation programme with financial assistance from the Arab Fund for Economic and Social Development is underway.

Table 8 summarizes the data on area and production of other major crops in Sudan:

Table 8. Area and output of main crops,[a/] 1978/79-1982/83
(Area: '000 feddans; output: '000 tons)

	1978/79	1979/80	1980/81	1981/82	1982/83[b/]
Dura					
Area	7,202	6,349	6,956	9,258	8,980
Output	2,373	1,669	2,068	3,345	2,044
Dukhan					
Area	3,078	2,320	2,598	2,618	2,378
Output	550	309	491	573	227
Groundnuts					
Area	2,330	2,352	2,129	2,346	1,617
Output	810	852	707	721	501
Sesame					
Area	2,061	1,989	2,011	1,971	1,330
Output	215	209	221	242	140
Wheat					
Area	577	457	437	354	304
Output	167	233	218	163	180

Source: Ministry of Agriculture and Irrigation.

a/ Excluding cotton and gum arabic.

b/ Estimates.

As for minerals, the iron ore reserves found in the Red Sea Province and in Southern Kordofan are estimated at least at 100 million tons and is of very good quality. Copper reserves are around 9 million tons in the western area. Chrome mining has been developed with Japanese assistance. Asbestos is being exploited in the Anquetana area; mica in the Northern Province. Gypsum resources have been found near Port Sudan and is estimated at around 200 million tons. Also zinc, manganese, marble, caolin, chromite and gold can be found and there are hopes for uranium to be found in Kordofan.

4.3 Energy resources

As discussed in section 3.2, substantial quantities of crude have been discovered in Sudan during 1983 and 1984. The first oil refinery situated at Port Sudan was built in 1964. A pipeline was constructed in mid-1983 to transport crude to Khartoum. Another pipeline is being constructed at a cost of over $1 billion to facilitate exports. A parallel pipeline is being built to carry naphtha. In the late 1970s oil was discovered in commercial quantities and a second refinery was commissioned to be built at Kosti. The Government, however, abandoned the Kosti project in early 1980.

The bulk of the energy production continues to rely on wood, charcoal and biomass which supply over 50 per cent of the national energy requirements. Electricity generation has expanded and hydro-electric power accounts for three fourths of electricity currently generated. Thermal power stations near Khartoum have a relatively low capacity. The supply of electricity by hydroelectric plants is subject to seasonal variations; electricity supply declines rapidly during the period prior to the rainy season. Demand exceeds the supply of electric power and this has led to the rapid development of private generating capacity. The sugar industry is a major user of self-generated electric power. A growth in electricity generating capacity is essential for more efficient capacity utilisation within the manufacturing sector.

4.4 Financial resources

Sudan has been suffering from a long-lasting balance-of-payments crisis and overall financial disequilibrium. Due to the critical shortage of foreign

exchange some industries cannot purchase the necessary inputs and subsequently cannot exploit their existing capacities or implement projects. Available resources were concentrated on completion of ongoing projects and on infrastructure.

Investment is largely dependent on the existence of efficient financial institutions which are capable of handling local savings and attracting foreign capital. Industrial enterprises are encouraged to establish joint ventures by way of equity participation with local and foreign investors.

However, the available gross capital formation data indicate that real investment has fallen in the 1976-78 period and this trend has not entirely been offset as yet.

The Government initiated in 1972 a policy of granting special privileges to new enterprises. Incentives codified in the Encouragement of Investment Act of 1980 renewed these concessions for agricultural and industrial investments, such as five-year exemption from business profit tax, renewable exemptions from customs duties, reduction of electricity and transport prices and protection from foreign competition in the market for finished products.

Joint private-public ventures have been set up in many cases to supplement the private sector activities. The Government's policy is that the public sector industries are established to produce those goods which the private sector cannot produce because of the high investment costs, and further to achieve a more balanced development between the various Provinces in Sudan.

Investment within the Sudanese manufacturing sector can be increased by generating an investible surplus within the sector and by attracting foreign funds. As shown in Table 6, the Fourth Three-Year Public Investment Programme envisaged the foreign component of manufacturing investment to rise from S£29 million in 1983/84 to S£41 million in 1985/86 and to constitute 63 per cent of total manufacturing investment within the Plan period. The composition of the domestically generated 37 per cent of manufacturing investment is not specified. It is hoped that a large portion of this would take the form of reinvestible surplus and that borrowings from local banks would be reduced in relative terms in order to check the growth of inflation.

Another potentially important source of industrial finance is the remittances by around 1 million Sudanese who are currently residents in the Gulf countries. Over the period 1980-82 private transfers through official channels amounted to S£472 million. The IMF has estimated that about S£200 million are sent to Sudan through unofficial sources. Some of this money can certainly be channelled into industry by the sale of development bonds to Sudanese living abroad. However, the flow of remmittances has declined due to the recession in the Gulf and due to the continued reduction in the value of the Sudanese pound which means that less foreign exchange is required to sustain a family. The contribution of these overseas residents and foreign investors and multilateral aid institutions will remain crucially important for the revitalisation of the manufacturing sector in the present decade.

In April 1985 the new Government's news agency reported that Sudanese Communities throughout the Gulf States were setting up committees to raise funds to help the country overcome its current economic difficulties. The new Government's desire to abolish Islamic banking system and to return to Western-style of banking is expected to attract more remittances from abroad.

4.5 Technical assistance to industry

Appendix C lists the technical assistance projects in Sudan currently being provided by UNIDO. The main involvement of UNIDO concerns the improvement of efficiency levels within the public sector enterprise and in the provision of research services for the development of the chemical (pulp, paper, pesticides, etc.) industry. Assistance is also provided for the development of the local mechanical and electrical repairing industry.

Given Sudan's very heavy debt burden, there is urgent need for a rapid expansion of bilateral and multilateral aid and technical assistance to that country. The revitalisation of the manufacturing sector can significantly reduce import needs and industries such as textiles, leather, cement and food manufacturing also have export potential.

The Government's rehabilitation programmes place emphasis on such industries with export potential as textiles, sugar, leather and food products. Manufacturing rehabilitation could involve the development of

efficient import-substituting enterprises. Sudan is currently experimenting with a range of industrial and financial policies for stimulating industrial efficiency.

Multilateral and bilateral technical assistance to industry can be most effective if it concentrates on:

(1) assistance for the rehabilitation of the textile industry which is capable of making Sudan self-sufficient and thus saving a large amount of foreign exchange;

(2) the provision of assistance for the strengthening of industrial management services of both public and private sector enteprises, so as to raise the level of capacity utilization in many industrial branches;

(3) the exploration of new policy avenues for directing investment to efficient manufacturing enterprises. Assistance is needed to develop investment contracts suitable for the manufacturing sector; and

(4) identification of industrial policy measures and institutional development for strengthening the links between the industrial and agricultural sector in the Sudanese economy.

APPENDIX A

Statistical Tables

Table A.1. External debt and debt service, 1974-1985

(in millions of US dollars)

	1974	1978	1980	1983	1985
DEBT OUTSTANDING[a/]	895.3	2,330.0	3,899.5	5,664.5	9,000.0[b/]
Official creditors	595.9	1,475.8	3,070.5	4,203.8	...
Private creditors	299.4	854.2	819.0	1,460.7	...
PRINCIPAL REPAYMENTS	39.3	53.6	50.5	73.5	...
Official creditors	26.3	28.3	42.9	50.0	...
Private creditors	13.0	25.3	29.7	23.5	...
TOTAL DEBT SERVICE	59.7	101.4	95.7	144.4	736.0[c/]
Official creditors	37.7	62.4	81.4	80.6	...
Private creditors	22.0	39.0	14.3	63.8	...
PRINCIPAL RATIOS					
Total debt service as per cent of exports of goods and services	13.3	13.7	9.3	17.8	...
Total debt service as per cent of GNP	1.7	1.3	1.2	2.1	...

Source: World Bank, World Debt Tables 1984-85.

a/ Disbursed.

b/ Preliminary estimate.

c/ Projected. It reflects only partial implementation of the Paris Club agreements of March 1982 and April 1983. It excludes the effects of debt relief from the Paris Club agreement of May 1984.

Table A.2. Indicators of industrial production, branch data, 1974/75-1982/83

Item		1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Food, beverage and tobacco products										
Flour	Ths.mt	220.9	237.3	266.8	275.0	269.7	243.3	243.6	255.4	212.3
Flour products	Ths.mt	6.0	6.6	6.4	6.7	7.3	6.9	-	7.2	-
Sugar	Ths.mt	128.6	114.0	138.8	138.2	119.5	129.8	207.6	238.9	314.8
Vegetable oils	Ths.mt	64.2	78.1	70 1	73.4	72.8	82.5	66.8	76.8	50.6
Soft drinks	Mls.Bottle	72.9	71.5	68.9	73.4	91.3	100.9	147.6	129.6	-
Wine	Mls.Bottle	4.6	4.6	4.1	3.9	4.6	5.2	4.3	4.3	2.3
Beer	Mn.litres	9.6	9.6	8.8	8.2	7.7	5.5	2.4	0.1	-
Cigarettes	Ths. kg	514.9	894.9	728.1	819.5	1,115.0	1,065.1	1,033.9	758.6	776.3
Textiles, wearing apparel and leather products										
Textiles	Mn. metres	120.3	126.8	131.2	132.6	180.0	160.7	63.2	-	-
Yarn	Ths. mt	-	-	-	9.5	10.9	11.2	9.3	10.7	-
Shoes	Mn. pairs	13.4	14.4	12.4	13.6	13.6	9.6	8.8	9.7	7.9
Chemical and petroleum products										
Soap	Ths. mt	36.5	42.7	50.7	48.7	45.7	57.6	54.9	52.4	46.5
Dry cell batteries	Mn. units	-	24.2	31.2	38.8	38.4	90.2	81.2	60.5	-
Matches	Mn. units	5.3	6.2	7.4	6.5	-	-	-	-	-
Benzine	Ths. mt	107.0	116.6	127.1	143.9	150.1	137.2	136.1	120.0	-
Gas oil	Ths. mt	313.4	315.4	283.6	281.6	289.8	285.0	475.1	470.9	-
Fuel oil	Ths. mt	442.9	450.2	159.6	449.0	397.8	372.0	159.9	174.0	-
Tires and tubes	Ths.	-	-	-	-	-	-	395.4	351.8	-
Non-metallic products (except petroleum)										
Cement	Ths. mt	217.7	157.7	176.9	141.5	185.0	173.3	149.8	169.4	182.9
MASPIO - ATBARA		-	-	-	85.5	132.3	130.3	127.5	128.0	-
NILE - RABAK		-	-	-	55.7	52.7	43.0	22.3	41.4	-
Glass products	Ths. mt	8.3	8.8	4.4	6.8	5.9	-	-	-	-
Tiles and products	Ths. sq.m.	190.0	220.0	230.7	224.6	293.1	498.5	550.6	1,111.9	-
Machinery and metal products										
Rolled steel bars	Ths. mt	-	8.4	15.0	13.0	-	-	-	-	
Steel pipes	Ths. mt	-	1.5	1.5	3.3		-	-	-	-
Electric equipment	Ths. units	-	-	-	-	17.1	28.6	-	-	-

Source: Bank of Sudan, Ministry of Finance, Ministry of Industry, Public Corporations and Industrial Production Corporation.

Table A.3. Indicators of industrial production, factory data, 1974/75-1982/83

Item		1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Sugar	Ths. mt	128.6	114.0	138.8	138.2	119.5	138.9	207.6	238.9	360.0
Guneid	Ths. mt	52.7	54.2	55.1	48.3	36.5	29.7	29.6	15.7	30.0
Kenana	Ths. mt	-	-	-	-	-	19.5	107.2	165.0	200.0
New Halfa/Kashm	Ths. mt	75.9	59.8	57.2	58.2	64.8	43.1	36.1	35.9	55.0
Sennar	Ths. mt	-	-	26.5	31.7	18.2	39.0	26.1	22.3	45.3
Jaggar Assalaya	Ths. mt	-	-	-	-	-	7.6	8.6	-	30.0
Consumption	Ths. mt	242.6	274.1	295.9	315.0	330.7	372.9	352.3	400.2	480.0
Dates (Kirima)	mt	243.0	125.0	145.0	111.0	22.8	75.8	-	-	-
Fruits and vegetables total		11.91	18.1	12.1	12.6	14.6	18.0	23.0	-	-
Karima	Mls. tins	8.6	15.2	10.8	10.2	7.2	9.4	-	-	-
Other	Mls. tins	3.3	2.9	1.3	2.4	7.4	8.6	29.0	-	-
Milk products-Baranousa										
Dry milk	mt	94.3	35.8	8.9	6.3	-	-	-	-	
Cheese	mt	-	2.3	1.7	3.3	-	-	-	-	-
Butter	mt	5.6	-	1.0	2.5	-	-	-	-	-
Melted butter	mt	5.2	8.1	0.8	0.9	-	-	-	-	-
Gum arabic powder	mt	-	-	144.9	-	109.8	116.2	-	-	-
Karkadeh	mt	113.5	-	22.3	20.3	54.4	30.9	-	-	-
Onions - Kassala dehyed	tons	610.0	329.0	444.0	354.0	418.0	265.0	245.0	150.0	-
Textiles - Hassaheissa	Ths. m	-	-	5,199.0	6,431.5	5,946.6	4,909.6	-	-	-
Kenaf - Abu Naama	Ths. sacks	-	-	107.0	403.0	-	-	-	-	-
Picked skins	Ths. pieces	-	93.8	49.7	52.4	36.7	85.6	-	-	-
Leather Khartoum Tannery										
Upper leather	Ths. sq.ft.	2,719.3	1,648.0	1,875.1	1,298.7	1,700.0	1,365.5	1,150.0	1,559.3	-
Sole leather	mt	112.6	36.3	105.0	111.6	62.0	70.8	72.0	30.9	-
Pickled skins	Ths. pieces	168.5	83.3	105.3	105.3	120.0	104.7	799.0	101.0	-
White nile tannery										
Upper leather	Ths. sq.ft.	-	-1,280.9	2,259.8	929.0	850.0	813.7	965.0	976.0	-
Sole leather	mt	-	100.5	73.7	37.9	20.0	16.0	20.0	11.3	-
Semi-finished skins	Ths. sq.ft.	-	155.4	125.8	131.8	41.5	251.6	-	149.9	-
Gerira tannery										
Upper leather	Ths. sq.ft.	-	-	-	901.1	821.5	837.6	874.0	1,084.1	-
Sole leather	Ths. sq.ft	-	-	-	1,170.3	1,374.5	176.0	178.0	-	-
Semi-finished skins	Ths. sq.ft.	-	-	-	1,190.0	1,800.0	1,398.9		-	-

Sources: Bank of Sudan, Ministry of Finance, Ministry of Industry, Public Corporations and Industrial Production Corporation.

Table A.4. Product mix of traded manufactured goods, 1970, 1980 and 1981[a/]

SITC	DESCRIPTION OF TRADE GOODS	EXPORTS 1970 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1980 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1981 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1981 (1000 US $)	IMPORTS 1970 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1980 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1981 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1981 (1000 US $)
01	Meat and meat preparations	0.010	0.032	0.105	193	0.009	0.002	0.013	171
02	Dairy products and eggs	0.001	...	...	...	0.801	0.504	1.486	19449
032	Fish n.e.s. and fish preparations	...	...	0.002	3	0.021	0.050	0.064	841
0422	Rice,glazed or polished not otherwise worked	...	...	...	...	0.685	0.480	0.342	4479
046	Meal and flour of wheat or of meslin	...	...	...	...	0.665	1.271	1.336	17489
047	Meal and flour of cereals,except above	...	...	...	...	0.000	...	...	...
048	Cereals preparat. & starch of fruits & vegetab.	0.000	0.004	0.000	0	0.127	0.014	0.099	1294
052	Dried fruit	0.001	0.166	0.304	559	0.039	0.025	0.041	537
053	Fruit,preserved and fruit preparations	...	0.007	...	...	0.347	0.066	0.172	2257
055	Vegetables,roots & tubers,preserved or prepared	0.038	0.050	0.000	1	0.119	0.301	0.109	1428
06	Sugar,sugar preparations and honey	0.000	0.407	1.988	3652	5.371	17.534	8.921	116791
0713	Coffee extracts,essences,concentrates & similar	...	...	...	...	...	...	0.001	10
073	Chocolate and related food preparations	...	...	...	...	0.000	0.026	0.043	565
074	Tea and mate	1.178	0.817	2.266	4163	5.015	1.425	2.454	32121
081	Feeding-stuff for animals	7.640	13.335	9.239	16975	0.001	0.018	0.054	703
09	Miscellaneous food preparations	...	0.000	0.001	1	0.374	0.537	0.696	9108
11	Beverages	...	...	...	...	0.072	0.782	1.239	16217
122	Tobacco manufactures	...	0.024	0.056	103	1.124	0.253	1.134	14844
231	Crude rubber,synth. & reclaimed(excl.SITC 2311)	...	...	...	...	0.034	0.005	0.015	200
243	Wood,shaped or simply worked	...	...	...	...	1.994	1.011	2.015	26376
251	Pulp and waste paper	...	...	...	...	0.081	0.002	0.094	1230
2627	Wool or other animal hair,carded or combed	0.000	...	...	...	...	...	...	...
2629	Waste of wool and other animal hair n.e.s.	...	...	...	...	0.003	...	...	...
263	Cotton	89.456	77.642	65.238	119866	0.000	...	...	...
266	Synthetic and regenerated(artificial) fibres	...	...	...	...	0.006	...	0.015	195
267	Waste materials from textile fabrics(incl.rags)	0.002	0.057	0.008	15	0.014	...	...	...
332	Petroleum products	0.498	1.818	11.851	21775	9.133	7.264	9.677	126686
4	Animal and vegetable oils and fats	1.077	4.024	6.862	12608	0.438	0.467	1.583	20724
411	Animal oils and fats	...	...	...	...	0.285	0.321	1.241	16245
421	Fixed vegetable oils,soft(incl.SITC 422)	1.072	4.000	6.834	12557	0.089	0.055	0.305	3989
431	Animal and vegetable oils and fats processed	0.006	0.024	0.028	52	0.064	0.091	0.037	490

Table A.4. (cont.)

SITC	DESCRIPTION OF TRADE GOODS	1970 PERCENT IN TOTAL	1980 PERCENT MANUF	1981 PERCENT ACTURES	1981 (1000 US $)	1970 PERCENT IN TOTAL	1980 PERCENT MANUF	1981 PERCENT ACTURES	1981 (1000 US $)
5	Chemicals	0.040	0.019	0.044	81	11.544	12.851	13.792	180554
51	Chemicals elements and compounds	0.039	0.008	0.019	35	0.886	1.143	1.307	17115
52	Tar and chemicals from coal,petroleum,nat. gas	...	...	...	...	0.010	0.011	0.036	470
53	Dyeing,tanning and colouring materials	...	...	...	...	0.546	0.718	0.552	7226
54	Medicinal and pharmaceutical products	...	0.009	0.025	46	3.428	2.827	2.955	38686
55	Essential oils and perfume materials	0.000	0.001	...	...	0.651	0.320	0.751	9834
56	Fertilizers,manufactured	...	...	...	...	1.678	2.402	1.980	25918
57	Explosives and pyrotechnic products	...	...	...	...	0.099	0.111	0.013	172
58	Plastic materials,regenerated cellul. & resins	...	...	...	...	0.986	1.331	1.352	17693
59	Chemical materials and products n.e.s.	...	...	...	...	3.262	3.987	4.846	63440
6	Manufactured goods classified by material	0.046	1.555	2.017	3706	28.685	20.150	24.837	325143
61	Leather manufactured n.e.s. & dressed fur skins	...	0.391	0.085	157	0.217	0.113	0.120	1571
62	Rubber manufactures n.e.s.	...	...	0.173	317	1.401	1.351	2.329	30484
63	Wood and cork manufactures(excl.furniture)	...	...	...	...	0.111	0.309	0.331	4330
64	Paper,paper board and manufactures thereof	...	0.000	...	...	1.582	1.456	2.211	28945
65	Textile yarn,fabrics,made-up articles	0.046	1.158	1.750	3215	15.300	6.981	6.766	88573
66	Non-metallic mineral manufactures,n.e.s.	...	...	...	...	1.128	1.583	2.888	37804
67	Iron and steel	...	...	...	...	4.667	4.125	4.892	64040
68	Non-ferrous metals	...	...	...	...	0.526	0.530	0.693	9072
69	Manufactures of metal,n.e.s.	...	0.006	0.010	18	3.753	3.702	4.608	60323
7	Machinery and transport equipment	0.001	0.001	0.004	8	29.133	32.431	25.523	334124
71	Machinery,other than electric	0.001	...	...	...	11.784	19.301	11.968	156670
72	Electrical machinery,apparatus and appliances	...	0.001	0.004	8	4.148	5.103	4.452	58286
73	Transport equipment	...	...	...	...	13.200	8.026	9.103	119168
8	Miscellaneous manufactured articles	0.012	0.041	0.016	29	4.166	2.531	4.246	55580
81	Sanitary,plumbing,heating & lightning fixtures	...	...	...	...	0.326	0.208	0.632	8277
82	Furniture	0.001	0.002	0.001	3	0.016	0.051	0.240	3147
83	Travel goods,handbags and similar articles	0.002	...	0.000	1	0.012	0.038	0.099	1301
84	Clothing	...	0.002	0.007	13	0.680	0.413	0.446	5842
85	Footwear	0.004	0.034	0.006	11	0.129	0.109	0.189	2473
86	Professional,scient. & controll. instruments	...	...	...	...	0.612	0.665	0.593	7757
89	Miscellaneous manufactured articles,n.e.s.	0.005	0.004	0.001	1	2.391	1.047	2.046	26783
		1970		1980	1981	1970		1980	1981
	TOTAL MANUFACTURES	208848		306803	183737	283799		1326177	1309116
	TOTAL: SITC 5-8 LESS 68 a/	205		4958	3824	207175		894271	886328
	TOTAL TRADED GOODS: SITC 0-9	291820		584232	500806	311145		1499342	1518702

Note:Data and SITC descriptions refer to SITC revision 1.
*/ This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.
a/ Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods,i.e. with a high level of manufacturing content.
Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

Table A.5. Origin of imports of manufactures by branch of manufacturing, 1981[a/]

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	DEVELOPED MARKET ECONOMIES USA (PERCENT)	DEVELOPED MARKET ECONOMIES EEC (PERCENT)	DEVELOPED MARKET ECONOMIES JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
01	Meat and meat preparations	171	20.55	79.45	0.00	66.31	0.00	0.00
02	Dairy products and eggs	19449	2.55	97.43	0.00	97.17	0.17	0.00
032	Fish n.e.s. and fish preparations	841	0.00	84.58	0.00	1.01	0.00	15.42
0422	Rice,glazed or polished not otherwise worked	4479	63.50	36.50	0.00	36.50	0.00	0.00
046	Meal and flour of wheat or of meslin	17489	93.05	6.95	0.00	1.62	0.00	0.00
048	Cereals preparat. & starch of fruits & vegetab.	1294	13.16	86.68	0.00	56.69	0.00	0.15
052	Dried fruit	537	100.00	0.00	0.00	0.00	0.00	0.00
053	Fruit,preserved and fruit preparations	2257	73.55	25.41	0.00	4.14	1.12	0.00
055	Vegetables,roots & tubers,preserved or prepared	1428	1.19	98.52	0.00	34.90	0.00	0.00
06	Sugar,sugar preparations and honey	116791	14.51	85.49	0.00	85.44	0.00	0.00
0713	Coffee extracts,essences,concentrates & similar	10	0.00	100.00	0.00	100.00	0.00	0.00
073	Chocolate and related food preparations	565	2.72	97.28	0.00	97.28	0.00	0.00
074	Tea and mate	32121	99.34	0.46	0.00	0.46	0.00	0.00
081	Feeding-stuff for animals	703	0.00	100.00	0.00	100.00	0.00	0.00
09	Miscellaneous food preparations	9106	20.69	79.31	0.00	69.91	0.01	0.00
11	Beverages	16217	7.26	92.74	0.00	84.72	0.62	0.00
122	Tobacco manufactures	14844	10.45	89.55	0.00	89.55	0.00	0.00
231	Crude rubber,synth. & reclaimed(excl.SITC 2311)	200	3.54	93.30	0.00	93.30	0.00	3.16
243	Wood,shaped or simply worked	26376	1.05	98.95	0.00	1.54	0.00	0.00
251	Pulp and waste paper	1230	23.52	76.48	0.00	51.38	10.60	0.00
266	Synthetic and regenerated(artificial) fibres	195	0.00	100.00	0.00	86.11	13.89	0.00
332	Petroleum products	126686	88.50	11.50	0.00	11.22	0.00	0.00
4	Animal and vegetable oils and fats	20724	76.10	23.90	0.00	23.27	0.00	0.00
411	Animal oils and fats	16245	74.88	25.12	0.00	25.12	0.00	0.00
421	Fixed vegetable oils,soft(incl.SITC 422)	3989	84.81	15.19	0.00	11.92	0.00	0.00
431	Animal and vegetable oils and fats processed	490	45.58	54.42	0.00	54.42	0.00	0.00

Table A.5. (cont.)

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	DEVELOPED MARKET ECONOMIES USA (PERCENT)	DEVELOPED MARKET ECONOMIES EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
5	Chemicals	180554	19.27	77.94	0.00	63.31	1.85	2.26
51	Chemicals elements and compounds	17115	30.33	68.37	0.00	61.93	2.27	0.02
52	Tar and chemicals from coal,petroleum,nat. gas	470	0.00	100.00	0.00	100.00	0.00	0.00
53	Dyeing,tanning and colouring materials	7226	12.33	84.93	0.00	82.46	0.32	2.74
54	Medicinal and pharmaceutical products	38686	12.01	84.66	0.00	83.66	0.53	3.34
55	Essential oils and perfume materials	9834	35.39	63.93	0.00	62.90	0.00	0.00
56	Fertilizers,manufactured	25918	25.14	66.27	0.00	25.13	0.00	8.59
57	Explosives and pyrotechnic products	172	0.41	82.84	0.00	82.84	0.00	16.76
58	Plastic materials,regenerated cellul. & resins	17693	31.73	62.78	0.00	59.84	1.01	1.81
59	Chemical materials and products n.e.s.	63440	13.34	86.61	0.00	77.59	4.01	0.04
6	Manufactured goods classified by material	325143	41.41	52.31	0.00	26.03	16.78	3.84
61	Leather manufactured n.e.s. & dressed fur skins	1571	56.39	42.81	0.00	37.99	2.66	0.80
62	Rubber manufactures n.e.s.	30484	24.96	67.76	0.00	15.02	51.41	1.75
63	Wood and cork manufactures(excl.furniture)	4330	29.09	36.43	0.00	22.34	0.00	3.69
64	Paper,paper board and manufactures thereof	28945	15.72	82.69	0.00	45.46	4.17	0.79
65	Textile yarn,fabrics,made-up articles	88573	80.06	15.87	0.00	2.60	11.34	0.93
66	Non-metallic mineral manufactures,n.e.s.	37804	26.51	54.16	0.00	20.06	0.47	18.57
67	Iron and steel	64040	20.94	75.66	0.00	38.66	33.51	1.54
68	Non-ferrous metals	9072	13.86	86.14	0.00	58.19	19.57	0.00
69	Manufactures of metal,n.e.s.	60323	41.00	53.77	0.00	42.09	6.90	4.52
7	Machinery and transport equipment	334124	22.64	74.81	0.00	62.98	9.35	1.80
71	Machinery,other than electric	156670	24.94	72.19	0.00	65.43	3.80	2.53
72	Electrical machinery,apparatus and appliances	58286	20.78	75.24	0.00	57.93	14.16	2.61
73	Transport equipment	119168	20.52	78.04	0.00	62.24	14.29	0.44
8	Miscellaneous manufactured articles	55580	50.94	41.05	0.00	33.92	4.72	0.44
81	Sanitary,plumbing,heating & lightning fixtures	8277	37.46	61.22	0.00	59.05	1.24	0.55
82	Furniture	3147	27.32	66.64	0.00	61.56	1.47	1.26
83	Travel goods,handbags and similar articles	1301	51.34	3.46	0.00	3.45	0.00	0.00
84	Clothing	5842	61.96	24.10	0.00	19.35	3.92	0.52
85	Footwear	2473	63.64	11.12	0.00	6.61	3.11	0.00
86	Professional,scient. & controll. instruments	7757	20.20	77.45	0.00	52.29	17.70	0.15
89	Miscellaneous manufactured articles,n.e.s.	26783	63.19	29.55	0.00	24.76	2.98	0.45
	TOTAL manufactures	1309116	36.46	60.58	0.00	46.25	7.03	1.76
	TOTAL: SITC 5-8 LESS 68 a/	886328	30.70	64.96	0.00	47.72	10.15	2.58
	TOTAL traded goods: SITC 0-9	1518702	44.72	52.62	0.00	40.17	6.06	1.51

Note:Data and SITC descriptions refer to SITC revision 1

*/ This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

a/ Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods,i.e. with a high level of manufacturing content.

Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

Table A.6. Destination of exports of manufactures by branch of manufacturing, 1981[a/]

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	USA (PERCENT)	EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
01	Meat and meat preparations	193	100.00	0.00	0.00	0.00	0.00	0.00
032	Fish n.e.s. and fish preparations	3	100.00	0.00	0.00	0.00	0.00	0.00
048	Cereals preparat. & starch of fruits & vegetab.	0	100.00	0.00	0.00	0.00	0.00	0.00
052	Dried fruit	559	100.00	0.00	0.00	0.00	0.00	0.00
055	Vegetables,roots & tubers,preserved or prepared	1	100.00	0.00	0.00	0.00	0.00	0.00
06	Sugar,sugar preparations and honey	3652	0.30	99.70	0.00	99.70	0.00	0.00
074	Tea and mate	4163	42.23	57.57	0.00	57.55	0.02	0.20
081	Feeding-stuff for animals	16975	11.11	88.89	0.00	88.89	0.00	0.00
09	Miscellaneous food preparations	1	100.01	0.00	0.00	0.00	0.00	0.00
122	Tobacco manufactures	103	100.00	0.00	0.00	0.00	0.00	0.00
263	Cotton	119866	28.70	58.17	0.00	17.08	25.89	12.34
267	Waste materials from textile fabrics(incl.rags)	15	0.00	100.00	0.00	100.00	0.00	0.00
332	Petroleum products	21775	38.84	61.16	0.00	61.16	0.00	0.00
4	Animal and vegetable oils and fats	12608	0.00	100.00	0.00	100.00	0.00	0.00
421	Fixed vegetable oils,soft(incl.SITC 422)	12557	0.00	100.00	0.00	100.00	0.00	0.00
431	Animal and vegetable oils and fats processed	52	0.00	100.00	0.00	100.00	0.00	0.00
5	Chemicals	81	56.56	43.44	0.00	43.44	0.00	0.00
51	Chemicals elements and compounds	35	0.00	100.00	0.00	100.00	0.00	0.00
54	Medicinal and pharmaceutical products	46	100.00	0.00	0.00	0.00	0.00	0.00
6	Manufactured goods classified by material	3706	23.66	57.00	0.00	38.92	0.00	19.34
61	Leather manufactured n.e.s. & dressed fur skins	157	62.14	37.86	0.00	37.86	0.00	0.00
62	Rubber manufactures n.e.s.	317	100.00	0.00	0.00	0.00	0.00	0.00
65	Textile yarn,fabrics,made-up articles	3215	13.83	63.87	0.00	43.03	0.00	22.30
69	Manufactures of metal,n.e.s.	18	100.00	0.00	0.00	0.00	0.00	0.00
7	Machinery and transport equipment	8	0.00	100.00	0.00	100.00	0.00	0.00
72	Electrical machinery,apparatus and appliances	8	0.00	100.00	0.00	100.00	0.00	0.00
8	Miscellaneous manufactured articles	29	97.42	2.58	0.00	2.58	0.00	0.00
82	Furniture	3	100.00	0.00	0.00	0.00	0.00	0.00
83	Travel goods,handbags and similar articles	1	100.00	0.00	0.00	0.00	0.00	0.00
84	Clothing	13	100.00	0.00	0.00	0.00	0.00	0.00
85	Footwear	11	100.00	0.00	0.00	0.00	0.00	0.00
89	Miscellaneous manufactured articles,n.e.s.	1	28.07	71.93	0.00	71.93	0.00	0.00
	TOTAL manufactures	183737	26.30	64.74	0.00	37.57	16.89	8.44
	TOTAL: SITC 5-8 LESS 68 a/	3824	24.87	56.38	0.00	38.86	0.00	18.75
	TOTAL traded goods: SITC 0-9	500806	49.97	42.49	0.00	28.72	8.45	7.15

Note:Data and SITC descriptions refer to SITC revision 1

*/ This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

a/ Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods,i.e. with a high level of manufacturing content.

Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

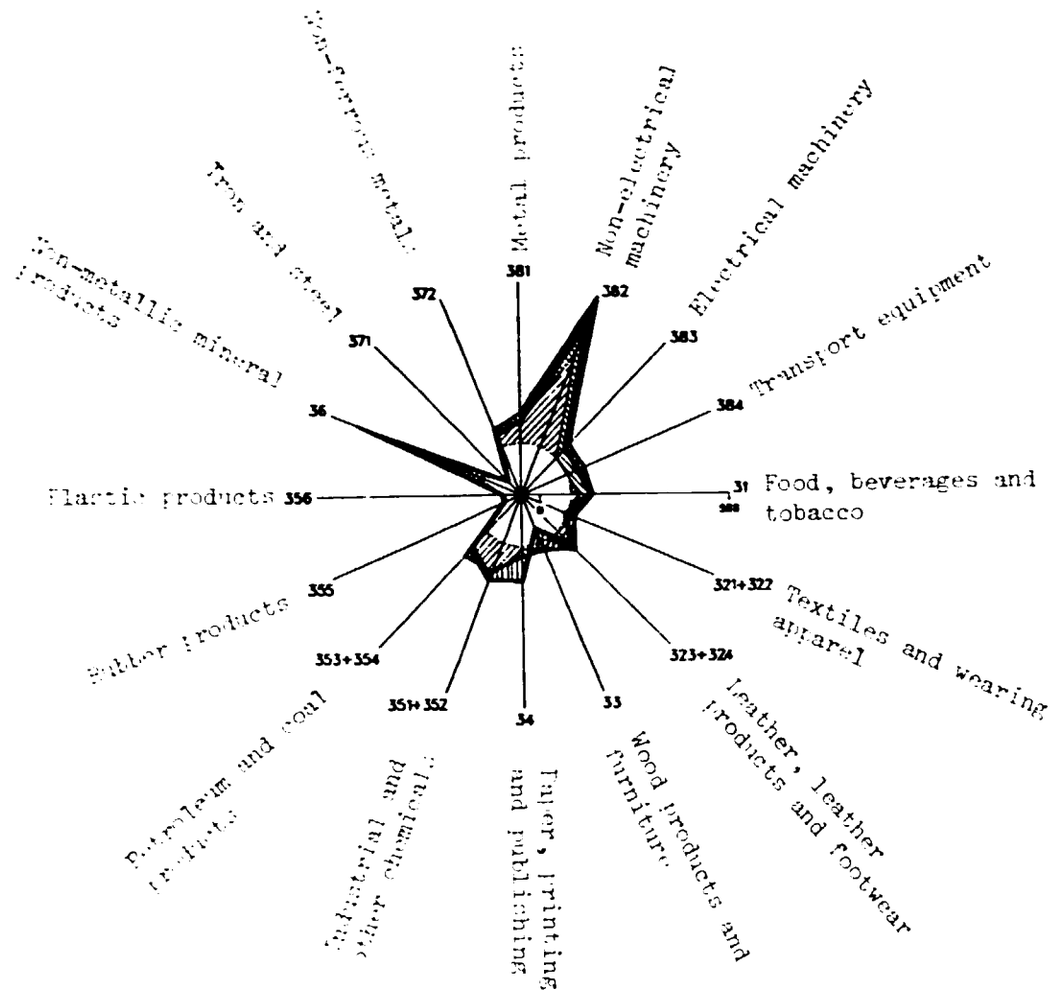
Table A.7. Major public investments in manufacturing enterprises, 1976-81

Project	Date of completion	Maximum annual production capacity	Cost (S£ millions)
Sugar refining			
Sennar	1976	110,000 tons	28
Assalaya	1980	110,000 tons	30
Kenana	1980	330,000 tons	...
Textile			
Hasahisa spinning and weaving	1976	14 million meter cloth	4
Port Sudan spinning	1980	5,300 tons fine yarn	14
Haj Abdalla spinning	1981[a/]	7,700 tons yarn	20
Gadow spinning and weaving	1981[a/]	2,650 tons fine yarn	34
Kosti weaving	1978	16 million meter gray cloth	5
Shendi weaving	1978	10 million meter gray cloth	5
Doueim weaving	1979	10 million meter gray cloth	5
Nyala weaving	1979	10 million meter gray cloth	5
Kadogli weaving	1979	10 million meter gray cloth	5
Mingala weaving	1981[a/]	10 million meter gray cloth	5
Abu Niama Jute sacks	1976	10,000 sacks	7

Sources: Ministry of Finance and National Economy, Economic Survey, 1989/80; IBRD Report No. 3551a-SU, 1982, p.262.

a/ Estimated.

Appendix A.8. INDUSTRIAL STRUCTURAL CHANGE, 1965-80
(Index of value added: 1965=100)



The measure for structural change is defined as:

$$\cos \theta = \frac{\sum_i s_i(t).s_i(t-1)}{\sqrt{\left(\sum_i s_i(t)^2\right).\left(\sum_i s_i(t-1)^2\right)}}$$

where $s_i(t)$ is the share of the i-th branch of value added in total value added in the year t.

The value θ can be interpreted as the angle between the two vectors $s_i(t-1)$ and $s_i(t)$ measured in degrees.

The theoretical maximum value of θ is 90 degrees.

Source: UNIDO, Industry and Development, Global Report, 1985.

APPENDIX B

Major industrial factories, projects and programmes by sector

A. TEXTILE INDUSTRY

Factory name	Design cap. yarn (tons)	100% Eff. fabric (million metres)	Utilization Spinn.	Weav	Remarks
PUBLIC SECTOR					
Spinning Factories					
Port Sudan Spinning	5,300	-	+	-	-
Khartoum North Spin.	1,680	-	-	-	Under Construction
Haj Abdalla Spinning	10,350	-	+	-	-
Weaving Factories					
Kosti Weaving	-	6.9	...	28%	
Shendi Weaving	-	6.9	...	13%	
El Dueim Weaving	-	6.9	...	10%	
Kadugli Weaving	-	6.9	...	6%	
Nyala Weaving	-	6.9	...	4%	
Mangala Weaving	-	6.9	...	0	
Spinning, Weaving and Finishing Factories					
Friendship Textile Mill	2,100	16.0	31%	30%	-
Gaddow Textile Mill	1,800	16.0	-	-	Under Construction
PRIVATE SECTOR					
Sudan Textile Industry	10,000	70.0	55%	44%	Including the extension

Appendix B (cont.)

Factory name	Design cap. yarn (tons)	100% Eff. fabric (million metres)	Utilization Spinn.	Utilization Weav.	Remarks
PRIVATE SECTOR (cont.)					
Sudan Textile Industry New Mill	5,000	35.0	-	-	-
Khartoum Spinning and Weaving	4,500	42.0	-	-	Production suspended
Cotton Textile Mill	1,600	13.0	94%	85%	Calculated by Mill
Wad Medani Spinning and Weaving	2,100	19.0	62%	47%	-
Wad Medani Extension	8,500	34.0	-	-	Under construction
Sennar Spinning	2,100	-	42%	...	-
Red Sea Spinning	2,100	-	86%	...	-
International Spinning and Weaving	4,500	-	38%	...	Weaving not yet built
Blue Nile Spinning and Weaving	2,700	30.5	-	14%	-
Gumeira Spinning	1,440	-	-	-	Not yet in production
Gematex	1,600	12.000	-	-	Not yet in production

Under construction, projects as of 31 December 1981

Factory name	Capacity
Haj Abdalla Spinning	77,500 tons thick spin. 2,650 tons fine spin.
Port Sudan Spinning Project	53,000 tons fine spin. for export
Gadu Spinning and Weaving Factory	16 million metres cotton cloth
Fine Spinning Factory Khartoum North	1,800 tons of fine spinning
Melut Sugar Project	110,000 tons of sugar per year; 6,500 tons of sugar cane daily
Tonj Kenaf Project	10,000,000 sacks, 900 tons

Appendix B (cont.)

B. FOOD INDUSTRIES

Factory name	Annual production capacity	
	Maximum	Actual production
PUBLIC SECTOR		
1) Kassala Onion Dehydration Factory	De-hydrated onion - 900 tons	Maximum: 611 tons (1974-75) Minimum: 108 tons (1969-70) 1980-81: 110 tons
2) Wau Fruits and Vegetables Canning Factory	a) Tomato paste 900 tons b) Pineapple products 144 tons c) Mango products 432 tons d) Canned vegetables, incl. beans 1,080 tons	Maximum (all products): 412 tons (1974-75) Minimum (all products): 18 tons (1978-79) Since rehabilitation, this factory has made 435 tons of all products.
3) Kareima Fruits and Vegetables Canning Factory	a) Tomato paste 3,240 tons	Maximum 1,124 tons (1973-74) Minimum: 39 tons (1966-67) 1980-81: 219 tons
	b) Dates 1,700 tons	190 tons on average per year Maximum: 731 tons (1968-69) Minimum: 27 tons (1980-81) 1980-81: 27 tons
	c) Canned fruits and vegetables incl. beans 1,080 tons	Maximum: 190 tons (1967-68) Minimum: 1.5 tons (1975-76) 1980-81: 9 tons
	d) Fruit juices 720 tons	Maximum: 128 tons (1979-80)
	e) Fruit jams 60 tons	Minimum: 0.6 tons (1977-78) 1980-81: 34 tons
4) Babanousa Milk Products Factory	The factory has been designed to manufacture some milk products with the following capacities:	
	a) Spray dried whole milk powder 900 tons	Maximum: 74 tons (1973-74) Minimum: 6 tons (1976-77)
	b) Butter 216 tons	Information not available
	c) Ghee (butter oil) 72 tons	Information not available

Appendix B (cont.)

Factory name	Annual production capacity	
	Maximum	Actual production

4) Babanousa (cont.)
However, as adequate quantity of milk is not available to the factory, it has now switched on to manufacture de-hydrated karkadeh and arabic gum powders with the following capacities:

a) Karkadeh	280 tons; Maximum: 212 tons (1973-74); the Karkadeh manufacturing season was prolonged this year. Minimum: 30 tons (1978-79) 1981-82: 40 tons
b) Arabic	Gum powder 560 tons The factory only provides processing facilities to the Arab Gum Company and therefore figures are not available.

The factory can only manufacture one of these two series of products (milk or gum) at a time. However, in the absence of milk, the factory can work all the year round for Arabic Gum and four months for Karkadeh. In this event, production capacity will go up for these two products.

5) Krikab Sweets Factory	4,200 tons
Khartoum North Hard and soft boiled sweets including some chocolate products, fruit juices and powdered coffee.	The information is under collection.
6) Tea Sweets Factory	3,600 tons
Khartoum North	The information is under collection.

PRIVATE SECTOR

Tomato paste industries:

Factory name	Annual production capacity	
	Maximum	Actual production
Sneed	20,700 tons	2,000 tons

Appendix B (cont.)

Fodder and poultry food industries:

Factory name	Invested Capital	Annual production capacity	
		Maximum	Actual production
1) El Kattani Fodder Plant	S£ 220,000	36,000 tons	-
2) El Obeid Fodder Plant	S£ 66,700	3,600 tons	
3) Sala Poultry Food Fac.	S£ 20,000	-	
4) Omdurman Poultry Food Factory	S£ 10,000	3,000 tons	1,500 tons
5) Faghih Fodder Company	S£ 169,200	23,000 tons	-
6) Nile Fodder Import Company	S£ 500,000	30,000 tons	-
7) El Gadid ElThawra Fodder Factory	S£ 13 million	250,000 tons	

Operating grain mills:

Factory name	Production capacity
1) Grain Milling Corporation (Khartoum North)	120,000 tons/year
2) National Milling Company (Khartoum North)	24,000 " "
3) Gezira Grain Milling Company (Wad Medani)	60,000 " "
4) Blue Nile Grain Milling (Wad Medani)	45,000 " "
5) Gezira Tenants Coop Grain Milling (Goz Kabaro)	39,000 " "
6) New Halfa Grain Milling	24,000 " "
7) Abdrabbo Grain Milling (Port Sudan)	24,000 " "
Total	336,000 " "

Following are the extensions of the above factories:

1) National Milling Company Extension started 1976	48,000 tons/year
2) Abdrabbo Grain Milling Extension started 1976	48,000 tons/year
3) Blue Nile Grain Milling Extension started 1976	45,000 tons/year
Total	141,000

The maximum capacity of the milling factories after the new extensions:
336,000 + 141,000 = 477,000 tons/year.

Appendix B (cont.)

Sugar industries:

	Factory name	Actual capacity
1)	Kenana Sugar Factory	330,000 tons
2)	Guneid Sugar Factory	60,000 tons
3)	New Halfa Sugar Factory	90,000 tons
4)	Sennar Sugar Factory	110,000 tons

Approved grain milling factories:

Region	Site	Production capacity
Central region		
1) Ahmed El Habib	Sennar	30,000 tons/year
2) Osman Abdel Gadir	Sennar	10,000 " "
3) Muzamil Suleiman Ghandour	Wad Medani	30,000 " "
4) Ballah Company	Sennar	30,000 " "
5) Mohamed Malik	El Gadid El Thawra	30,000 " "
Eastern region		
1) ElFatih Mohamed Nasr	Gedaref	12,000 " "
2) Dura Production and Distribution Company	"	30,000 " "
3) Osman Abdel Rahim and others	"	30,000 " "
Kordofan region		
1) Abdel Rahman El Ja'ali	Kadugli	30,000 " "
Southern region		
1) Bashir Niumeiri	Renk	15,000 " "
Khartoum Province		
1) Arabian Grain Milling	Khartoum North	30,000 " "
2) El Awad Grain Milling	" "	30,000 " "

Appendix B (cont.)

C. OIL AND SOAP INDUSTRIES

Year	Ground Nut for oil-making and export	Sesame for oil-making and export	Total
1) 1980/81	286,100 tons	122,300 tons	408,400
2) 1981/82	434,100 tons	149,100 tons	853,200 (approx.)

Quantity of ground nut/sesame available for making oil

Year	Ground nut quantity after export quota	Sesame quantity after export quota
1979/80	276,900 tons	64,026 tons
1980/81	279,700 tons	81,962 tons

There are 75 oil mills with a designed capacity of 911,700 tons. If these oil mills operate at 60% capacity, 547,000 tons will be produced annually. The following table shows the amount of the white and black cotton seeds available for oil mills.

White cotton seeds	Black cotton seeds	Year
1) 85,000 tons	96,000 tons	1980/81

Appendix B (cont.)

	Soap factories	Maximum capacity		Actual Capacity	
		Laundry	Toilet	Laundry	Toilet
1)	Modern factories, 8	55,800	9,000	29,000	3,900
2)	Traditional factories, 35	34,230	-	14,450	-
3)	Modern factories, 6 (under construction)	50,400	21,600	-	-
4)	Traditional factories, 15 (under construction)	45,230	-	-	-
	Total, 64	185,660	30,600	43,450	3,900

D. SHOE INDUSTRIES

	Factory name	Maximum capacity per year (Pairs of shoes)	Actual capacity per year (Pairs of shoes)
1)	Bata Company	20,000,000	13,000,000
2)	National Shoes Company	1,500,000	598,168
3)	Tomo Shoes	180,000	43,921
4)	Murad Abdo Shoes	--	17,580
5)	Hilal Shoes	900,000	1,300,784
6)	Omdurman Plastic Shoes	--	1,455,844
7)	Al Nahda Shoes Company	450,000	50,000
8)	Slipper and Leather Products	--	177,110
9)	Modern Shoes Company	450,000	180,000
10)	El Birare Leather Products Factory	180,000	60,000
11)	Military Factory	270,000	150,000
12)	Shoes and Plastic Modern Industries	--	101,919
13)	Roxy Sandal	750,000	180,000
14)	Sudan Shoes Factory	36,000	36,000
15)	El Ghazali Factory	150,000	12,000
16)	Sudanese Industry and Trade Company	--	13,100
17)	Leather and Plastic Products	--	480,536
18)	Tamahin Sac	5,000	4,500
19)	Gana Shoe Factory	9,000	6,000
20)	International Shoes	1,080,000	75,000
21)	Luna Leather Products	55,000	10,000
22)	Omdurman Leather and Shoes Factory	270,000	150,000
	Total		27,135,612

Appendix B (cont.)

E. WORKING TANNERIES

Tannery name	Maximum capacity		Actual capacity	
	Cattle hide	Sheep hide	Cattle hide	Sheep hide
	(Number)			
PUBLIC SECTOR				
1) Khartoum Tannery	180,000	450,000	50,000	450,000
2) White Nile Tannery	195,000	450,000	150,000	450,000
3) Gezira Tannery	300,000	75,000	300,000	75,000
		1,650,000		1,475,000
PRIVATE SECTOR				
1) Babiker Mohamed El Yas		15,000		15,000
2) El Sawi Abdallah Tannery		15,000		15,000
3) Abdel Hamid Yassin Tannery		60,000		45,000
4) Awad El Yas Tannery		21,000		15,000
5) Hamid Gabir Hides		60,000		45,000
6) Taha and Awad Hides		18,000		18,000
7) Kamil Ali Hides		9,000		9,000
8) Abbas Hussein Hides		18,000		15,000
9) Ghotbi Mohamed Ali Hides		4,800		3,000
10) Ahmed Khalifa Mustafa Hides		2,400		2,000
11) Nor Eldin Yousif Allam Hides		50,000		30,000
12) Awad Mohamed Hides		150,000		90,000
13) Mohamed Yousif Allam Hides		100,000		60,000
14) Ali Abdalla Hides		250,000		180,000
15) Osman Haj Mohamed Hides		9,000		9,000
16) Dafaalla Gubara Tannery		50,000		36,000
17) El Mardi Mohi Eldin Tannery		300,000		200,000
18) Mohamed Hussein Tannery		120,000		60,000
19) Red Sea Tannery		30,000		
Total		1,552,200		847,000

F. CHEMICAL INDUSTRIES

Tannery name	Maximum capacity	Actual capacity	Electric power needed
1) El Roubi Factory	150,000 batteries	73,000 batteries	1,5 MW
2) Union Carbide Co	80 mill. dry battery cells	38 million dry battery cells	2,6 MW
3) Tooth Paste Indust.	53 million tubes	7 million tubes	1,6 MW
4) Gaafar Qoraish Battery Factory	275 metric tons daily		
5) Sudan Ren Company	275 mt urea daily		
6) Sudan Ren Company	172 mt amonia daily (not yet started)		

Appendix B (cont.)

Sudan Ren Chemical and Fertilizers Co. Ltd.

The licence dated 28 January 1979 was granted for the production of fertilizers and chemicals. Sudan Government's share is 65 per cent of the capital, while the Company's share is 35 per cent. Capital in Sudanese currency: S£7,540,000. Production capacity: ammonia fertilizer 172 mt per day, urea fertilizers 275 mt per day.

G. ENGINEERING INDUSTRIES

Factory name	Maximum capacity per year	Actual capacity per year	Electric power needed
1) Khartoum Central Foundry	15,000 tons	400 tons annually	
2) Sudanese Metal Foundry Company (private sector)			
A. Building Steel Metal	70,000 tons	8,000 tons	3 MW
B. Roofing Metal sheets	18,000	11,000 tons	1.6 MW
3) International Tyre Mfg and Distr. Co. Ltd.		250,000 tyres	
4) Metal and Steel Co.	50,000 units	15,000 units	
5) Coldair Eng. Company	4863 Refrigerators 33 Air coolers 20 Air conditioners 27 Water coolers 1 Cool room 1 Special cool room		
6) Mohamed El Amin Hamid Company	20 X 25 days = 500 refrig./month	Production started Sept.81	
Admiral Company (Metal Sheets Ltd.) Coldair Engineering Company El Tabaldi Engineering Company Syd. Mohamed El Amin Hamid (Libber Refrigerators)			

Appendix B (cont.)

Air coolers production

Total designed capacity of these factories

Air coolers:	24,000 units/year
Air conditioners:	11,400 units/year

Total actual capacity

Air Coolers:	6,120 units/year
Air Conditioners:	4,700 units/year

Ready production in stores

Air Coolers:	700 units
Air Conditioners:	100 units

Materials in stores (inputs)

Air Coolers:	1,300 (units which can be produced)
Air Conditioners:	50 (units which can be produced)

H. PRINTING AND PAPER INDUSTRIES

Factory name	Maximum capacity (per year)	Actual production	Annual capacity (SE)
1) El Horia Printing Press	--	100,000 notebooks	6,369
2) El Gamhoria Industry Co	--	60,000 ink pens 150,000 dry ink pens	
3) Sudanese Stationery Factory	510 tons of ink	175 tons of ink	
4) Dinder Stationery Fac.	270,000 packets pencils	90,000 packets pencils	43,000
5) Al Ayyam Stationery Company	4 mill. notebooks 500,000 files 50,000 packets of fullscape		30,000
6) Modern Printing Press El Obeid	--	600,000 notebooks 30,000 fullscape pads	4,000
7) National Pens and Stationery Company	300,000 notebooks 300,000 packets of stationery		20,000
8) Kordofan Printing, Press and Distribution House		1.5 million notebooks	50,000
9) El Manar Printing	6,000,000 note-books	1,800,000 note-books	15,000
10) Mary Yousif Printing			

Factory name	Maximum capacity (per year)	Actual production	Annual capacity (S£)
11) El Tamaddon Printing Press			
12) Printing House			
13) Books Packing Modern House	--	2 million note-books	
14) Khartoum Printing Press	450,000 fullscape	180,000 fullscape	10,000
15) El Wehda Trading Press	10.8 million notebooks	3 million note-books	129,000
16) Arabi Printing Press House	1 million note-books	--	5,000
17) Dina Modern Printing Press	--	150,000 note-books	

Source: Ministry of Industry, Sudan.

APPENDIX C

The approved and/or operational technical co-operation projects of UNIDO, 1985

The Democratic Republic of the Sudan

Backstopping responsibility (Spec. Act. Code)	Project number	Project title
PC/ECDC (30.9.Z)	RP/SUD/84/002	Visit of Sudanese officials to selected Arab countries and financial institutions as a follow-up of the Sudan Solidarity Meeting
PC/ECDC (30.9.Z)	RP/SUD/84/005	Visit of one Sudanese official to Algeria to discuss the grant of $400,000 made by Algeria during the Sudan Solidarity Meeting
IO/PLAN (31.2.D)	DP/SUD/80/006	Industrial survey of the Sudan
IO/INFR (31.3.L)	UC/SUD/84/146	Assistance to small-scale industry
IO/FCTY (31.4.B)	DP/SUD/79/010**	Development of the efficiency of public sector industries (Phase II of DP/SUD/74/041)
IO/FEAS (31.6.A)	SF/SUD/84/001	Training seminar on the computer model for feasibility analysis and reporting (COMFAR)
IO/AGRO (31.7.D)	UC/SUD/83/251	Assistance to the public sector tanning industry of Sudan
IO/MET (31.8.D)	SI/SUD/82/803	Assistance to Khartoum Central Foundry in initiation of its expansion programme
IO/CHEM (32.1.E)	ST/SUD/82/001*	Cellulose Chemistry and Technology Research Unit (CCTRU)
IO/CHEM (32.1.G)	RP/SUD/84/006	Up-dating studies for the establishment of a pesticide formulation plant (IDDA)
IO/CHEM (32.1.H)	SI/SUD/84/801	Expert to assess the production of tyres in Port Sudan

Backstopping responsibility (Spec. Act. Code)	Project number	Project title
IO/CHEM (32.1.I)	SI/SUD/82/802	Gasification of agricultural residues
IS/TEC (62.4.2)	RP/SUD/84/003	Assistance to the National Council for Research in the establishment of a national centre for technology (NCT) (continuation of RP/SUD.83/003)

* Large-scale project (total allotment $150,000 or above).

** Total allotment $1 million or above.

APPENDIX D

Leading Sudanese companies, 1983

(values in millions of US dollars)

	Company	Type of business	Sales/ turnover	Profit (loss)	Number of employees	Net assets
1	Kenana Sugar Co.	Sugar refining and processing	89.1	28.3		
2	Gum Arabic Co. Ltd.	Gum exports	62.1	4.4	110	7.7
3	Sudan Oil Seeds Co.Ltd.	Oil seeds exports	48.0	3.0	500 (10,000 seasonal	39.4
4	El Tayib Ahmed Osman (El Nus)	Trading	38.5			
5	Elashi Yousif Mohammad & Sons Co.Ltd.	Import of construction materials and freight handling	28.0		1,907	
6	Duty Free Shops	Import and sale of duty free items	21.3	4.3	450	
7	Coptrade Co.Ltd. (Pharmac. & Chemical Division)	Trading	15.4			
8	Nile Cement Co.	Cement	14.9	1.1	450	
9	Axis Trading Co.Ltd.	Trading	12.8	1.4	72	25.6
10	Red Sea Imports & Exports	Trading	10.7		12	

Source: South, March 1985.

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