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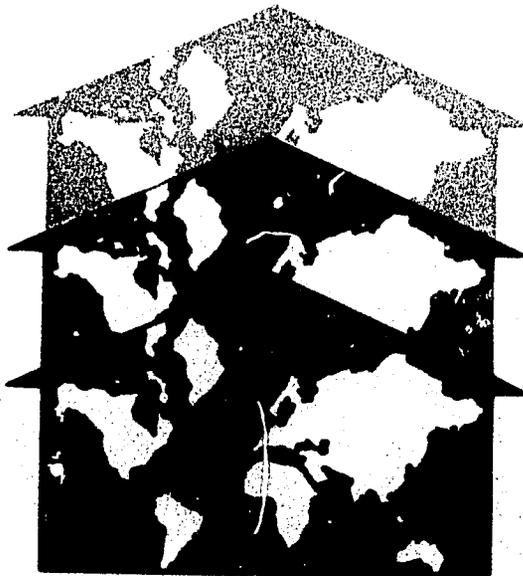
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Sudan Shelter Sector Assessment

November 1978

**AGENCY
FOR
INTERNATIONAL
DEVELOPMENT**



OFFICE OF HOUSING

Sudan Shelter Sector Assessment

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OFFICE OF HOUSING

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20521

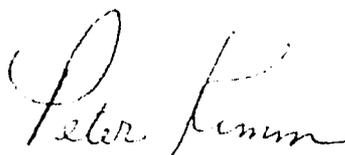
FOREWORD

This report is the product of a study requested by the Government of Sudan and conducted by Louis Berger International, Inc. in cooperation with representatives of that Government. The study was made under the auspices of the Office of Housing of the Agency for International Development and financed by this office. The purpose of the study was to obtain information, provide analysis and make recommendations relating to the shelter sector in Sudan.

The study team included Mr. Axel Jerome (team leader), Mr. Kul Sandhu, Mr. Steve Albin and Mr. Carl House. Field work was completed in November.

The findings and recommendations of the study are for the purpose of discussion and review and are not to be considered as the official position of the Government of Sudan or Agency for International Development.

We hope that the Government of Sudan will find the report and its recommendations useful when considering future shelter programs.



Peter M. Kimm
Director
Office of Housing

SUDAN SHELTER SECTOR ASSESSMENT

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I. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A. Introduction

The results of the shelter sector assessment presented in this report have evolved from the consulting team's field investigation in several regions of the Sudan, compilation and interpretation of data, interviews with a large number of Sudanese officials, international advisors, and private citizens, and working sessions with representatives of the U.S. AID Housing Office. The consultants take full responsibility, however, for the conclusions and recommendations contained herein.

The report is organized in four parts: Part I is a summary of the main conclusions and recommendations developed in Part IV; Part II describes the country's profile in terms of geography, economy, population, employment, and income; Part III examines the shelter sector mainly with respect to government organization, policies and programs, current housing situation and projection of needs, and roles of public institutions and private enterprises.

B. Summary

The most important constraints affecting the shelter sector in the Sudan are essentially related to:

- Affordability
- Lack of financing
- Projects administration
- Poor production and supply of building materials
- Inadequate planning of housing projects

1. Affordability

The major predicament of the housing situation on the demand side is affordability. The median household income in urban areas of the Sudan is judged to be LS 860 per year in 1978.

A minimal one-bedroom house conceived by the Department of Housing as the least expensive solution costs LS 3,000 plus LS 315 for a Class III plot. Seventy percent of urban households cannot afford such a house.

The present financial position of the country and the urgent needs to continue to orient major national investment towards projects that will produce exports and raise health and education standards argue strongly against housing subsidies.

The present focus of the Department of Housing on providing minimal urban services rather than building houses should be affirmed.

2. Lack of Financing

The incapacity of the financial sector to make available loans at an adequate level, on reasonable terms, and to a broad range of families is the greatest institutional impediment to housing production in the Sudan.

The Estates Bank is the primary mortgage lending institution in the Sudan. The Bank suffers from a severe shortage of funds. Its activity in mortgage lending has been far below that which is needed. Furthermore, it has completely run out of available mortgage funds and has consequently not issued any new loans since June 1977. The current Six-Year Plan has proposed to increase the share capital of the Estates Bank to LS 40 million from the current level of LS 10 million.

The transfer of funds to the Estates Bank should begin immediately and a schedule developed for its continuance throughout the Six-Year Plan. The loan applications have already been approved and the applicants are awaiting the funds. Also, the personal savings program of the Estates Bank should be aggressively expanded.

Interest rates on mortgages should be raised to a level that allows savings to be used as a source of mortgage finances. Since savings currently earn 8 percent, it is assumed that mortgages must earn 10 percent interest. This is judged to be essential to expanding the supply of capital to the Estates Bank and to attracting other financial institutions to mortgage lending.

3. Projects Administration

a. Basic Organization for Housing and Urban Development

The main organ of the Sudanese government responsible for housing and urban development is the Housing Department of the Ministry of Construction and Public Works. The activities of the Department are closely monitored by the Ministry of National Planning and the Ministry of Finance. The Department works in close cooperation with provincial and local government agencies in the preparation and execution of housing projects. The other public agencies directly involved in the housing sector are the Public Electricity and Water Corporation and the Estates Bank.

There are problems with the coordination of the different public agencies involved in the housing sector as discussed later in this summary. These problems have a different connotation in the six provinces of the south since the formation in early 1972 of the Southern Regional Government under which the southern provinces are administered with a great degree of autonomy. The Southern Region has a Six-Year Plan distinct from the National Six-Year Plan. The programs and projects incorporated in the Regional Plan are partly financed by subventions and contributions from the Central Government. These projects are prepared and executed by the various regional ministries (see Table II-1, Page III-2), of which the most directly concerned with the shelter sector are the Regional Ministry

of Housing and Public Utilities and the Regional Ministry of Finance and Economic Planning. These ministries work in close cooperation with the provincial and town councils for the implementation of housing projects in the south in the same manner that, in the north, the ministries of the Central Government work with the provincial and municipal councils to achieve the same objective. This difference should be borne in mind with development projects in the southern provinces as it adds an extra dimension to the administrative problems of project preparation and execution.

b. Problems of Efficiency

The intricacies of the system analyzed in Sections III A and D whereby housing projects are processed through numerous administrative units of government agencies and public corporations create unnecessary delays which cause shelter projects to be left with incomplete infrastructure and to cost substantially more than budgeted for; moreover, they diminish the overall effectiveness of the shelter delivery system.

The housing projects executing agencies at the central and provincial level presently lack the strength and importance that would be commensurate with the magnitude of the problems which they are charged to address.

Morale is presently low at the Housing Department, which has suffered a severe "brain drain" with the loss of almost two-thirds of its former staff of 30 professional urban planners to other countries offering higher salaries.

There has been insufficient coordination so far between the Housing Department and some key organizations involved in the housing delivery system—mainly the Estates Bank and the Public Electricity and Water Corporation.

To alleviate the lack of administrative efficiency discussed above, it is recommended that the government take urgent action to achieve the following:

i. The present project administration system should be modified by letting the executing agencies assume more responsibility for the financial management of the projects. The two main executing agencies (i.e., the Housing Department of the Ministry of Construction and Public Works, and the Planning Department of each Provincial Commissioner's office) should be given more responsibility for project accounting and financial management.

ii. The present Housing Department of the Ministry of Construction and Public Works should be promoted within the administrative structure of the Ministry, and the Department Head should be an officer reporting directly to the Minister. Also, in recognition of the fact that the responsibilities of the Housing Department are not only for housing projects, but also for urban development, the Department should be renamed the Housing and Urban Development Department.

iii. Since the responsibility for national housing policies and programs rests with the Housing Department, this department should be charged as well with the coordination of the housing-related activities of other organizations—mainly the Estates Bank and the PIWC—active in the housing sector. This should be achieved in the context of the proposed reorganization of the department, which should be mandated to review the current and proposed housing-related activities of those agencies and to approve their investment programs in the housing sector.

iv. In view of the significant role of the Estates Bank as the only source of funds available to individual investors for shelter construction, a more detailed analysis of its policies and programs and their impact on shelter sector activity is required.

Therefore, it is recommended that a team of consultants, external to the Estates Bank, undertake a thorough investigation of its operations, policies, and impact upon the country's housing situation.

4. Poor Production and Supply of Building Materials

Building materials required for housing purposes are often in short supply and, as a result, suppliers tend to reduce quality and increase prices.

While the cement produced in the Sudan is known to be excellent, the quality of local bricks, sun-dried or soft-burnt, is poor and getting worse as demand increases.

In order to reduce the constraints caused by the inadequate production and supply of building materials, the government should urgently consider taking the following actions:

i. Because brick is so widely used in housing construction, it is important that the Ministry of Construction and Public Works act vigorously to bring about the urgently needed improvements in the production of local bricks.

ii. The production of bricks and other building materials should be more closely monitored by responsible government agencies to ascertain that the official standards of adequacy and corresponding pricing policies are adhered to.

iii. It is necessary and urgent not only to increase local production of building materials but also to achieve greater geographical distribution of production plants in order to minimize transportation requirements.

5. Inadequate Planning of Housing Projects

a. Planning Standards

Land use planning standards which have been adopted for past and current sites and services projects are so generous—especially for "government-reserve" space, street right-of-way, plot size—that the overall density ends up being quite low, as discussed in Section III-E.

The direct consequence of using such high standards of residential site development is reflected in an infrastructure network that is too extensive and therefore too costly.

In order to avoid problems of excessive land development standards and costs in new projects, it is important that the planning practices, which have over many years prevailed when the Sudanese cities were still relatively small, be adjusted to accommodate economically a much larger urban population. The planning authorities must adopt new, more economical land-use standards for the purpose of achieving greater efficiency in shelter projects and thereby serve equitably a larger portion of the population with the limited resources available.

b. Urban Services and Planning

i. While some efforts are made by the responsible public agencies to provide the schools and clinics required in the squatter settlement upgrading areas and other low-income districts, the needs are far from being met.

This is an area where the government should be more actively engaged in order to prevent deterioration of personal health that may be very costly to restore later, and to give to the poorest citizens the basic education and skills which will enable them to secure the employment that will provide them with the resources required for their shelter and other essential human necessities.

ii. The site selection process for shelter projects has in many instances neglected the transportation requirements of future residents, as discussed in Section III-B. This has resulted in long, difficult, and costly work trips for the inhabitants of new sites and services project areas who often work in the central urban quarters. This is particularly true in Port Sudan and the Greater Khartoum area.

c. Building Research and Development

The main deficiencies with the two basic types of shelter solution (i.e., the traditional zibala mud house and the modern brick wall and concrete roof house) are that the traditional solution lacks durability while the modern solution lacks economy, as discussed in Section III-E. Only the test of technological building research and development can provide a satisfactory solution that strikes a proper balance between durability and economy.

The government should therefore encourage and support an expansion of building research and development activities in both the public and private sector.

II. COUNTRY SITUATION

II. COUNTRY SITUATION

The Democratic Republic of the Sudan is one of the largest countries in Africa, with an area of 2.5 million square kilometers and a population estimated at approximately 15 million in 1973 and perhaps 17 million today. It is bordered by Egypt to the north, the Red Sea and Ethiopia to the east, Kenya, Uganda, and Zaire to the south, and Libya, Chad, and the Central African Republic to the west. The country contains a wide range of ecological zones, offering a diversified potential for future development. Agriculture and related activities form the basis for Sudan's economy at the present time. Many groups are represented in the Sudan's diverse population, and a variety of cultural adaptations have been made to the country's ecological opportunities and constraints.

A. Geography

The country consists largely of a plateau which slopes gently downward to the north, traversed by the Nile River. The White Nile, rising from Lake Albert in Uganda, enters Sudan from the south and passes through a nearly impenetrable swamp, the Sudd, before joining the Blue Nile (rising from Lake Tana in Ethiopia) at Khartoum. There are highlands along the Red Sea coast, in the center of the country (the Nuba Mountains), and in the West (Jebel Marra massif).

Rainfall in the Sudan is highly variable, both from one region of the country to another and from one year to another. The country as a whole experienced low rainfall in the drought years of 1970 to 1973. Varying soil conditions and drainage patterns also contribute to the formation of distinct ecological zones within the country.

1. Ecological Zones

In the far north, there is desert with a complete lack of vegetation and an annual rainfall of less than 50 mm. Human settlement is possible only along the Nile River and in isolated oases where groundwater can be tapped. Wheat and dates are cultivated on the alluvial soils bordering the Nile, and nomadic camel herders travel across international boundaries in this area.

At the edge of the true desert, there is a semi-arid zone where small shrubs provide some seasonal grazing for transhumant herds when the rains are sufficient. The soils in this zone are still largely sandy and unsuited for settled agriculture. South of this strip is a Sahelian zone where a more permanent

vegetation of shrub grass survives on a base of stabilized sands. This region currently suffers from increasing population pressure which appears to be leading to serious desertification problems.

The clay plains of the central part of the country have provided the basis for most of its agricultural development. Rainfall in this zone averages more than 500 mm per year. The cash crops of cotton, groundnuts, sesame, and gum arabic are largely produced in this zone, as are the staple food crops of dura (sorghum) and wheat. Major livestock concentrations are also maintained in this zone.

The southern Sudan has a high rainfall, between 800 and 1,000 mm annually on the plateau, and over 1,000 mm in the rain forest on the southern mountain slopes. This region contains the Sudd, in which shifting cultivation is combined with transhumant cattle herding by African tribes. The potential for agricultural production in this zone has been limited by its heavy vegetation, relatively infertile soils, and the presence of the tsetse fly in the southwest section.

2. Land Use

It has been estimated that about one-third of Sudan's total land area is desert. Half of the remainder is suitable only for grazing and less than a quarter is potentially arable (excluding swamps, lakes, and forests). However, at the present time less than a third of the potentially arable land is cultivated; most of the rest is used for grazing.

The aerial surveys taken for the 1975/76 livestock census indicate that approximately 4 million feddans (1.75 million hectares) are presently under irrigated agriculture; more than 5 million feddans (2.42 million hectares) are in mechanized farming; and almost 17 million feddans (7 million hectares) are under cultivation by traditional methods. Some 20,000 hectares are in forest plantations, and perhaps 300,000 hectares are in urban or industrial uses. In contrast, about 125 million hectares are used or are available for grazing activities, and 115 million hectares are judged unusable at the present time.

3. Human Settlement

Population patterns in the Sudan are traditionally concentrated along the Nile River and its tributaries. Today, about 40% of the population lives in the East Central region, which contains most of the modern agricultural development and more than half of the country's urban population. In the north, the population is heavily concentrated in a narrow strip along the Nile and on

the Red Sea coast. In the south and west, the population is sparsely distributed and almost entirely rural. Some are true nomads, and many of the rest are transhumant herders as well as agriculturalists.

The average population density for the Sudan is extremely low: 5.7 persons per square kilometer. Only Khartoum province has a density that suggests potential pressure on ecological resources (53 persons per square kilometer); Blue Nile province follows with 26 persons per square kilometer, and the remainder vary from 4 to 6, except for Northern province, which has less than 2 persons per square kilometer. Khartoum and Blue Nile provinces together contain about one-third of the country's population on about 7 percent of its land area.

B. Economy

1. Overview

Sudan's principal economic activities are in the agricultural sector. Over 95% of its exports are agricultural products, principally cotton and cotton seed. Gum arabic, sesame, groundnuts, and livestock are other major exports. The Arab world is a major purchaser of Sudanese agricultural exports, and it has proposed an ambitious plan to develop Sudan's wheat-producing potential to the point at which it could become "the breadbasket of the Arab world." There is a small but growing amount of agriculture-related industry, often controlled by parastatal enterprises.

Sudan experienced a slow growth in GDP at current prices from 1955 to 1975 to a level estimated at over 2 billion Sudanese pounds (about US\$4 billion) in 1976/77. This figure corresponds to a per capita GDP of under US\$250, making Sudan one of the less developed countries in the world. Agriculture contributes about 40% of the value added, while services (including transportation, construction, and utilities) account for about 50% and industry accounts for about 10% of GDP.

A gradual expansion in the production of principal crops has been the result of increasing cultivated area; yields have actually declined in recent years. Cotton production has been held essentially stable, while some crop lands have been shifted into sesame, groundnut, and wheat production. The production of the staple foods, dura (sorghum) and dukhn (millet), appears to have kept pace with population growth. Livestock sales and exports have also increased substantially in recent years.

The expansion of export crop production was based initially on the development of irrigated schemes using the waters of the Nile. More recently, it has been derived from the expansion of mechanized rainfed agriculture in the central clay plains. The agricultural sector in Sudan is characterized by a marked dualism between these modern forms of production and the traditional modes, which generate little more than a subsistence level of living for the vast majority of the population.

Sudan anticipates a continuing process of development over the present Six-Year Plan period (1976-1983). Given the country's comparative advantage in certain types of agricultural production, its reserves of unexploited land and labor, and its dedication to policies of decentralization, there is some reason to be optimistic about the success of Sudan's development plans. Nevertheless, there are certain constraints which continue to hinder the implementation of development projects and which should be taken into account in the design of future assistance programs.

a. Transportation

Because of the sparse population and vast distances between urban centers, transportation has been a major bottleneck to the implementation of development programs. The main national network is the railway system for east-west transport and the Nile River for north-south transport. Sudan Air serves 15 major towns. There are some 15,000 km. of roads, of which less than 10% are constructed to an all-weather standard. All modes of transport are subject to major delays during the rainy season.

b. Water Supply

Although rainfall is relatively abundant in the southern part of the country, and the Nile River system assures a constant flow of water to the more developed regions of the Sudan, the demand for water generated by Sudanese development activities (particularly irrigated agriculture) is so great that Sudan has nearly used up its allotment under the 1959 agreement with Egypt regulating use of the Nile waters. Major dams have been built at Sennar and Roseires on the Blue Nile, at Jebel Aulia on the White Nile, and at Khashm el Girba on the Atbara River, permitting storage of seasonal flood waters and regulation of river flow. Hydroelectric plants have been installed at these and smaller dams, for a planned total power generating capacity of 400 MW.

A principal reason for Sudan's net water deficit is evaporation and evapotranspiration losses, largely incurred in the southern swamps. The Jonglei canal project is designed to reduce these losses and incidentally to improve river transport links between the northern and southern parts of the country. If successful, it should open up new areas of arable land for sedentary farming in the south; however, its ecological effects are uncertain at the present time.

The Government of Sudan is planning to improve rural water supplies in the west and south through the construction of 1,200 tubewells, 200 small embankment schemes, and 600 hand-dug wells. There is also a need to improve water quality in urban areas, and plans are being formulated to meet this need.

c. Balance of Payments

Since the consolidation of civil peace in 1972, Sudan has made major investments in development activities, including rehabilitation and improvement of the railroad, river, and road transport network. A second priority has been investment in import-substituting industries (textiles, cement) and increased production of scarce food crops (sugar, wheat). The goal of these investments is to reduce imports and increase exports so as to improve the country's balance of payments position.

However, these major investments have been financed principally through expansion of the national debt, both domestic and international. Although the government has been successful in increasing revenues, the annual losses of its parastatal enterprises have tended to offset these increases. Recurrent costs of maintenance on major infrastructure investments are beginning to loom large in the national budget. Faced with a deteriorating international credit position and a deficit in foreign exchange, Sudan recently took stringent measures to reduce losses and restrict consumption domestically as well as to renegotiate its debt service requirements with its international creditors.

2. Economic Activity by Sector

A review of national statistics on sectoral contributions to GDP reveals a relatively stable growth pattern over the years from 1969/70 to 1977/78 (see Table II-1). The share of agriculture has remained essentially constant at 39% of GDP over this period, except for 1973/74, when it rose to over 41% of GDP. Industry and services have also been relatively stable at about 9% and 34% of GDP respectively. The share contributed by transport, communications, and utilities together has declined slightly over this period (from 9.7% to 6.4%), while the share of the construction industry has slightly increased (from 3.5% to 4.8%). Import duties contribute approximately 6% of the GDP each year.

The growth rate of GDP in current prices has varied from about 8% to 3% over this period (see Table II-2). The average real growth was approximately 5% per year over the period 1970-1978 and has been, on the average, sufficient to maintain, but not to improve, the standard of living of Sudan's growing population.

3. Government Activity and Priorities

Sudan's economic planning activity began with a Ten-Year Plan for the period from 1960 to 1970. A Five-Year Plan was elaborated for the years 1970-1975 and later extended to 1976 and 1977. The planning cycle is currently in the first implementation year of the Six-Year Plan for 1977/78 to 1982/83.

The Five-Year Plan for 1970-1975 provided for a total investment of LS 385 million, with LS 215 million coming from the public sector and LS 170 million from the private sector. Sectoral allocation of these funds paralleled the existing economic structure: 38% for agriculture and irrigation, 19% for mining and manufacturing, 14% for transport and communications, and 6% each for energy and miscellaneous activities, including technical assistance.

TABLE II-1

GROSS DOMESTIC PRODUCT BY ECONOMIC ACTIVITY
at current market prices, 1969 to 1978

Sector	1969/70		1970/71		1971/72		1972/73		1973/74		1974/75		1975/76*		1976/77*		1977/78	
	LSm.	%	LSm.	%	LSm.	%	LSm.	%	LSm.	%	LSm.	%	LSm.	%	LSm.	%	LSm.	%
Agriculture	263.7	37.6	294.4	38.7	324.1	39.0	344.6	38.4	516.4	41.4	585.3	38.5	691.8	38.9	817.7	39.1	871.7	39.2
Commerce, Finance, and Services	236.0	33.6	255.6	33.6	284.1	34.1	313.3	34.9	411.5	33.0	518.5	34.3	608.7	34.3	714.6	34.2		34.5
Industry and Mining	66.8	9.5	69.2	9.1	76.8	9.2	82.9	9.2	111.3	8.9	142.9	9.1	167.2	9.4	195.6	9.4	209	9.6
Transport and Communications	51.1	7.3	50.7	6.7	51.3	6.2	61.5	6.9	74.8	6.0	89.4	6.2	100.4	5.7	112.7	5.4		5.3
Construction	24.3	3.5	23.3	3.1	26.4	3.2	31.2	3.5	61.0	4.9	65.0	3.8	81.8	4.6	103.0	4.9	106.5	4.8
Electricity and Water	16.5	2.4	16.6	2.2	16.9	2.0	17.5	2.0	18.6	1.5	20.9	2.1	21.9	1.2	23.0	1.1	23.5	1.1
<u>Sub-total (A)</u>	<u>658.4</u>		<u>709.8</u>		<u>779.6</u>		<u>851.0</u>		<u>1,193.6</u>		<u>1,422.0</u>		<u>1,671.8</u>		<u>1,966.6</u>		<u>2,096.9</u>	
Percent of Total		93.9		93.3		93.7		95.0		95.8		94.1		94.1		94.1		94.3
(B) Customs duties	43.1	6.1	51.3	6.7	52.8	6.3	45.8	5.0	52.6	4.2	88.8	5.9	105.1	5.9	124.4	5.9	127.5	5.7
<u>GDP TOTAL (A + B)</u>	<u>701.5</u>	100%	<u>761.1</u>	100%	<u>832.4</u>	100%	<u>896.8</u>	100%	<u>1,246.2</u>	100%	<u>1,510.8</u>	100%	<u>1,776.9</u>	100%	<u>2,091.0</u>	100%	<u>4,421.3</u>	100%

Source: Ministry of Finance and National Economy, Khartoum, Sudan, National Income Section, Department of Statistics, Economic Survey, 1976/77, Table 1, p. 15.

*Estimates based on an average rate of growth in each sector during the period 1969/70 to 1974/75.

TABLE II-2
GROWTH OF GDP

<u>Year</u>	<u>GDP in Current Prices¹</u>	<u>Growth in GDP Increase (%)</u>	<u>Growth in General Price Index²</u>	<u>Growth in Population³</u>
1969/70	701.5	-		
1970/71	761.1	8.5%	1.3%	2.1%
1971/72	832.4	9.4%	10.0%	2.1%
1972/73	896.8	7.7%	16.4%	2.1%
1973/74	1,246.2	39.0%	25.2%	2.1%
1974/75	1,510.8	21.2%	22.5%	2.1%
1975/76*	1,776.9	17.6%	1.8%	2.1%
1976/77*	2,091.0	17.7%	5.9%	2.1%

¹ Ministry of Finance and National Economy, Khartoum, Sudan, National Income Section, Department of Statistics. Economic Survey, 1976/77, Table 2, p. 17.

² See Table A-27.

³ See Table A-1.

*Estimated values for GDP.

However, major changes in this pattern took place as annual development budgets were prepared over the Plan period. By 1975 the pattern of actual investment over the five-year period showed a tripling of expected public investment (from LS 215 million to LS 666 million), and a reorientation of investment priorities toward transport, communications, and energy expenditures (32% of actual public investment) and import-substituting industry subsidies (21%). These shifts occurred largely at the expense of investment in agriculture (27%) and services (16%), although these, too, far exceeded the magnitude of investment originally foreseen.

Rapid rises in the costs of general administration, cost-of-living allowances for government workers, and debt service payments created strong incentives for the government to increase the money supply. This increase added internal inflationary pressures to those external pressures generated by rising food and fuel costs. The growing public sector deficit was largely financed through domestic and international borrowing, adding to the country's debt service burden for the future.

The present Six-Year Plan is the first cycle of an 18-year perspective planning effort. The objective of the Plan is to provide "accelerated and balanced growth combining development with social equity." Specifically, it aims to raise the real growth of GDP to 7.5% per year by 1982/83, with agriculture continuing to be the lead sector of the economy. The contribution of agriculture to GDP is nevertheless forecast to decrease slightly, with corresponding small increases in the shares generated by mining, manufacturing, and construction. The share of the public sector in total development investment is expected to increase from 56% to 59%, mainly due to continuing needs for additional investment in infrastructure.

The planned allocation of public sector investment over the next six years gives 32% to agriculture, 25% to industry, mining, power, and tourism, 24% to transport and communications, and 19% to social services, housing and public administration. This corresponds to a planned public investment of LS 265 million for the last-named category, which includes housing investments. Private sector investments in the same category, corresponding largely to housing construction, are estimated to amount to LS 430 million over the Plan period, compared to LS 88 million during the Five-Year Plan. Patterns of private investment are, however, expected to shift somewhat away from housing (51% of private development investment in 1970-77 and only 39% in 1978-83), due to increased private sector participation in quasi-public development projects in other sectors such as agriculture, industry, and transport.

In the interests of national integration and social equity, a separate development budget was prepared for the semi-autonomous

Southern Region of the Sudan for the Six-Year Plan period by the Regional Ministry of Finance and Economic Planning. The focus of this regional plan is on rebuilding the rural economy, obtaining optimum population concentrations for service delivery while stemming rural-urban migration, and developing the human potential of the region. As the regional administration has only recently been established, there are few data on which to base an evaluation of past regional investment priorities.

The Regional Plan considers public investment from three sources: local contributions, central government contributions, and external assistance. The regional resources budget for the Plan period amounts to LS 231 million, of which LS 10 million, or 4.5%, will go to the Ministry of Housing and Public Utilities. Central government projects for the Southern Region total at least LS 208 million (15% of forecast national development expenditure). Of this amount, LS 7.4 million, or less than 4%, will go to social services, housing, and public administration.

Presently programmed external assistance to the Southern Region for this period amounts to about LS 21 million. Much of this assistance is intended to restore and expand the physical and social infrastructure of the region. Contractor capabilities in the South will therefore be largely absorbed in the construction of public buildings and public works for some time to come. Residential housing construction is therefore expected to be very largely carried out on an individual or self-help basis.

4. Fiscal Position and Policies

In recent years, the Sudan's financial position has been hurt by a severe decline in the current accounts. Cotton exports decreased from LS 90 million in 1973 to 54 million and 64 million in 1974 and 1975. Correspondingly, imports increased from LS 130 million to 207 million and then 284 million in the same period. This trade deficit led to a decline in current accounts from LS 46 million in 1972 to LS 125 million and LS 200 million in 1974 and 1975.

Although the balance of trade improved considerably by 1977, more recent evidence casts doubt upon the solidity of the recovery. In the traditionally strong spring quarter, cotton exports declined from LS 55 million in 1977 to LS 26 million in 1978. Furthermore, the floods of 1978 have diminished hopes that the 1978/79 export crop will improve the country's foreign exchange position. The deficit in trade has been financed by extensive borrowing beginning in 1974. The result is LS 394.8 million (US\$ 789.6 million) of outstanding foreign debt on June 30, 1978. (See Appendix A-52.)

The Sudanese government has recently taken important measures to increase domestic revenues. This policy has been successful to the point where domestic revenues now more than offset operating

budget expenditures. The surplus provides a small Sudanese contribution to the country's ambitious budget for capital development. However, the development budget is still largely financed by soft loans from foreign donors. Debt service on these loans will become an increasingly important fiscal problem in the future, particularly if the country's capital investments fail to yield the anticipated benefits on schedule.

C. Population Characteristics

1. Population, Urbanization, and Growth

Questions have been raised about the accuracy of the 1973 Census, and it has not yet been approved by the Council of Ministers. The primary criticism is that the census understates the population, especially in rural areas; opposition estimates run to 18 million persons vs. the census figure of 15 million. Because it has not been accepted, the 1973 Census is not easily available. The study team was given the census only at the end of field work. Thus, a great deal of census information is taken from secondary sources. Inconsistencies occur between the two sources, but they are not considered great enough to cause erroneous conclusions. Reasons for discrepancies are noted where they are known.

Sudan's population totaled about 15 million people in 1973 according to the census of that year; 2.5 million (17%) lived in urban areas and 12.5 million (83%) in rural areas. In the north, 19% live in urban areas, whereas 9% of the population in the south is urban.

Sudan's population is growing at 7.2% per year in urban areas and 1.5% in rural areas, or 2.1% overall. Urbanization is more rapid in the southern provinces where growth is 10.7% in urban areas vs. no growth in rural areas and only .5% overall. (See Appendices A-1,2.)

Population in 1978 is estimated to be about 17 million people, 24% urban and 76% rural. Population in 1985 is projected to reach 20.3 million, 31% urban and 69% rural. (See Appendix A-3.)

A third of the urban population is located in the three-city Khartoum metropolitan area (including Omdurman and Khartoum North). This area totaled 800,000 people in 1973, growing at 7.3% per year since 1964-66. Population is estimated at 1,050,000 in 1978 and is expected to be 2.5 million by 1990.

Three other cities had over 100,000 population in 1973; all are located in the central or northeastern area of the country. Port Sudan, located in the Red Sea Province in the far northeast, had 135,000 population in 1973 and had been growing at a modest 6.5% per year. Drought in the area, combined with the reopening of the Suez canal in 1975 and the simultaneous increase in imports, has increased the imbalance between rural and urban opportunity for low-income people in the Red Sea Province. The result has been rapid increases in urban growth in Port Sudan, to an estimated 250,000 people in 1978 (13% annual

growth rate). Over 40% of the population lives in squatter or overcrowded poorly serviced areas.

Wad Medani (in the center of the rich cotton growing area 100 miles south of Khartoum) had 118,000 population in 1973 and had been growing at 7.5% annually. Kassala (340 miles east of Khartoum near the Ethiopian border) had 100,000 population and had been growing at 4.7% per year.

El Obeid, the fourth largest urban area, is the trade center for the western part of the Sudan and had 92,000 people in 1973, growing at about 4.7% per year.

Other towns over 50,000 in 1973 are Gedaref, Atbara, Nyala, Kosti, Juba, El Fashir, and Wau.

Two cities have shown especially dramatic growth; both are in southern provinces. Juba grew from 20,000 population in 1964-66 to 57,000 in 1973, or 13.2% per year. Wau grew from 15,000 in 1964-66 to 53,000 in 1973, or 16.3% per year. Two cities in the northern province of Southern Darfur more than doubled in size during this period; Nyala grew to 63,000 and El Deain grew to 21,000. Growth rates in these two cities were 10.8% and 10.4% per year. (See Appendices A-4,5.)

2. Rural Population

Nearly 80% of the population of the Sudan, or over 13 million people, are rural residents. Of these, about 1.6 million are true nomads, and 700,000 or so migrate annually in order to take advantage of seasonal employment opportunities on the intensive irrigated or mechanized farms of the East Central region. Many of the remainder are transhumants, participating in sedentary agriculture during part of the year and moving with their herds in search of forage and water during the rest of the year. These groups have established migration paths and destination areas to which they return each year. Recently, such seasonal migrations have given rise to tribal conflicts over the right to use the land, particularly in areas that are in danger of desertification.

This rural mobility is associated with a lack of permanence in rural settlement patterns. Homes are mostly made of local materials and are designed to last only a few seasons. True nomads carry their shelter-making materials with them and may camp anywhere they find convenient.

3. Household Size

Household size is complicated by several factors and is difficult

to quantify because of differing and sometimes ambiguous definitions of "household" from one survey to the next. Complicating factors include:

- a. Frequent presence of extended family members on a permanent basis.
- b. Customary presence of "permanent guests" who live within the household for perhaps a month or two while seeking employment or simply for purposes of visiting.
- c. Doubling up whereby adult singles or young couples who would prefer their own dwelling unit are forced to share because of unavailability of plots or expense of housing.
- d. Servants and boarders who share meals (and are included within the census household definition).
- e. Lodgers who pay rent but do not share meals (and are excluded from the household by the census definition).
- f. Subdividing of plots whereby two or three dwelling units may be built on a plot intended for one unit.

Generally, a household size of 5 or 6 is used for planning purposes, but planners readily acknowledge that many, if not most, of these households will actually accommodate as many as 8 or 10 people.

Information on household size by neighborhood from the 1964/65 Population and Housing Survey indicates that households get somewhat larger as income decreases to lower middle income, but then gets smaller again among squatters.

<u>Persons per Household in 1964/65</u>				
	<u>Class I*</u>	<u>Class II*</u>	<u>Class III*</u>	<u>Class IV* and Squatter</u>
Khartoum	4.1	5.3	5.8	
Khartoum North	4.6	7.3	6.8	
Port Sudan	5.7		6.7	4.6

*For a definition of plot classes, see Section III-B, page III-12.

According to 1967/68 data, urban households at 6.5 are larger than rural households at 5.8.

Average household size in all urban areas of Sudan was reported at 5.4 in the 1973 Census. (See Appendix A-6.)

4. Marital Status in Urban Areas

Major cities typically have about 20% more males than females, probably due to male migration to the city for employment while the family remains in the village. Approximately 10% of females in large cities are divorced or widowed (the figure is certainly much higher among adult women), possibly indicating that many households depend on the mother as breadwinner. Many divorced or widowed women may also live as extended family members in a household headed by a man. Clearly, the earning opportunities for a female head of household are much less than the opportunities available to a man. (See Appendix A-7 and Section III-D on Employment and Income.)

5. Presence of Foreign Nationals, Including Refugees

About 3% of the population in the Khartoum three-city area and in Port Sudan were foreign nationals in 1973. Foreign nationals comprised 1-2% of the population in El Obeid and in Juba. Foreigners were most frequently from Egypt and Chad (in Khartoum), Nigeria (in Khartoum, Port Sudan, and El Obeid), and Zaire (in Juba). (See Appendix A-8.)

These census figures greatly understate the role that the Sudan has played as receiver of refugees, which are estimated to number 250,000 at present. Of these, 230,000 have come from Eritrea since 1967. The Sudanese government (with UN assistance) has engaged in a resettlement program where land in Sudanese villages is made available for farming. Most recently arrived refugees are urban, however, and have congregated in the eastern cities of the Sudan and in Khartoum. Many find jobs, and in general the Sudanese government and people are generous in their acceptance of refugees. The government provides free medical care, free primary school, and land for farming on the same terms as those offered to the Sudanese. An estimated 25,000 Eritreans have been resettled, 25,000 more are in the process of resettlement, and more have simply been assimilated in urban areas. There are still, however, many Eritrean refugees who lack skills or have arrived recently and who have not yet established themselves.

Another 10,000 Ethiopians from the Tigre province have come to Sudan as refugees as a consequence of their own liberation movement or to escape conscription into the Ethiopian army.

Refugees from Uganda have recently increased in number and now total about 2,000.

About 5,000 refugees from Zaire entered Sudan after the 1964/65 Simba rebellion and have generally become well integrated in southern Sudan. A recent amnesty offer by the Government of Zaire has started a movement towards repatriation.

Many Nigerians have settled in the Sudan, especially in Port Sudan, in the course of a pilgrimage to Mecca.

6. Migration

Migration is a significant element in Sudanese settlement patterns. There are at least four types which should be taken into account: (1) nomadism, or permanent migration; (2) transhumance, or rural-rural migration in the traditional sector (short-distance and long-distance); (3) seasonal employment, or rural-rural migration from the traditional to the modern sector; and (4) rural-urban migration (temporary and permanent).

True nomadism is found mostly among the Arabic groups of the north, including the camel-herding Kababish of Northern Province, the cattle-herding Baggara of northern Darfur and Kordofan, and the Beja of the Red Sea mountains. For these people, constant movement is a cultural value and sedentary occupations are disdained. They manufacture their shelter from materials in their possession and take pride in their self-sufficiency. It would be neither feasible nor desirable to provide them with assistance for meeting shelter needs.

Transhumant movements are of two types. In the western part of the country, herders may move considerable distances in a generally north-south direction in order to take advantage of the increase in forage following the rains. There will be a tribal territory at both ends of the trip. More or less permanent homes will be constructed at the wet season site where crops are grown, and temporary structures will be erected at the dry season camps to the north.

The second type of transhumance takes place in the region of the Sudd, and involves short distance moves to higher ground while the farmlands are being flooded. In some cases, only parts of the population (younger men and women) move with the cattle, while old people and small children remain in the village. These moves are determined by terrain rather than by rainfall and may be in any direction. There is a tendency for tribal groups to coalesce at the dry season camps and to break up into village groups for cultivation during the rainy season.

A new type of seasonal migration is that of farmers, mostly single males, from the central clay plains of the west to the mechanized and irrigated farms of the east. This movement occurs mainly during the dry season when there is little work to do in the traditional sector and when irrigated crops are ready for harvesting. Significant temporary population concentrations are achieved, and migrant laborers receive cash wages.

The fourth type of migration, rural to urban, is the principal source of population pressure on existing permanent housing stock in the cities. This is particularly true in the south, where many towns were virtually destroyed during the civil war and where an influx of refugees since the war's end has resulted in extremely rapid rates of urbanization. It would appear that permanent migration of households to the cities of the north does not present a problem of insurmountable proportions, even given the relatively low level of activity in the construction sector. However, some studies indicate that this apparent adequacy masks a serious problem of overcrowding as regards temporary migrants, usually without their families, who are occupying group quarters or renting space in another family's compound.

The ILO/UNDP mission conducted a survey of households in the Greater Khartoum area in 1974, with a focus on migration as well as employment patterns. Their results indicate that up to 35% of the total population of the three towns consists of immigrants. The largest block of immigrants (nearly 75% of the total) comes from the Arabized provinces of Northern, Kordofan, and Blue Nile. About 3% of immigrants come from the southern provinces, and the great majority of them have lived elsewhere in the north (probably as migrant farm laborers) before coming to the city.

7. Ethnicity

The population of the Sudan can be divided into two broad groups based on physical as well as cultural characteristics. The people of the north are of Arabic or Arabized Nubian extraction; they constitute slightly over half of the total population. They include sedentary farmers in the Nile River basin (about 20% of the population), transhumant farmer/herders in the central clay plain (another 20%), and nomadic herders in the north and west (perhaps another 15%). In terms of language, culture, and religion they share a common Arabic heritage, but in other respects they exhibit great diversity in their modes of life and levels of living.

The people of the south are of Negroid, largely Nilotic extraction. They are divided into a large number of small tribes with a long history of intertribal warfare as well as conflict with the Arabs of the north. Population figures for these groups are uncertain, but it can be estimated that the Dinka account for about 20% of the national population, the Nuer for 10%, the Shilluk for 5%, and assorted other groups (Anuak, Acholi, Azande, Bor, Jo Luo, Langa and others) for the approximately 10% remaining. It is difficult to estimate the numbers of smaller tribes actually in the Sudan because all of them migrate freely across international borders.

Most of these groups speak Nilotic languages, with the Dinka and Nuer forming a distinct language group and the Shilluk, Anuak, and others belonging to the Luo language group. They have in common a rejection of Arabic dominance, resentment of their past inferior ("slave") status, and exposure to English cultural values (Christian religion and English as a common language). They all suffered severely during the civil disturbances of 1966-72. It remains to be seen whether representatives of these tribes will be able to work together to build a viable regional government for south Sudan in the future. (See Appendix A-9.)

8. Cultural Preferences Related to Shelter

Whether in urban or rural areas, households of Arabic extraction prefer to build their dwelling units within a high-walled compound that protects their privacy. Portions of the compound wall are then used to construct living quarters facing one or two interior courtyards. A sharp distinction is made between men's quarters and women's quarters. The compound wall confers a degree of freedom on the women of the family, who must otherwise remain heavily clothed and confined within the small rooms of the actual living quarters. It is a mark of social status for both men and women and a sign of male competence in the role of family protector.

Among the African groups of the south, cultural preferences with regard to shelter are quite different. However, there is a similar though less marked, separation of men's and women's living quarters. Houses are typically framed with thorn tree branches and thatched with millet stalks to allow for the free passage of air and smoke. A homestead consists of two or more round, mud-walled huts with conical roofs of layered thatch, surrounded by a brush fence. Village homesteads are often grouped around a central cattle yard (kraal), which also contains a shelter, sometimes used as a public meeting place.

In seasonally swampy areas, more or less permanent homes are sometimes built on piles. The dry season camp shelters for transhumant farmers are "beehives" of sticks, grass and mud, which are not expected to survive the first rains. Wet season camp shelters are thick earthen roofs with tanned hides hung over the rafters to form walls. Even "permanent" homes require extensive annual repairs and are rebuilt about every five years.

Among the Africans, both men and women participate in shelter construction activities. Among the Arabs and Arabized African groups, women may participate in interior construction and decoration as long as it is not done in public view. Maintenance of the home's interior is a female responsibility, while exterior maintenance is a male responsibility. It is conceivable

that other construction-related activities (such as brick or tile manufacture) could be carried on by women's cooperative groups in the privacy of a home.

9. Health and Nutrition

In the decade from 1960 to 1970, Sudan showed a marked improvement in health status as measured by a decline in infant mortality (from 159 per thousand to 132 per thousand) and an increase in life expectancy (from 41 to 49 years). This improvement is associated with an increase in health service personnel (nearly twice as many physicians per capita, more than twice as many nurses per capita) and a somewhat slower increase in health care facilities. The Government of Sudan is about to undertake an ambitious program of primary health care which will be receiving substantial assistance from USAID.

Nutrition levels have also improved, from an estimated 80% of caloric requirements in 1960 to 90% in 1970. Protein supply has increased from 55 to 63 grams per person per day. However, this increase may be largely due to growth in livestock slaughtering and crop production for export, which would have little impact on domestic dietary patterns.

Principal diseases include malaria, gastroenteritis, tuberculosis and onchocerciasis. Anemia and malnutrition are most common in drought-stricken areas, while communicable diseases, malaria, and onchocerciasis are of particular concern in the south. Sanitary conditions are considered a basic health care problem, particularly with respect to the incidence of gastroenteritis in children. Adequate and safe drinking water supplies are another source of concern, particularly in rural areas.

Health care facilities and personnel are concentrated in the larger towns of the Sudan. This means that the urban population is probably better served than national averages would indicate. On the other hand, Sudan has recently experienced a "brain drain" of its highly trained professionals to other Arab countries. The result may be that medical services are more difficult to obtain now, even for the urban population (and especially for the urban poor), than they were five to ten years ago.

10. Education

Levels of educational achievement in the Sudan are still relatively low. Only 20% of the population was literate in 1970, and only 10% of these were women. Thus, if women make up approximately half the population, 36% of men are literate and

only 4% of women are literate. The government has placed a high priority on extending basic educational opportunities to both children (through primary schooling) and adults (through literacy programs). The intent is to inculcate Arabic and Sudanese values in the interest of national integration.

However, due in part to the problems posed by population dispersion, primary education opportunities are far less than what is needed, and costs to meet this need would be extremely high. In 1970 only about 25% of the primary school-age population was enrolled and less than 10% of the secondary school-age population was in school. The government estimates a sharp increase in the primary enrollment ratio since 1972, with little change at the secondary level.

On this low base, Sudan continues to provide exceptional opportunities for higher education to those who survive the selection process at lower levels. It has one very distinguished university in Khartoum, and new universities are being developed in Wad Medani and Juba. These universities will generate a substantial surplus of highly trained development specialists, but it is expected that many of their graduates will find employment in other countries rather than in Sudan.

D. Employment and Income

1. Labor Force Participation (Urban)

Women are minimally represented in the urban labor force as defined in Sudanese surveys, but boys begin work at a very young age. Of men over 15 years of age, 88% are counted in the labor force in urban areas vs. only 9% of women; 43% of boys age 13-14 are included vs. only 1% of girls the same age. Households have an average 1.8 income earners in Khartoum and 1.6 in Port Sudan and El Obeid, ranging from an average of 1.4 in Class I housing areas to 1.7 in Class II and 1.8 in Class III. (Based on 1964/66 Population and Housing Survey. See Appendices A-10,11.)

2. Size and Composition of the Labor Force

The total labor force in 1973 is estimated at 4.7 million to 7.3 million persons in 1973 in the ILO report; the range stems from definitions and from judgements about the accuracy of census data. The portion that is urban is judged to be 11-16%. The portion that is male is judged to be 85-92% in urban areas and 60-90% in rural areas. (See Appendices A-12,13.)

It is estimated that about 73% of the economically active population was employed in agriculture in 1973. About 11% were employed in the service sector; 5% in commerce; 5% in manufacturing (including utilities); 4% in transport; and 2% in construction. This estimate excludes both nomads and migrant workers, practically all of whom ought to be counted in the agricultural sector.

In urban areas, 33% were employed in services, 19% in agriculture, 15% in manufacturing (including utilities), 16% in commerce, 12% in transport, storage, and communication, and 5% in construction.

Only 8% of the urban and 3% of the total labor force is professional or managerial; 9% of the urban and 2% of the total labor force has completed secondary school; and 45% of the urban and 70% of the total labor force is uneducated (probably cannot read or write).

Of the labor force, 67% in urban areas and 76% in rural areas is unmarried, due somewhat to the early age at which boys enter the labor force (See Appendices A-14,15,16.)

Sudanese jobs are distinctly categorized as workers and officials (public sector) or as wage-earners and salaried employees (private sector). The public sector employs about 50% of officials or salaried employees, about 15% of workers or wage-earners, or about 25% of the total labor force. The informal sector employs about 25% of the labor force in urban areas (ILO report, p. 382) and the formal private sector employs about 50% of the urban labor force.

Women do not often achieve positions of high responsibility in the Sudan. For example, there are 2,476 central government officials in the top seven civil service grades (old scheme), representing the top 4% of central government officials and about 2½% of central government employment. Of these 2,476 top officials, only 45 are women.

3. Unemployment

Unemployment has been consistently reported at less than 10% and typically at around 5% in six surveys over the past 15 years. These surveys have been restricted to or at least dominated by the northern provinces, however. The average unemployment in the six southern provinces is reported at 15%. (See Appendix A-17.)

4. Wages

Private sector wages in 1973 ranged from a high of LS 750 annually (\$1,500) in financial and insurance institutions to a low of LS 250 (\$500) in the lower-paying industrial sector, in construction, and in hotels and restaurants. Wage earners averaged LS 243 annually (\$490) in 1973 vs. LS 855 (\$1,710) for salaried employees in the private sector. The overall average was LS 337 annually (\$675).

The 1973 survey indicates that incomes in public corporations were an average of 25% higher for wage-earners and 13% higher for salaried employees than in the private sector.

Central government salaries for officials after the increase of 1974/75 averaged LS 825 annually (\$1,650). Data are not available on central government wages for workers. (See Appendices A-18,19.)

5. Household Income

The latest data on household income on a country-wide basis are from the 1967/68 National Household Sample Survey (which did not include the southern provinces). Urban households reported annual income of LS 411 (\$820), with 62% from wages and salaries, 27% from business profits, and 11% from other sources.

Rural households reported an average income of LS 148 (\$300) with 67% from agriculture and animals, 23% from wages and salaries, 34% from business profits, and 21% from other sources. (See Appendices A-20,21.)

This 1967/68 report indicates median household income for the Khartoum three-city area at LS 390 (\$780), for Port Sudan at LS 290 (\$580), and for El Obeid at LS 275 (\$550) annually.

A second important source of data on household income is a survey of 2,614 households in the three-city Khartoum area carried out in 1974 by the ILO. Average income was reported at LS 907 (\$1,315) and median income at LS 630 (\$1,260). This represents an increase of 7.7% annually over the median income reported for Khartoum in 1967/68 (LS 590). This survey reported considerable data on sources of household income with detailed schedules for various income levels. (See Appendix A-22.)

A 1977 survey in Juba by a British team for purposes of a "Low Cost Housing Study" provides the best available information on income in Juba, with the mean reported at LS 1,188 (\$2,376) and median at LS 655 (\$1,310) annually for the household head. Assuming that on average the income to the household head represents 75% of household income (Juba Low Cost Housing Study, p. 160), median household income would be LS 870 (\$1,740). (See Appendix A-23.)

These various sources of household income data (summarized in Appendix A-24) together with assumptions about increases in private sector wages (based on Appendix A-19) and an analysis of the probable impact of the new Unified Wage Scheme for public sector employees were used to estimate household income distribution for the four selected cities in 1978. Income distribution in all urban areas of the Sudan is judged to be about the same as in Port Sudan.

Annual Income Range (LS)	Income Distribution Estimate				Estimated Number of Households in 1978			
	Khartoum	Port Sudan	Omdurman	Juba	Khartoum	Port Sudan	Omdurman	Juba
2400+	16.6%	11.2%	10.6%	17.0%	33,915	5,565	2,000	2,669
2100-2400	4.8	2.3	2.4	4.4	8,520	1,375	480	691
1800-2100	6.2	4.4	4.2	5.6	11,805	2,163	840	879
1500-1800	8.1	6.4	6.2	8.5	14,377	3,146	1,240	1,335
1200-1500	10.3	9.6	9.4	10.5	19,282	4,718	1,800	1,648
900-1200	14.0	12.6	12.8	14.0	24,950	6,193	2,560	2,198
600- 900	17.2	19.6	19.8	16.2	30,539	9,633	3,960	2,543
300- 600	16.3	24.9	25.7	18.0	28,932	12,238	5,140	2,826
Below 300	4.5	8.5	9.5	5.3	7,978	4,178	1,920	911
Total	100.0%	100.0%	100.0%	100.0%	177,500	49,150	20,000	15,700
Mean Income	1,545	1,145	1,080	1,470				
Median Income	1,160	860	810	1,100				
Population Estimate					1,250,000	250,000	114,000	90,000
Persons per Household					5.9	5.0	5.7	5.7

(Also see Section III.B.7.b. for derivation of projection of income distribution.)

A special analysis of household income in squatter areas was carried out by the Berger SSA team in Port Sudan using untabulated questionnaires from a 1975 survey of all residents in Port Sudan squatter areas. Median income was LS 145 annually in 1975. (See Appendix A-25.)

Data are available from the taxation authorities on the distribution of individuals who paid personal income tax by groups. Using these data for 1971/72, the ILO team estimated a crude size-class distribution of national income for the year. This distribution is presented in Appendix A-26. The distribution of income in this analysis bears a close resemblance to the pattern of income distribution which emerged from the results of the 1967/68 household budget survey. According to the 1967/68 survey, the top 20% and 40% of the households claimed respectively 49% and 70% of the aggregate income in 1967/68; the ILO analysis of income tax returns suggests that, in 1971/72, the top 20% and 43% of the population owned, respectively, 49% and 70% of the total income (ILO report, p. 511).

6. Cost of Living

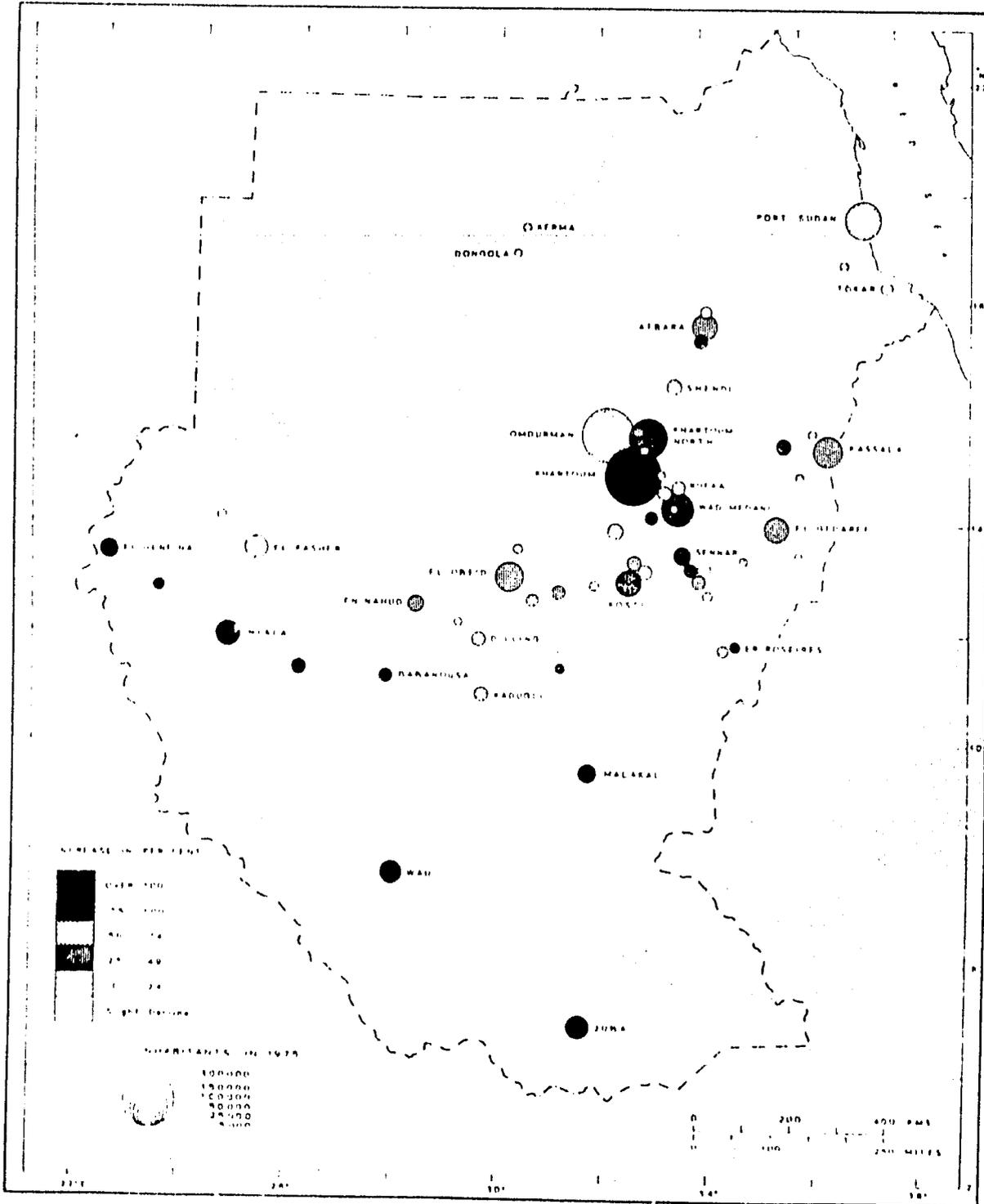
The cost of living more than doubled from 1970 to 1977 for an average annual increase of 13.1%. Increases were most severe for low income groups (13.7% annually) and for housing (19.8% annually for low income families and 15.2% for high income families). Increases have been erratic, with 1971 and 1976 showing virtually no inflation while the cost of living in 1974 and 1975 increased by 25% and 22% in two consecutive years and 1977 showed a 17% increase in the cost of living. Increases in 1978 through May are running at 13% for high income families and 12% for low income families. (See Appendix A-27.)

Wages have not kept pace with cost of living increases. Government wages were not increased in the fiscal years 1973 or 1974; they were increased by 12% for high wage-earners and 18% for low-wage-earners in 1975, and were not to be increased again until 1978 with the implementation of the Unified Wage Scheme. Median family income in Khartoum seems to have increased at 7.5% per year from 1964 to 1974 based on comparison of surveys taken in 1964/65, 1967/68, and 1974. (See Appendix A-24.)

PROVINCES OF THE SUDAN



SUDAN URBAN POPULATION CHANGE 1965 - 1975



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III. SHELTER SECTOR DESCRIPTION AND ANALYSIS

III. SHELTER SECTOR DESCRIPTION AND ANALYSIS

A. Government

1. Basic Organization for Housing and Urban Development

The Government of the Democratic Republic of the Sudan is structured, as illustrated in the following organization chart (Table III-1), with 23 ministries operating under the President's office and that of the Prime Minister with judiciary and legislative directions from several important councils and from the People's Assembly and the People's Regional Assembly, the latter concerned with the six autonomous southern provinces.

Housing and urban development are mainly the responsibility of the Ministry of Construction and Public Works, although several other ministries and state corporations contribute also to the provision of urban facilities and services. While present policies for housing and urban development were formulated by an inter-ministerial task force in preparation for the national Six-Year Plan (1977/78 - 1982/83), the technical planning work is carried out by the Department of Housing and the Ministry of Construction and Public Works. The Department identifies and prepares housing projects in the context of overall urban development plans, and these projects must be approved on the basis of priority criteria by the Ministry of National Planning and the Ministry of Finance for incorporation in the Six-Year Plan and the annual budget when they are "centrally financed." The Housing Department works in very close cooperation with the provincial and local authorities, which also play an important role in the planning and execution of housing projects within their areas of jurisdiction in the twelve provinces of the north, while the six southern provinces operate under the special autonomy granted in March 1972 and reflected in Table III-1.

The provinces are subdivided into regions, towns and communities--the latter, in rural areas, are the villages. Each small urban or rural community has a local council, each town or urban district a town council, each large population area like Khartoum, Omdurman, or North Khartoum a regional council, and each province a provincial council. The provincial councils include representatives of the regional, town, and local councils and several members appointed by the central government - i.e., the Commissioner, who is the province's chief executive, and the Assistant Commissioners.

The regional, town, and local councils play a significant role in the urban planning process as they identify needs and collaborate in the elaboration of programs to meet those needs.

But it is the responsibility of the provincial council to decide on program priorities and to allocate funds in the provincial budget for program implementation. The provincial budget is submitted in draft form to the National Planning Ministry, which reviews the priorities and makes recommendations to the Ministry of Finance for budgetary provisions. Approximately 75% of the provincial budgets is funded by the central government. Once approved by the central authorities, the provincial budgets become final and the programs which they include are executed by the provincial commissioners' offices with the cooperation of the regional, town, and local councils, and technical support from national ministries - mainly the Ministry of Construction and Public Works. The Ministry prepares and executes directly the "centrally financed projects" which do not require the financial or administrative participation of the provincial governments.

Other central agencies participate also in the provision of facilities and services required for housing and urban development. The Public Electricity and Water Corporation (PEWC), solely responsible for power and water supply, is the most important of these agencies. Because it is a commercially run public corporation, it demands strict payment for the facilities and services which it provides. Therefore, the central or provincial agencies executing housing projects must show evidence that the funds required for water and power supply are available before PEWC will take initial steps to carry out the works. Other facilities like schools and clinics required for housing development are planned and executed under the auspices of the Ministry of Education and the Ministry of Health and in cooperation with the provincial and local authorities.

The only public institution set up to finance housing superstructure is the Estates Bank, which is described and analyzed in greater detail in Section D.3 of this chapter. The central government does sometimes finance prototype low-cost housing projects undertaken by the Housing Department of the Ministry of Construction and Public Works. These housing units are eventually acquired by limited income families on a "hire-purchase" basis, but their number has been very limited.

2. The Development Plan

The strategy for housing and urban development set forth in the Six-Year Plan concentrates on urban centers with populations of 20,000 or more and stresses "self-help" as a means of improving housing conditions at minimum cost. The strategy also foresees greater private and cooperative participation in housing development and a large increase in the Estates Bank's resources for shelter construction loans to individuals.

The program includes mainly the following projects (see page III-5 for summaries of costs):

- i. "Sites and Services Projects" to provide approximately 129,000 housing plots* as follows:
 - a. 53,000 plots for low income groups, with annual incomes not exceeding LS 300.
 - b. 54,830 plots for limited income groups, with annual incomes between LS 300 and 600.
 - c. 13,830 plots for medium income groups, with annual incomes between LS 600 and 1,200.
 - d. 7,030 plots for high income groups, with annual incomes above LS 1,200.
- ii. "Economic Housing Projects" to provide 5,000 houses in Khartoum, Port Sudan, Kassala, Wadi Medani and Atbara to be distributed on a hire-purchase basis to limited income families at a price of LS 1,690 per unit. The beneficiary would initially pay 10% of the total price and the balance in installments over 20 years at a rate of 4% per annum.
- iii. "Investment Housing Projects" to provide, in cooperation with private investors, 18,000 flats at LS 10,000 per unit for high and middle income groups.
- iv. "Housing Environment Projects" or settlement upgrading projects to improve unplanned shelter areas comprising 42,000 housing units in Khartoum and Port Sudan. These projects are to be financed mainly by the beneficiaries themselves and the PEWC for electricity and water.

3. Current Government Policies

Several attempts have been made in recent years to formulate housing policies and programs in a coherent manner. In 1974, a major housing study was completed by Mr. R. Guarda, a housing specialist provided by the UNDP. The Guarda report became the basis for a housing policy statement by the former Ministry of Local Government and for another policy paper by the Department of Housing of the Ministry of Construction and Public Works in July 1975. More recently, in preparation for the current Six-Year Plan, a task force was created under the chairmanship of Dr. Abdel Ahmed El Agib, Director of the Council for Scientific and Technological Research, to recommend housing objectives and programs for the new plan period. The recommendations of the task force were largely incorporated in the Six-

*Typical plot sizes are presented in Section III-B, page III-12.

Year Plan. But, as recognized by Dr. El Agib himself, the objective of establishing a coherent national policy is still not achieved. However, there are in the text of the Plan several objectives and measures which point to policy directions in the field of housing and related urban development. For example, the Plan calls for:

- Stimulating private and cooperative participation in housing development.
- Increasing the Estates Bank's resources to provide more long-term loans for construction of individual houses.
- Upgrading slum and squatter areas.
- Encouraging self-help in housing construction as a means of reducing costs and utilizing idle manpower.
- Diversifying and increasing the sources of finance for housing projects by establishing urban housing cooperatives and utilizing social insurance funds and contributions from international organizations and friendly countries.
- Improving procedures to coordinate the various ministries involved in the provision of housing and related facilities.

Some of these policies have been quantitatively translated in the Six-Year Plan's development program presented in Section A.2 of this chapter. In other instances, very little has been done to implement the policies as will be discussed in subsequent parts of this report.

4. Housing Finance

a. Government Housing Budget

During the period of the Ten-Year Plan, 1960-1970, a total of \$207 million was invested in housing (private and public sectors combined). This was equivalent to 12% of the planned total investment and 1.5% of gross domestic product during the period. The public share of this investment was \$42 million. During the period of the Five-Year Plan, 1970-1975, the total investment in housing was LS 130.9 million, of which the public sector investment was LS 18.2 million.

For the current Six-Year Plan a total housing investment of LS 424.5 million is anticipated. The public share of this investment, LS 26.5 million, is 1.7% of the total planned public investment for the period.

HOUSING INVESTMENT DURING THE SIX-YEAR PLAN

(LS millions)

	<u>Public Investment</u>	<u>PEWC¹</u>	<u>Private Investment</u>	<u>Total Investment</u>
Sites and Services	--	27.6	197.8	225.4
Low Cost Housing Project	6.5	--	--	6.5
Housing Investment	20.0	--	160.0	180.0
Housing Improvement	--	8.4	4.2	12.6
	<u>26.5</u>	<u>36.0</u>	<u>362.0</u>	<u>424.5</u>

¹ Public Electricity and Water Corporation. These are short-term investments by PEWC, immediately repaid by the beneficiaries.

The southern region of the Sudan has its own Six-Year Plan and its own development budget. Of the total planned public investment of LS 231.3 million, LS 10.4 million is budgeted for the Regional Ministry of Housing and Public Utilities. About half of this budget is planned for housing and related services, the other half for the industrial sector.

For the fiscal year 1977/78 the planned investment in the Southern Region was LS 32.5 million. However, in the eleven months from July 1977 through May 1978, only LS 5.7 million, or 17.5% of the expected investment, was actually spent. The Regional Ministry of Housing and Public Utilities had a lower rate of funding than the Southern Region as a whole. Of its LS 3.1 million planned expenditure for 1977/78, only LS 0.3 million, or 10%, actually materialized. The funds for the Regional Development Budget come almost entirely from transfers from the Central Government in Khartoum.

b. Costs and Charges for Land

With the Six-Year Plan, developed in early 1977, a single national schedule of plot service charges was formulated.

SCHEDULE OF CHARGES FOR PLOTS

(LS)

<u>Category of Investment</u>	<u>Class of Plot</u>		
	<u>I</u>	<u>II</u>	<u>III</u>
	550m ²	450m ²	300m ²
Land	150	70	10
Municipal Services ¹	1,000	450	100
Water Distribution	250	200	150
Electricity Distribution	100	55	50
Administrative Fees	20	15	5
	<u>1,520</u>	<u>790</u>	<u>315</u>

¹ Includes land leveling, fences, drainage, pavements, roads, and street lighting.

Note: Plot sizes are defined in Section III-B, page III-12.

This schedule of fees was formulated to reflect the current costs of plot preparation. However, by 1979, construction costs will have increased dramatically, and a major salary revision in the public sector is in the process of implementation. Consequently, the schedule of fees should be increased considerably, perhaps by as much as 50%, in order to accurately reflect actual costs.

Another cost not recovered under present policies is the opportunity cost for land. Unlike the above costs, the opportunity cost is not an actual expenditure. Instead, it is the loss of the opportunity to collect additional revenues from the sale of land at its fair market price. Current government policy is to sell sites at approximately the cost of their preparation. However, the right to lease land has a value far in excess of this cost, as evidenced by the high prices paid for land in the secondary market. It is not uncommon for plots to be sold at prices as high as ten or even twenty times their original costs within a space of five years. The policy of selling land at its cost of preparation instead of its market

price is estimated to cost the government LS 1,000, LS 500, and LS 200 per plot for Classes I, II and III, respectively.

LOST REVENUE ON THE SALE OF LAND

<u>Class of Plot</u>	<u>Price For Land*</u>	<u>Estimated Market Value**</u>	<u>Lost Opportunity Cost**</u>
I	LS 150	LS 1,150	LS 1,000
II	70	570	500
III	10	210	200

* Price shown excludes cost of improvements, which are passed on to the buyer through the price of land. Prices quoted elsewhere in this report include cost of improvements.

** Consultant's estimate

Recently, Khartoum province has attempted to capture some of this lost revenue by the auction of land. In fiscal year 1977/78 three successful auctions were held with total revenues of LS 250,000. For the current year, additional auctions are expected to yield approximately LS 1 million. These auctions offer first class and commercial plots.

c. The Mechanics of Plot Financing

The financing of sites and services plots follows a step-by-step procedure:

- 1) The plots are assigned to individuals.
- 2) The Commissioner's Office collects the full price for the plots from the owners.
- 3) The charges for water and electricity distribution are sent to the PEWC.
- 4) The remainder of the revenues are sent to the Central Government in Khartoum.

The normal procedure is for PEWC to provide water and electricity to the plots (i.e., proceed to step 6). Sometimes, however, an intermediate step (5) is added.

- 5) PEWC claims that the funds provided are not sufficient to cover the costs of water and electricity distribution. It attempts to collect additional funds from either the owners of the plots or the Central Government.

- 6) After negotiation, which may or may not prove successful, PEWC provides the water and electricity distribution systems.
- 7) The owners can now begin to construct houses on their plots. The financing for this step usually comes from personal savings and by borrowing from family or friends.
- 8) After some delay, the local government receives reimbursement from the Central Government for its plot development costs. Evidently, this payment is often less than the amount paid by the plot tenant which was earlier forwarded to the Central Government, and also less than the actual amounts expended to improve the plot.

d. Government Investments

Housing investment costs can be grouped into three categories:

- 1) Investment in plot services, as described above.
- 2) Government investment in housing construction.
- 3) Capital investment in utilities.

Since the capital invested in site preparation is recovered upon the sale of the plots, the costs of financing are not a major consideration.

Government investment in houses is of two types. First is direct government ownership of houses which are leased to government employees. The rental charges are generally far below economic rental rates.

Second is the government-financed construction of houses, which are then sold. The Economic Housing Project described in the Six-Year Plan will provide financing at a 4% rate of interest for such construction. While neither type of investment delivers an economic return on capital, the relatively low level of current investment (only 5,000 new houses anticipated in the Six-Year Plan) minimizes the consequences.

The Government investment in utilities is of an entirely different order of magnitude. The financial statements of the Public Electricity and Water Corporation are detailed in Appendix D. Long-term capital investment at the end of 1977/78 was LS 123.5 million. The operating profit for the year, before financing expenses, was LS 0.9 million. This is less than a 1% rate of return on investment.

Interest expenses for 1977/78 were LS 242,021. However, four of the loans that were under a grace period during 1977/78 are scheduled to begin repayment this year. These loans total LS 15.7 million, and the additional financial expenses are estimated to be LS 1 million for 1978/79 and LS 1.8 million for 1979/80.

A detailed analysis of the PEWC is beyond the scope of this report. However, one special problem deserves mention here. Due to an exceptionally large number of inoperative water meters, the entire metering system has been eliminated. Instead, a system of fixed monthly charges has been instituted. These charges, approximately LS 1 per house per month, are below the cost of production. The 90 million cubic meters of water produced during 1977/78 at an average operating cost (excluding the cost of capital) of LS .076/m³ were sold at an average price of LS .053/m³.

The implications are that the profitability of PEWC must be increased from LS 0.9 million to LS 2.0 million if it is to meet its debt obligations. An even higher level of profitability is required in order to generate a return on equity capital.

e. Taxes

Personal property taxes, including rental income and real estate taxes, play a significant role in local government revenues. For the LS 8 million revenue budget in the Khartoum province for 1978/79, general rates (taxes upon rental income or housing value) accounts for LS 3.5 million, or 44% of the total. Last year the budgeted revenue for general rates was also LS 3.5 million, but only LS 2.3 million was actually collected.

Discussions with officials have indicated two major problems in the implementation of the rate taxes. First, between 30% and 40% of all households have yet to be assessed and added to the provincial tax rolls. Hence, they do not pay any rates at all. The second problem is severe under-assessment, particularly among the more valuable buildings. Officials estimate that the potential rates revenue is about LS 7.0 million. This would provide an increase of LS 4.6 million, or 200% of last year's actual revenue.

An analogous problem was found in Juba. Of the total budgeted revenue of LS 320,000, general rates are expected to contribute LS 90,000 and conservancy rates (charges for sanitary services) are budgeted at LS 52,000. These direct household charges

constitute 44% of the expected revenue. For fiscal year 1976/77 actual collections of general rates were LS 19,500. Similarly, actual collections for conservancy rates were LS 536.

While collection of these potential revenues will require administrative improvements and will increase the burden on household budgets, it does provide a potential to generate funds to provide sorely needed municipal maintenance and services for roads, waste removal, drainage, and possibly improved sanitation standards.

f. Subsidies to the Housing Sector

Housing subsidies in the Sudan are far less than those of many other African or developing countries, and are to a lesser extent oriented towards the privileged at the expense of the broader population. Eight areas that could be called subsidies to housing were identified and are described briefly below.

1. The government owns 500 houses in Khartoum, some quite luxurious, which have been rented to key officials at very low rates. This practice is being eliminated, however, as the Real Estates Public Corporation has taken title to these properties and about 150 will be vacated due to the October 1978 pronouncement by the President that all officials who have both a government house and an Estates Bank loan must give up the house. Lost rental income on the 500 houses may have been LS 3 million annually in recent years. Other public and private agencies and corporations have practices of providing housing or loans for houses at below market rates, and the extent of this subsidy is probably as great or greater than the Central Government's subsidy in recent years. Some of this is essential, as for example, housing for seasonal workers or workers needed in remote locations.
2. The cost to the government of letting Class I and II plots at less than fair market value must be at least LS 2 million per year at the level of production called for in the Six-Year Plan.
3. Administrative costs for production of plots are allocated to Class I and II plots but are not charged to Class III plots (at least in Port Sudan). If this is a general practice, then this represents a subsidy on the order of LS 1 million annually at the production level of the Six-Year Plan.

4. Cost overruns in plot production are sometimes absorbed by the government rather than charged back to the plot tenant. This might cost LS 1 million annually at Six-Year Plan production levels.
5. Low rates charged for water and electricity such that costs for capital employed in PEWC are not covered probably represent a subsidy of LS 1-2 million.
6. Interest rates on mortgages at the Estates Bank represent a subsidy of less than LS 500,000 per year due to the limited capital employed for that purpose (LS 10 million).

Other Sudanese organizations (e.g., commercial banks and insurance companies) also offer below market loans to their employees. This has not been quantified.

7. The government program to build 5,000 economic houses to be offered on a hire purchase basis at 4% effective interest as described in the Six-Year Plan represents a subsidy on the order of LS 300,000 annually (5% of LS 6.5 million cost).
8. The failure to collect municipal revenues from residents of urban areas is to some extent a subsidy since at least some level of municipal services are provided. Not all of these lost revenues are a subsidy, however, as services would undoubtedly be improved if revenues were available. Cost revenues may be on the order of LS 5-10 million annually in the major urban areas.

B. Current Housing Situation and Projection of Need

1. Housing Classes

Housing standards in the Sudan are described by four legal categories where tenure exists plus the illegal category of squatter where no tenure exists. These standards are, however, intended and are not always achieved.

Class I: Built of permanent materials on plots of 500-1,200 m², all roads paved and drainage channels bricked (and covered in central city areas), water pipes inside homes, electricity, individual septic tank (except in Khartoum and Khartoum North where sewer is available).

Class II: Like Class I except plot sizes of 400-700 m².

Class III: Permanent material must be used for outside boundary wall, kitchen, and toilet on plots of 200-400 m², main roads paved, interior roads and drainage channels dirt, water piped inside, electricity, 6-12 houses share septic tank.

Class IV: Any materials, plots of 200-400 m², no paving and no drainage ditches, standpipes provide water for 25-100 plots, no electricity, shared privies.

Very few plots have been produced to Class I or II standards in the past. Port Sudan has about 1,500 out of a total of 40,000 plots. The Six-Year Plan, however, allocates 15% of sites and services plots to high and medium income families with Class I-II standards.

An attempt has been made to estimate the inventory of dwelling units by class in the six selected cities. The method used was to identify neighborhoods by class and then to estimate the number of dwelling units in each neighborhood based on surveys when they existed (Port Sudan, El Obeid, and Juba) and by density assumptions where survey data did not exist (Khartoum three cities).

ESTIMATES OF EXISTING HOUSING STOCK BY CLASS

<u>Number of Dwelling Units</u>	<u>Khartoum (1973)</u>	<u>Omdurman (1973)</u>	<u>Khartoum North (1973)</u>	<u>Khartoum 3 Cities (1973)</u>	<u>Port Sudan (1978)</u>	<u>El Obeid (1975)</u>	<u>Juba (1978)</u>
Class I and II	8,400	8,100	4,500	22,000	1,500	580	780
Class III	40,900	34,500	11,700	87,100	7,900	5,920	670
Class IV and Squatter	9,200	5,500	9,600	24,300	39,750	11,070	11,780
Total	58,500	48,100	25,800	132,400	49,150	17,570	13,230
<u>Distribution</u>							
Class I and II	14%	17%	18%	16%	3%	3%	6%
Class III	70	72	45	66	16	34	5
Class IV and Squatter	16	11	37	18	81	63	89
Total	100%	100%	100%	100%	100%	100%	100%

2. Housing Conditions

According to the 1973 Census, the "average household" in urban areas of Sudan had 5.4 persons living in 2 rooms for an average of 2.7 persons per room in urban areas throughout the country.

Forty-three percent of dwelling units had only one room, and 40% of those households with 5-6 members lived in only one room. (See Appendix A-28.)

Only a portion of urban houses were built of "permanent materials"; 4.7% of homes had walls of brick or stone, and 12.7% of homes had roofs of zinc sheets or concrete. Walls of mud were used in 47.4% of homes, and 38.4% had roofs of baladi. The combination of mud walls and baladi roof was by far the predominant

housing type throughout urban areas of Sudan; 30.9% of homes were of this type.

CONCURRENCE OF USE - WALL AND ROOF MATERIALS
SUDAN URBAN DWELLING UNITS - 1973 CENSUS

<u>Wall Material</u>	<u>Roof Material</u>					<u>Total</u>
	<u>Baladi</u>	<u>Wood</u>	<u>Zinc Sheet*</u>	<u>Con-crete*</u>	<u>Other</u>	
Grass	.4		.1		18.0	18.5
Brick	4.6	4.7	6.5	1.4	1.4	18.6
Mud	30.9	2.6	1.8		12.1	47.4
Stones	.1	.2	.8	.5	.5	2.1
Wood	.1	4.1	.1		.2	4.4
Muddy Brick	2.0	.2	.3		.4	2.9
Other	<u>.3</u>	<u>.3</u>	<u>.9</u>	<u>.3</u>	<u>4.2</u>	<u>6.1</u>
Total	38.4	12.1	10.5	2.2	36.8	100.0

*Permanent material

Of the four urban areas examined closely in this study, Juba had the most critical housing situation with 3.4 persons per room on average, 67% of households with 5-6 persons living in one room, and only 12% of homes built with permanent materials.

Port Sudan was the next most serious, with 2.7 persons per room, 47% of 5-6 person households living in one room, and 9-12% of houses built of permanent materials. The situation in Port Sudan may have grown far more serious since 1973, however, since growth has greatly accelerated, population has nearly doubled, and most growth has been accommodated by squatting, by subdivision of plots, and by doubling up.

The situation in the three-city Khartoum area is similar to the national urban situation described above, while El Obeid's housing condition is significantly better.

HOUSING CHARACTERISTICS FROM 1973 CENSUS

	<u>Sudan Urban</u>	<u>Khartoum 3 Cities</u>	<u>Port Sudan</u>	<u>E1 Obeid</u>	<u>Juba</u>
Total Number of Dwelling Units	471,490	132,726	29,143	15,783	9,836
Average Number of Rooms	2.0	2.2	1.7	2.3	1.6
Percent With Only One Room	43%	39%	55%	38%	66%
Persons per Household	5.4	5.9	4.5	5.6	5.4
Persons per Room	2.7	2.7	2.7	2.4	3.4
Percent of Households with 5-6 Persons That Have Only One Room	40%	38%	47%	35%	67%
Percent of Houses of "Permanent Materials"					
Walls		28%	12%	5%	12%
Roofs		14%	9%	36%	12%

Additional data are available from the 1967/68 Household Sample Survey. Eighty-one percent of urban homes have earthen floors, 62% have internally piped water, another 27% have water piped outside, and 7% have or share a well. Thirty-one percent have a pit latrine, 15% use a bucket, 22% have a water privy, 10% have a water closet, while 22% have no sanitary facilities at all.

Sixty-one percent of urban households (in 1967/68) were owner occupied, 26% were rented from a private owner, 7% were provided free by a relative or employer, 4% were government houses, and 2% were rented from a relative or employer.

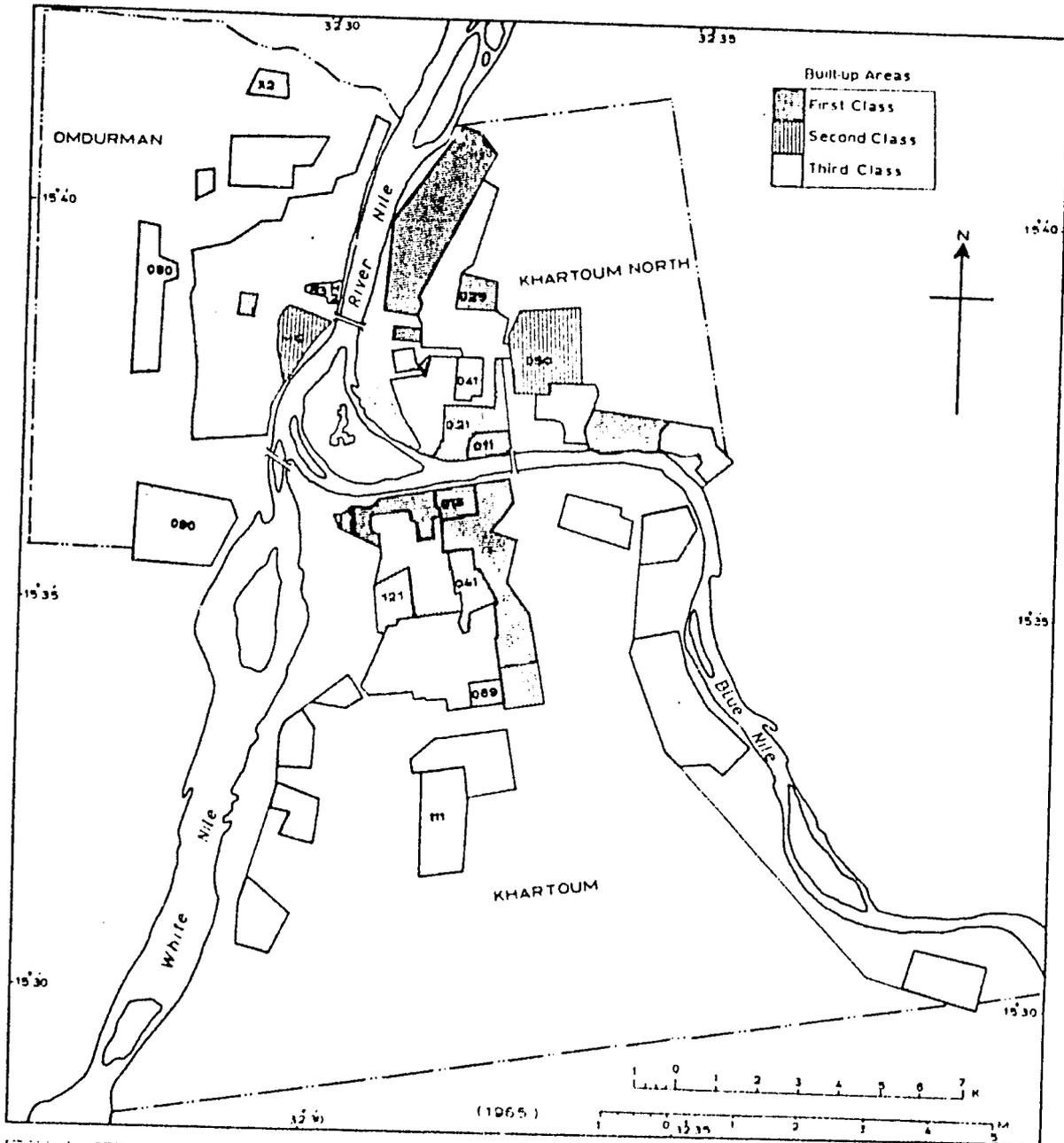
Rural homes are 98% owner occupied and 60% are straw huts. An additional 25% are houses built of mud or other local material, and another 10% are huts with walls of material other than straw. (See Appendix A-30.)

Data on housing condition and household characteristics are also available from the 1964/65 Population and Housing Survey. While these data are quite old, a review of overall conditions suggests that the situation had not changed greatly in the eight years between 1964/65 and the 1973 Census. These data are also useful in comparing Class I, II, and III areas. (See Appendices A-31,32,33,34.)

HOUSING CHARACTERISTICS FROM 1964/65 SURVEY

	<u>Class I</u>	<u>Class II</u>	<u>Class III</u>	<u>Class IV and Squatter</u>
<u>Persons per Room</u>				
Khartoum	1.1	1.6	3.0	
Khartoum North	1.1	2.3	2.9	
Port Sudan	1.9		3.0	3.3
<u>Percent with Water Piped Inside</u>				
Khartoum	100%	98%	99%	
Khartoum North	100%	93%	97%	
Port Sudan	94%		94%	1%
<u>Percent with Private Toilet</u>				
Khartoum	99%	88%	50%	
Khartoum North	100%	100%	56%	
Port Sudan	94%		67%	5%
<u>Percent with Electricity</u>				
Khartoum	100%	100%	60%	
Khartoum North	95%	88%	64%	
Port Sudan	87%		69%	1%
<u>Number of Income Earners per Household</u>				
Khartoum	1.5	1.7	1.7	
Khartoum North	1.3	1.6	1.9	
Port Sudan	1.3		1.8	1.6
<u>Average Annual Household Income (LS)</u>				
Khartoum	1,889	1,548	414	
Khartoum North	1,596	797	503	
Port Sudan	1,152		624	250

KHARTOUM CLASSIFICATION OF URBAN LAND



Khartoum			Khartoum North			Omdurman		
Code	Name of ward	Density per Sq M	Code	Name of ward	Density per Sq M	Code	Name of ward	Density per Sq M
011	Khartoum East (A)	3120	011	El Anlak	1250	M12	Muazzine Quarter	4730
041	Khartoum No 2 (old)	7550	025	El Safya	2950	R12	Beit El Mal	34070
069	Eastern Deim (B)	30820	021	El Amlak	11890	080	Umm Badda	19430
111	Gabra & El Oshara	1790	041	Kh North Deims	43520	090	El Fitehab	12900
121	Industrial Area	1420	050	Industrial Area	200	X2	Marzoug	1460

3. Urban Neighborhood Densities

Gross residential density outside the central part of the town has been estimated for Class I-II and III-IV housing areas. Gross residential density means a housing area inclusive of housing, streets, markets, and open spaces, but not including major roads, major employment areas, or major commercial areas. For the six selected towns, gross residential density for Classes I and II housing areas ranges from 16-20 persons per hectare and density in Classes III and IV houses ranges from 53-77 persons per hectare. An average of 4.6 persons per household and 3.5 houses per hectare for Class I and II housing and an average of 6.3 persons per household and 11.5 houses per hectare for Class III and IV housing are used in arriving at these estimated densities. This information was further compared with the persons per square mile data for 1965. Field observations reinforced these findings in the three-city Khartoum area, Port Sudan, El Obeid, and Juba. With the exception of a few crowded areas, most residential areas have fairly low densities.

The following table of equivalents is suggested to further aid in understanding density. (Also see Section II.A.3. on Human Settlement.)

	Typical Urban Densities				
	Persons per Hectare	Persons per Acre	Persons per Unit	Units per Hectare	Units per Acre
<u>Gross Residen- tial Density</u>					
Class I-II	16-20	6.4-8.0	4.6	3.4-4.3	2.6-3.2
Class III-IV	53-77	21.2-30.8	6.3	8.4-12.2	3.4-4.9

4. Infrastructure and Community Services

Water and electricity in urban areas are provided by Public Electricity and Water Corporation (PEWC) at a cost to the users. Classes I, II and III housing types have individual water and electric connections, while Class IV houses share central standpipes designed to serve 25-100 households. Squatter areas are not provided with any infrastructure services since they are illegal settlements.

Municipal governments in the Sudan provide sanitary services, roads, drainage and garbage disposal services to Classes I and II housing. Class III and IV housing areas do not have paved

roads, adequate drainage, or scheduled garbage collection. Septic tanks, pit latrines and bucket latrines serving two to twenty-five households are provided by the municipal governments. Public transportation in major urban areas is provided by local buses and other passenger vehicles.

In sites and services and other self-help residential projects, provision of infrastructure services generally lags behind housing construction. This problem appears to be caused by a lack of coordination between the Housing Department, the Commissioner's Office, and public service agencies such as PEWC. In addition, large open spaces, excessive amounts of government reserve land, and allowance for wide internal roads of approximately 20 meter right-of-way contribute to the expense and delay of infrastructure service delivery.

Community services such as schools and health facilities in low income housing areas are often constructed as self help projects. The appropriate ministries then provide technical staff and equipment.

The education system in the Sudan is composed of Khalwa (a Koranic School), a primary school (grades 1 to 6), a general secondary school (grades 7, 8, and 9), and a higher secondary school (grades 10, 11, and 12). Due to Islamic traditions, separate schools for boys and girls are provided. Education in the Sudan is not compulsory, and the decision of a low income family to send a child to school results in cash costs (uniforms, etc.) as well as loss of potential income from the child's labor. Although schools are provided in the low income areas, most are overcrowded and understaffed. Sixty pupils per class is not an unusual number in Class III and IV housing areas.

The Ministry of Health is responsible for providing health care services at no cost to urban and rural residents. Communicable diseases are highly prevalent in the country, particularly among children. Under an ambitious new program prepared with WHO assistance, low income housing areas will be served by primary health care units which can handle the health care needs of a population of 10,000. Primary health care units will fulfill the following functions:

a. Curative Health Care:

- ambulatory treatment of common communicable and infective diseases in the area (e.g., malaria, gastroenteritis and dysenteries, pneumonia, trachoma and conjunctivitis, complications of measles, gonorrhoea, and otitis media).

- performance of simple procedures such as dressing and care of wounds, and open superficial abscesses.
- performance of oral rehydration for mild and moderate cases of gastroenteritis.

b. Preventive Health Care:

- conduct of pre-natal clinics without engaging in delivery.
- identification of protein-calorie malnutrition cases.
- immunizations (periodic).
- notification of epidemics, and deaths in excess of 20 per month.
- active case detection for pulmonary TB (cough for more than one month and associated symptoms), sleeping sickness (gland inspection), and Kala Azar, in endemic areas.

c. Referral:

- referral of all other medical and surgical cases to the dispensary or nearest higher health institution.

d. Promotional Activities:

- advice to the community on drawing water, food hygiene, collection and disposal of refuse, better use of latrines.
- participation in neighborhood development activities.
- periodic examination of school children, instruction in personal hygiene, and inspection of the local school environment.
- recording of vital statistics.

Each primary health care unit will be staffed by one primary health care worker.

Other health service units are a dispensary serving 25,000 people, a health center serving 50,000 people, and a hospital serving 100,000 people.

Recreation services in the urban areas are generally provided by cinemas, sport clubs, and museums at a nominal cost to the residents.

5. Level of Infrastructure and Services in Selected Towns

a. Khartoum, Omdurman, and Khartoum North Area

Khartoum is the capital of Sudan as well as the provincial capital for Khartoum province. This three-city Khartoum area is located at the junction of the Blue and White Niles and is the country's center for administration, commerce, and culture. It is the largest urban area in Sudan with a 1978 population of over one million. Population growth is estimated at 7.3% annually in recent years. This growth has far outstripped the availability of land and provision of infrastructure for housing.

Water supply is provided by 4 treatment plants which have a total design capacity of 116,040 m³/day and average usage (1977/78) of 94,349 m³/day. The water distribution system provides water to each house in Class I, II, and III areas, while Class IV housing is provided with central standpipes intended to serve 25-100 households.

Khartoum and Khartoum North are the only cities in the country which have a central sewerage system. The Khartoum treatment plant capacity of 3 MGD (million gallons per day) is far below the current usage of 6 MGD. This plant provides sewer services to less than 30% of the town's population. The remaining houses in Class I, II, and III areas use septic tanks. Some Class IV houses have a septic system, but squatter areas have none. The Khartoum North treatment plant has a capacity twice its present level of usage, but only 15 to 20% of the housing units are connected to it. Housing in Omdurman is totally dependent on septic tank systems.

Electricity is provided to Class I, II, and III houses on an individual connection basis. Street lighting is generally provided in Class I, II, and III areas. Garbage collection service is provided to Class I and II houses, while garbage in Class III and IV areas is dumped in the center of the neighborhood.

In Khartoum and Khartoum North, drainage ditches are built and covered with concrete slabs in the central areas. Drainage channels of permanent material are provided in Class I and II housing areas, and drainage ditches are generally provided in Class III and IV housing. Maintenance of the system is poor, resulting in blockage and flooding problems.

Transportation service in the three towns is provided by cars, busses and other multi-passenger vehicles (jitneys). People are reluctant to walk to work due to the hot weather. Public transportation service appears to be adequate to serve the residential areas. Traffic congestion has started to occur in the central part of Khartoum and Omdurman. Roads in Class I and II housing areas are paved and have a right-of-way of 10-20 meters. Only major roads are paved in Class III housing areas.

Schools are centrally located in population centers and appear to be providing adequate service.

	<u>Number of Schools in 3 City Khartoum Area</u>			
	<u>Primary</u>	<u>General Secondary</u>	<u>Secondary</u>	<u>Higher Education</u>
Khartoum	109	33	6	2
Omdurman	76	49	15	0
Khartoum North	54	29	3	2

The Khartoum area has 5 hospitals, 12 health centers, 5 dispensaries, and 2 primary health care units. Health care facilities are generally understaffed, but the number of doctors in the country increased from 149 in 1955 to 562 in 1967 and has continued to progress in recent years.

Recreation in the Khartoum area is provided by 9 cinemas, 3 museums, 8 sport fields, and 4 youth centers. Soccer fields and playgrounds are provided in Class I, II, III, and IV housing areas.

b. Port Sudan

Port Sudan is the capital of the Red Sea Province and the only port in Sudan. It is also the only urban center in the province and provides all the major social and administrative services. Recent drought in the region together with increased port activity has increased rural-urban migration to Port Sudan. Population has grown at an estimated rate of 13% per year since 1973 to a current estimated population of 250,000. Approximately 40% of the population lives in squatter or overcrowded, minimally served areas.

Water is piped in from Khor Arbat, a creek northwest of Port Sudan. Water is not treated, but is suitable for drinking. System capacity is taxed by the rapidly growing population, and lapses in pressure occur during the dry season. Individual

water connections are provided to Class I and II housing, while Class III areas have central standpipes serving 25-100 people.

Sewage service is provided with septic tanks for all classes of housing except Class IV and squatter areas.

Power shortages occur frequently and plans to increase power are being studied. At present, Port Sudan's maximum power demand is 13-16 megawatts. Generation of 37-41 megawatts is scheduled for 1980-81.

Transportation is minimally provided to residential neighborhoods by public busses. Many people (especially squatters) walk to work, often over long distances. Road maintenance is very poor. Poor drainage and garbage collection prevail throughout Class III and IV residential areas.

There are 46 elementary, 6 general secondary, and 7 secondary schools in Port Sudan, and distribution is uniform.

There is one hospital in Port Sudan, 4 health centers, and a number of primary health care units.

c. El Obeid

El Obeid, the provincial capital of Northern Kordofan province, is the largest town in the province. Population has grown from 90,073 in 1973 to 103,474 in 1977, a rate of 3½% annually. The city's primary function is to serve as a regional trade center. El Obeid is the marketing capital of the world for gum arabic, a major export commodity for Sudan, and is also the country's center for marketing sesame seed and ground nuts.

Class I and II housing is predominantly located in the central, northern, and southern part of the town; Class III houses are predominantly in the eastern and western part of the town; and Class IV housing is found mainly in Fellata to the north.

The water supply comes from borehole sources. Water is collected and stored in haffirs (open reservoirs) which receive water seasonally from the adjacent catchment areas, approximately 30 kilometers south of El Obeid. Per capita water consumption for El Obeid households in 1977 was as follows:

Class I housing	205 liters/person/day
on private connection	

Class II housing on private connection	93 liters/person/day
Class III housing on private connection	41 liters/person/day
Class III and IV housing served from kiosks	6.8 liters/person/day

To meet the growing demand for water, new sources are being studied by PEWC.

Electricity is provided by PEWC. The current maximum power use is 2.32 megawatts against a generation capacity of 6.31 megawatts expected for 1978-79.

Waste disposal is accomplished by bucket latrines, privies, and individual septic tanks.

In El Obeid 25% of the population is under school age. Illiterate adults make-up 30% of the population, while 22% can basically read and write from education in the Khalwa, or Koranic school. Seventeen percent have completed primary school, 2.6% general secondary school, 1.5% secondary school, and only 1.2% are educated beyond secondary school.

There are 7 hospitals, 11 health centers, 55 dispensaries and 95 primary health care units serving the population of North Kordofan Province. El Obeid, as the provincial capital, has adequate health facilities.

d. Juba

The town of Juba is the capital of the Southern Regional Government as well as the provincial capital of East Equatoria Province. It is the largest town in the south with a 1978 population of about 90,000. The return of refugees after the Addis Ababa Agreement of 1972 accelerated the demand for housing and infrastructure services. The town of Juba is accessible from the north only by air and water, and from the south (Nairobi) by a seasonal, unpaved road which requires passage through Uganda unless a three-day detour is taken. Plans are underway to connect Juba with Nairobi by an all-season paved road.

Due to transportation difficulties, fuel is in short supply; as a result, the supply of treated water and electric power is often adversely affected.

The water treatment plant in Juba, built in 1947, has problems with settling tanks, filter tanks, pumps, and general maintenance.

The design capacity for the plant is 500,000 gallons per day. However, it is currently being operated at 600,000 gallons per day by bypassing filtration and using only the settling tanks for treatment. Present water demand is estimated to be 1,000,000 gallons per day. Water quality and quantity problems are very severe and are particularly hard on low income residents.

There is also a severe electricity shortage, with a minimal demand requirement of 2 megawatts compared to a design capacity of only .9 megawatts from a diesel powered plant. It is very common to see individual generators being used for a cluster of Class I and II houses. Electric service is not provided to low income housing areas.

Due to extensive underlying bed rock throughout the towns, very few septic tanks are being built. Pit latrines and bucket latrines are predominantly used in all classes of housing. Communal bucket latrines are provided for the low income housing areas.

Drainage and garbage disposal service does not exist in Class III and IV housing areas.

Education services in Juba are provided by 16 primary, 5 general secondary, 3 secondary schools, and a number of mission schools. Class IV housing and squatter areas do not have educational facilities, though children have walking access to schools in nearby areas. The University of Juba, recently opened, is the only school of higher education.

One provincial hospital, two public health centers and two private clinics provide greatly needed health services for an estimated 15,700 households in Juba in 1978.

Seven local clubs and one cinema cater to the recreational needs of the middle and upper income groups.

In summary, infrastructure and community services in the town of Juba are inadequate to provide for a healthy, safe, and livable environment for low income families.

6. Shelter Spending

Data on shelter spending are available from 1967/68 and 1964/65 with respect to rent. No data are available on costs of ownership, but since 30-40% of urban households are renters and since owner households do not have systematic financing

sources (financing to a great extent from savings and borrowing from relatives), it is judged that rental rates are a useful indicator of capacity to meet ownership costs.

Shelter costs are remarkably consistent as a percent of income over the entire income range. Rent averages about 15% of income, fuel and power adds another 5%, water costs 2%, and repair and maintenance costs 1%. The 1964/65 data indicate that households in more highly urban areas (Khartoum city) probably pay a higher share of income as rent (perhaps 25%), while households in smaller, more stable cities (El Obeid) probably pay substantially less (perhaps 10%). Other shelter costs appear to be consistent both by income and by level of urban development. The following represents estimates by the SSA team. (See Appendices A-35,36,37.)

ESTIMATED SHELTER COSTS IN THE 1960's FOR RENTER HOUSEHOLDS
(As a Percentage of Income)

	<u>All Urban Areas</u>	<u>Highly Urban Areas (Khartoum)</u>	<u>Less Urban or Newer Areas</u>	<u>Smaller Stable Cities (El Obeid)</u>
Rent	15%	25%	18%	10%
Fuel & Power	5%	5%	5%	5%
Water	2%	2%	2%	2%
Repair and Maintenance	<u>1%</u>	<u>1%</u>	<u>1%</u>	<u>1%</u>
Total as % of Income	23%	33%	26%	18%

The portion of income spent on shelter is probably much higher today as indicated by cost of living indices (see Section II D.6 on Cost of Living). Rents have increased to nearly three times the 1970 level while the overall cost of living has increased to about 2.5 times the 1970 level.

Incomes have generally not kept pace with cost of living increases, so the 15% of income spent on rent in the 1960s is probably more like 20-22% today. In highly urban areas (like Khartoum city) the figure is probably 30% or more. This conclusion, derived from analysis, is corroborated by the impressions gained in conversation during the November field work.

The Estates Bank uses a criterion of 25% as the portion of income that can go to repaying principal and interest. This figure applies only to the major wage-earner and only that

portion of income that can be well established by the employer (or possibly tax returns). It also applies only to basic pay (excluding cost of living and other allowances). Prior to the Unified Wage Scheme for public sector employees implemented in 1978, the cost of living allowance contributed 25-40% of annual salary (including COLA). A study in Juba in 1970 indicates that subsidiary income (from a second job or from other household workers) contributed about 25% of household income. Also, a 1964/65 survey indicated an average of 1.7 income-earners per household in urban areas throughout the northern provinces. This suggests that the 25% criterion of the Estates Bank probably amounts to more like 18% of household income. The criterion as applied does not include costs of utilities, maintenance, insurance, or real estate taxes, however.

7. Projection of Housing Need

a. National Urban Need and the Six-Year Plan

In the seven years, 1978 through 1985, 444,000 households are expected to be added to urban centers through new household formation or net immigration, or 63,500 households per year. (Rural households are expected to increase by approximately 220,000 over the seven years, or 31,500 annually.)

In addition to this new need, there is a need to provide for families who are presently doubling up with relatives or friends because of the unavailability of plots. This need is assumed to be 6% of existing urban households, or 45,000 families, in 1978. (The Six-Year Plan suggests that the figure may be more like 65,000 households.) In addition, a goal should be established for upgrading existing squatter settlements. In this analysis it is estimated that there are 72,000 urban squatter households in the Sudan and the goal is assumed to be to upgrade 50% of these, or 36,000 units. (The Six-Year Plan calls for upgrading 42,000 squatter plots.) A more elaborate study of demand would provide for demolition of some existing but deteriorated units and would provide for a normal level of market vacancy among rental units. For purposes of this study, these are assumed to be included in the above assumptions. Thus, the conclusion in this shelter sector assessment is that there is a need for 525,000 additional urban dwelling units in the seven years from 1978 to 1985. (Appendix A-39, 46.)

Two different approaches are suggested for estimating the incomes of families who will be occupying these units. The obvious suggestion is that their incomes will be distributed just as incomes are distributed in the existing urban population. This would suggest that 66% of units should be provided for families making LS 600 per year or more.

It is more likely, however, that people seeking homes in the next seven years will have family incomes substantially lower than that of the existing population. To some extent, this will be true because new household formations are often of young people who have not yet established earning ability, and to an even greater extent because urban growth is a consequence of immigration from rural areas by families with even less earning ability. Therefore, an alternative income profile is proposed which assumes that the portion of demand that can be attributed to natural growth and existing population should be distributed in accord with the income profile of the existing population; that portion of housing need which stems from immigration and squatter upgrading should be distributed by a much lower profile. For lack of other data, the latter portion of demand has been distributed in this analysis by the income profile observed in the Port Sudan squatter areas (Appendix A-25). This analysis suggests that only 23% of the 525,000 dwelling units should be oriented towards people making LS 600 per year or more. (See Appendix A-47 for a more complete statement on methodology.)

The Six-Year Plan calls for the production of 194,000 plots or dwelling units, far less than the 525,000 dwelling units estimated to be needed over the next seven years. Those who formulate housing policy in the Sudan are certainly aware that the level proposed is much less than the need, and it is generally acknowledged that actual performance may be substantially less than even the 194,000 due to lack of funds.

While it is not within the capacity of the country to propose meeting actual housing needs through government programs, it is encouraging to note that the program spelled out in the Six-Year Plan is oriented towards low income households in accord with the second of the two approaches to income distribution suggested above. Thus, 20% of plots or houses in the Six-Year Plan are oriented towards households with income of LS 600 per year or more and 80% are oriented towards households making less than LS 600 per year.

	Six Year Plan 1977/78 - 1983/84				Estimated Urban Housing Need Seven Years 1976 - 1985			
	Annual Income Range	Sites and Services	Other Programs	Total of Year Plan	Income Dist. By Existing Households		Income Dist. By Relocating Households	
High Income	LS 1,200+	7,030	18,000	25,030 (13%)	180,600	(34%)	61,200	(12%)
Medium Income	600-1,200	13,820		13,820 (7%)	169,100	(32%)	57,300	(11%)
Limited Income	300-600	54,830	13,400	68,230 (35%)	130,700	(25%)	113,700	(22%)
Low Income	below 300	53,320	33,600	86,920 (45%)	44,600	(9%)	292,800	(56%)
Total		129,000	65,000	194,000 (100%)	525,000 (100%)		525,000	(100%)

b. Housing Need in Major Urban Centers

Population and households have been projected for the 22 largest cities in the Sudan by the Battelle Institute team with some modification for cities visited by the Berger SSA team (Port Sudan, El Obeid, and Juba). The results of this analysis are summarized in Appendices A-38,40. Estimates have been made of the backlog of unmet need and for squatter upgrading goals, and a distribution of housing need over the seven-year period by income level has been estimated for the four selected cities. (See Appendices A-41,42,43,44,45.)

The method by which income distribution has been estimated for 1978 is as follows. Survey data on the four towns selected for detailed analysis are available from the 1964/65 Population and Housing Survey, the 1967/68 National Household Sample Survey (Juba was not included in either of these because of the civil war), and special surveys in Khartoum in 1974 by the ILO and in Juba in 1977 by the British Low Income Housing Study Team. (See Appendices A-20 through 24.)

In making projections for 1978, it was judged that these surveys could be used for estimating level of income but that differences in income distribution would be difficult to evaluate, as these surveys used different methodologies and were made many years apart. As a result, the income distribution curve produced from the ILO survey in Khartoum in 1974 has been projected to 1978 with adjustment for wage increases in the private sector over the four years as well as full implementation of the Unified Wage Scheme. Actually, full implementation will not be achieved until fiscal year 1979/80, but full implementation has been assumed for purposes of simplification. It is assumed that the Unified Wage Scheme will produce a 15% increase in all levels of income after consideration of some "ripple" effect on private sector wages. The resulting estimated income distribution curve for Khartoum in 1978 was then adjusted upward or downward to account for the expected higher and lower income levels in other cities. This produced an estimated distribution of income for households resident in 1978. The income distribution of families seeking shelter is a combination of these curves and the estimated income distribution of immigrating families whose income profile is assumed to be like that of Port Sudan squatters.

ESTIMATED HOUSING NEED BY INCOME LEVEL
(For the Seven Years 1978-1985)
(dwelling units)

<u>Annual Household Income</u>	<u>All Urban Areas</u>	<u>Khartoum Cities)</u>	<u>Port Sudan</u>	<u>El Obeid</u>	<u>Juba</u>
LS 1200 +	73,330	25,920	5,230	1,350	1,930
900-1200	23,670	7,560	1,910	540	590
600-900	32,750	9,290	2,980	830	680
500-600	14,430	4,210	1,280	300	370
400-500	38,490	9,150	4,580	680	1,010
300-400	53,170	12,640	6,490	1,000	1,460
200-300	127,320	31,450	15,590	1,760	3,800
100-200	104,010	25,640	12,790	1,420	3,120
below 100	<u>57,830</u>	<u>14,140</u>	<u>7,150</u>	<u>820</u>	<u>1,740</u>
Total	525,000	140,000	58,000	8,700	14,700

C. Land

Available land for urban housing in the Sudan is being consumed at a rapid rate to accommodate the migrant population in search of employment opportunities and urban amenities. Unplanned residential settlements are growing up around Khartoum, Omdurman, Khartoum North, Port Sudan, El Obeid, and Juba. Due to the physical growth constraints and intensive housing demand in these towns, a land use planning program is being initiated to coordinate housing and employment. It is becoming difficult to find suitable land to house masses of low income families close to the major employment areas in the six selected representative towns in the Sudan.

Land tenure in urban areas is regulated by the Unregistered Land Act of 1970, which states that the Government of the Sudan owns all land which was not registered before April 6, 1970. The Government leases residential lots with initial and renewable options for 60, 90, and 100 years for Classes III, II, and I respectively.

A majority of the freehold land in the three towns of the Khartoum area is located along the Nile rivers and in the central part of the town. A large tract of freehold agricultural land lies to the east of Khartoum North. Land tenure in the three-town area can be summarized as follows:

	<u>Freehold</u>	<u>Leased</u>	<u>Mixed</u>
Khartoum	40%	60%	0
Omdurman	30%	65%	5%
Khartoum North	65%	35%	0

Physical and human factors have influenced the direction of growth of the three towns. Khartoum, bounded by the White Nile to the west, the Blue Nile to the north, and the military area and the airport to the east, has been forced to expand southwards. Khartoum North, which is surrounded by the Blue Nile to the south, the main river to the west, and the railway line, industrial area, and farming land to the east, has expanded northwards. Similarly, Omdurman, limited by the White Nile and the main river to the east, the military area to the south, and the desert to the west, has grown northwards. This means that although the three cities have been growing outwards from their original nuclei, their growth has not been symmetrical. In all three towns, the extension from north to south is more than that from east to west.

Port Sudan's growth to the east is limited. However, residential development is expanding to the northwest and southwest of the town. The new plots for sites and services and rehousing

projects are leased by the government. A large area in the center of each neighborhood is established as reserve land as a matter of current policy in every development plan. Often these areas appear to be too large for the anticipated needs. The land tenure pattern is similar to that of the Khartoum area.

The town of El Obeid has limited expansion possibilities to the east and south. A planned forestation program to stop desert encroachment excludes any possibilities for the town to grow to the north and west. Approximately 15% of the land is in freehold, 4% is mixed, and the remaining 81% is leasehold land. Class I and II housing is predominantly located in the central, northern and southern part of the town. Class III household types are predominantly found in the eastern and western part of the town, while Class IV housing is mainly in the Fellata area to the north and in two small sites in the western part of the town.

The town of Juba does not have any freehold land. The irregular terrain with frequent ravines, the seasonally flooding creeks to the south and west, and the White Nile to the east allow the town to grow only to the north and northwest. To the south are the Class IV residential areas, which house about three-quarters of the total population of the town. Due to the natural and man-made constraints on urban growth in Juba, land use planning for residential uses is a matter of priority.

The concept of land value is difficult to apply in Sudan. New sites and service plots are made available at the estimated cost of infrastructure, which in many cases is far less than actual costs after the impact of inflation. Only the Government has the right to develop plots, and plot production has been severely constrained due to the limitation of funds in recent years. As a consequence, artificially high prices are obtained for plots on a resale basis, and many people seek plot allocation for speculative gain.

In Hedina, a Class III area of Port Sudan which has become a desirable location, plots are selling (on a leased basis, not freehold) for LS 5,000 and one is being offered at LS 10,000. A Class IV plot in Port Sudan originally sold in 1970 for LS 15 and upgraded to Class III sold in 1974/75 for LS 500. In Khartoum, Class III plots are being sold in the private market for LS 3,000-4,000, while the government is planning to offer 14,000 Class III plots in 1979 at an anticipated price of LS 500-600.

D. Institutional Analysis

1. Roles and Activities of Government and Community Organizations in Housing and Urban Development

While there are numerous government agencies and community councils involved in the preparation and execution of housing and urban development programs, the organization most widely responsible for carrying out these programs is the Housing Department of the Ministry of Construction and Public Works. The Department integrates the urban planning functions and those of housing development quite well considering the constraints imposed by its rather limited technical and administrative personnel. It is organized in four sections, namely: the land survey section, the town planning section, the sewerage section, and the housing projects section, which integrates a building research and development unit.

Because of the scarcity of trained planning professionals and technicians, the Department has its qualified personnel assist several Provincial commissioners in organizing and executing urban planning and housing projects within their areas of jurisdiction. Yet, the Housing Department is not very visible in the government structure considering the wide scope of its responsibilities: its Director, within the hierarchy of the Ministry of Construction and Public Works, reports not to the Minister but to the undersecretary. Also, because of the relatively low salary scale applied to its personnel, the department has lost two-thirds of its former staff of 30 qualified urban planners who have been attracted by higher salaries offered in other countries such as Libya, Kuwait and the Arab Gulf Emirates. Nevertheless, the present remaining staff of the Department endeavors earnestly to meet the wide range of its responsibilities.

The housing projects most commonly undertaken by government agencies are of three basic types:

- a. Sites and services projects, which provide new plots of various sizes and levels of services, e.g., access roads, drainage, water, electricity, schools, clinics. These projects are considered to be self-financed, and the required development funds are collected in advance from the families which will receive title to the plots.
- b. Settlement upgrading projects, which aim at improving the generally very low standards of housing infrastructure as well as the superstructure encountered in unplanned or squatter settlement areas. Because these areas are usually found to have more than one or two households per plot, the upgrading effort

must include new plots or sites and services areas to relieve overcrowding and also to create space for required infrastructure and community facilities. The upgrading projects are also considered to be, for the most part, self-financed through advance payments from the beneficiaries.

- c. Low-cost housing projects including plots and core housing units that are mostly of an experimental type aiming at demonstrating more economical ways of erecting a minimum size and expandable shelter. Funds for these projects are advanced by the government and gradually recaptured from the beneficiaries through "hire purchase" schemes with a subsidized 4% annual interest rate.

Responsibility for the low-cost housing projects rests solely with the Housing Department. In principle, the sites and services projects and the settlement upgrading projects are to be the responsibility of the Provincial Commissioners, but in fact, much of the work involved in the preparation and execution of these projects is carried out by the personnel of the Housing Department assigned to assist the Provincial Commissioners. This personnel also provides the technical input necessary for proper liaison between the Provincial Commissioners and the community councils interested in the various issues arising from the planning or implementation of shelter projects. An example of such issues took place in Port Sudan, where it took several years to convince the local council of a particular squatter settlement to cooperate in the implementation of a proposed upgrading scheme.

In carrying out shelter projects, the two executing agencies, i.e., the Housing Department and the Provincial Commissioner, must depend greatly on the cooperation of PEWC. In several instances and for a variety of reasons, PEWC's cooperation has not been as effective as the executing agencies might have wished, and consequently, housing developments were left without electricity and/or water for some time. In the majority of the cases, the delay was caused by the fact that the funds collected from plot owners by the executing agency for the provision of water and electricity were thought by PEWC to be insufficient. Since PEWC is mandated to function on a commercial basis, it is reluctant to do any work that would need to be subsidized unless the government puts up the subsidized portion of the cost prior to execution of the works. Often the community councils have to either apply political pressure to obtain the subsidy or raise the additional funds in the community.

Two other agencies that play a significant role in housing and urban development are the Ministry of National Planning and the

Ministry of Finance. These agencies must approve the programs proposed for execution in any fiscal year and must verify and authorize payment of all invoices for services or materials supplied during the execution of approved projects. Furthermore, in the case of sites and services projects, the funds collected from the beneficiaries by the executing agency, i.e., the Commissioner's Office, must be forwarded to the Ministry of Finance before the executing agency can request authorization to undertake any work. In the past, such authorization has been known to take until long after the funds have been forwarded to the Ministry. In addition, considerable time frequently elapses before the Ministry approves payment of invoices transmitted by the executing agency, thereby delaying the project completion for months.

Finally, for the provision of schools and clinics in new sites and services areas and settlement upgrading areas, the Commissioner's office must secure the cooperation of the Ministry of Education and the Ministry of Health. Again, delay is often encountered in providing the required facilities, particularly in the squatter settlement upgrading areas. There have been instances where local community organizations in squatter settlement upgrading areas took it upon themselves to erect their own schools in order to avoid further delay in meeting their needs.

2. Role of Private Sector in Housing

The provision of plots for housing development throughout the Sudan has been and remains exclusively a government responsibility--to the poor as well as the rich. Private interests intervene only in the speculative resale market of plots distributed by the government a few years ago. This resale market becomes quite active in areas which have acquired good "locational value" when the necessary infrastructure and community facilities, e.g., schools and shopping centers, have been developed. The resale market has also been stimulated by more stringent conditions imposed by the government on newly distributed leasehold plots; people with sufficient means prefer to pay more for a plot in the resale market and so that they will be free to dispose of it when and as they wish. But the majority of people still obtain their leasehold plots from the government at nominal prices in new subdivisions or "extensions" in the outskirts of the urban centers where the provision of infrastructure and community facilities will be completed over a period of time.

Once the plot is acquired, however, the construction of the house itself becomes almost exclusively a private sector affair. Government assistance comes only from modest mortgage loans (LS 1,000 - 1,500) extended by the Estates Bank at subsidized rates of 5% and 6% to moderate income families. In recent years only 1,000 families on average have received such loans for houses usually in Class III areas. Since this type of house

costs generally LS 4,000 or more when completed, these families must rely mainly on their meager savings, donations and loans from relatives, and personal credit from building hardware stores.

Houses in Class I and II areas are usually custom designed by private architects who also supervise the construction. The architects find that it does not pay to extend such services to lower income families in Class III areas. Nevertheless, they prepare prototype house plans and give or sell at a nominal price blueprints of their plans to families which then turn to a small contractor to build the house without the architect's supervision. It is recognized that these small contractors are generally quite competent. They provide all the required labor, and the owner supplies the building materials. The house may take years to complete, however, as the owner may not have the necessary savings or credit. When an owner runs out of money in Class I and II areas, where the houses are of larger dimensions and higher standards, the owner obtains from a potential renter one year of advance payment in order to bring the works to completion without undue delay; after the house has been rented for two or three years, he finally occupies it himself.

In Class IV areas - which are in most cases squatter settlements - shelters are very rudimentary and built of scrap material by the owner with the assistance of friends and neighbors. When these settlements are being upgraded, the existing shelters often must be relocated. The government provides technical guidance for such operations, but the costs are generally absorbed by the owners. With these relocations, it is an advantage if the dwelling is built of lumber since it is easy to dismantle and re-assemble in one day; if it is built of mud, very little of it can be re-used in the reconstruction process.

While there appears to be a growing demand for multi-story apartments for middle and upper-middle class residents in the larger urban centers, especially in Khartoum, the private sector has been generally reluctant to tackle this market. Examples of multi-story residential buildings developed in Khartoum during the last few years are the Bank of Sudan building and the Khartoum University complex, which were built for the bank and University staff respectively. Among the projects now under construction are the "Korean Building," a prefabricated residential/office tower built by a Korean contractor for the Sudanese government and the "Kuwait Building," a foreign investment venture. Sudanese private investments are predominantly small (2 to 4 stories) apartment buildings that, in many cases, look like a large house; the owner's dwelling is usually on the ground floor and two or three rental units are above.

3. Financial Institutions and Operation of the Financial System

a. Overview of the Financial Sector

(1) Institutions and Relationships

The Bank of Sudan is the central bank. There are five national banks--the Bank of Khartoum, El-Nilein, Sudan Commercial Bank, Unity Bank, and People's Cooperative Bank. In addition, there are three specialized banks--the Agriculture Bank, the Industrial Bank, and the Estates Bank. Other major savings institutions are the Post Office Savings Bank and the Sudanese Savings Bank. Several foreign banks have also opened branches in Sudan. Other financial institutions in the country are the Pension and Provident Fund, the insurance companies, and several smaller pension funds and societies.

The Bank of Sudan, under the direction of the Ministry of Finance, regulates the financial system. It determines both interest rates and lending policies. Within the formal financial system, the Estates Bank, with a loan volume of approximately LS 10 million, is the only source of housing finance available to most people.

(2) Interest Rates

The interest rate for savings deposits within the Sudan is generally considered to be 8% although there are many exceptions. The private lending rate is usually in the range of 10 to 14% with a strong concentration at 12%.

The Bank of Sudan's reserve lending rate is 9%. This applies to loans to commercial banks as well as temporary loans to the Central Government. At the end of the fiscal year, all outstanding temporary loans to the government are transferred to the long-term loan account. The interest on this account is 0.5%. The government also issues National Defense Bonds and special stock issues, both at 5% interest. These two securities totalled approximately LS 16 million at the end of 1977. Saving deposits earn 8% interest at the Post Office Savings Bank and 9% interest at the Sudanese Savings Bank. The deposited funds at both of these institutions are used by the Central Government.

Fixed time deposits at commercial banks earn interest according to the following schedule:

<u>Time</u>	<u>Interest</u>
3 months	6%
6 months	7%
9 months	8%
12 months	8½%

The minimum fixed time deposit is LS 10,000. Savings deposits at commercial banks earn 8% interest, paid on the minimum balance during the year. Most deposits at commercial banks, however, are in non-interest-bearing current accounts. On June 30, 1978 these made up 70% of all deposits.

Combined Deposits of Commercial Banks as of June 30, 1978

<u>Type of Account</u>	<u>LS Millions</u>
Current accounts	268.0
Fixed time deposits	30.0
Savings accounts	<u>86.2</u>
Total Deposits	384.2

The average rate of interest applied to total deposits is 2.4%.

Interest rates on loans from the commercial banks vary according to category, centering at 12%. Although officially considered part of the private sector, commercial banks are fully owned by the Bank of Sudan and their operations are highly controlled. The Bank's policy can be illustrated with a quotation from its annual report: "The Bank of Sudan issued directions to the commercial banks fixing the minimum lending rate and the maximum deposit and savings rate during 1977. This was intended to prevent undesirable competition among banks particularly with reference to extending credit to the private sector."

Savings deposits in the Estates Bank earn 8% interest. Mortgage loans by the Bank are issued at 5 and 6% interest for lower and upper income groups, respectively. Commercial loans from the Estates Bank are issued at 12%.

(3) Generation of Savings

Private deposits in the commercial banking system have increased by 33% from LS 273.7 million to LS 362.8 million during the past year. The growth through the 1970's is presented below.

TOTAL PRIVATE DEPOSITS AT COMMERCIAL BANKS
(LS Millions)

December	1971	58.4
	1972	81.4
	1973	101.5
	1974	136.2
	1975	166.0
	1976	213.1
June	1977	273.7
December	1977	313.2
June	1978	362.8

Part of the increase in commercial bank deposits is due to the expansion of bank branches from 80 in 1975 to 91 in 1976 and 96 in 1977. The remainder is due to increased activity at existing branches.

The Post Office Savings Bank deposits have increased by 5.4% from LS 14.5 million to LS 15.3 million during 1977. By subtracting the institutional accounts from the total deposits, the personal savings in the Post Office System can be isolated. The personal savings per account has grown from LS 32.20 in 1975 to LS 40.12 in 1976 and LS 46.71 in 1977.

POST OFFICE SAVINGS BANK DEPOSITS

<u>End of Year</u>	<u>Total Deposits</u> (LS 000's)	<u>Personal Savings*</u> (LS 000's)	<u>Total No. of Accounts</u>	<u>Number of Personal Accounts*</u>	<u>Avg. Savings/Personal Account*</u> (LS)
1975	12,865.8	7,087.0	220,293	220,121	32.20
1976	14,552.1	9,055.5	225,983	225,790	40.11
1977	15,333.8	10,607.8	227,219	227,079	46.71

* Excluding institutional accounts

In December 1974 the Postal System introduced a new savings mechanism in the form of a lottery. In this system savings are invested by the purchase of premium bonds. Three times a month there are drawings of winning bond numbers which receive cash prizes. These bonds are an effective way to generate savings in a culture that inhibits receipt or payment of interest.

The deposits in the premium bond system have grown from LS 1.9 million at the end of 1976 to LS 2.6 million in 1977 and LS 3.0 million in July 1978. During 1977 prizes totalling LS 120,000 were awarded for the equivalent of 5.3% interest on the average level of deposits. Prizes have recently been increased to an annual rate of LS 180,000, which is a 6% return on July's level of deposits. Finally, the Sudanese Savings Bank has also experienced growth, with deposits increasing from LS 2.3 million to LS 2.9 million during 1977.

In spite of the significant increases in the level of deposits at these institutions, it is still commonly believed that far greater amounts of personal savings in the Sudan are not placed in the formal financial system, but instead personally held by the individual. Three primary factors are believed to cause this pattern:

- a strong Moslem tradition forbidding the charging of interest on personal loans
- a lack of education about the value of interest
- a distrust of financial institutions

4 Allocation of Investment Funds

The commercial banks and the Bank of Sudan have combined net domestic investments of LS 1,004.5 million.

NET DOMESTIC INVESTMENT OF THE BANK OF SUDAN AND THE COMMERCIAL BANKS COMBINED (LS 000's)

<u>Category</u>	<u>Commercial Banks</u>		<u>Bank of Sudan</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Crop Cultivation	687	0.1%		
Exports	79,024	7.9%		
Imports	33,859	3.4%		
Industrial Enterprises	96,013	9.6%		
Locally Manufactured Goods	13,336	1.3%		
Other Business Enterprises	23,232	2.3%		
Private and Professional Loans	4,787	0.5%		
Medium and Long-term Advances	<u>44,434</u>	<u>4.4%</u>		
Total Private Investment	295,372	29.4%		
Total Public Investment			709,154	70.6%
Total Investment	1,004,526	100%		

It is readily apparent that investment in the economy is dominated by the public sector.

b. The Estates Bank

(1) Sources and Costs of Capital

The share capital (equity) of the Estates Bank is LS 10 million. This was transferred from the Ministry of Finance between 1967 and 1975 as detailed in Appendix C. It does not carry an interest charge. In addition, there are savings deposits which earn 8% interest. In December 1976, these totalled LS 768,000. Also at the end of 1976, there were outstanding loans of LS 900,000. The most significant of these is an LS 750,000 loan from National and Grinley's Bank. This loan is directly tied to one of the special projects and is discussed in Section (4) below.

(2) Uses of and Charges for Capital

In order to study the loans made by the Estates Bank, data were obtained from two sources. First, the 1976/77 Economic Survey published by the Ministry of Finance and National Economy presented the number and value of loans issued under the lower income, upper income, and commercial lending programs for each of the years 1972 through 1976. For 1976 it also presented a distribution of loans by province. Second, the Research Department of the Estates Bank prepared a set of tables presenting the breakdown of loans geographically, by income group, and by interest rate for the years 1967 through 1977. Additionally, discussions were held with responsible Bank officials to facilitate an understanding of the Bank's lending activity.

During the five-year period 1973 through 1977, the Estates Bank allocated loans totalling LS 10.2 million. The lower income group, defined as those with annual incomes less than LS 600, received 49% of the number of those loans, totalling 28% of their value (Consultant's estimates based on Bank and Ministry of Finance data). Due to a shortage of funds, there was a backlog of applications throughout the five years, with a waiting period typically of more than one year. Funds ran out completely and mortgage lending ceased in June 1977.

The rates of interest for each category of loan are presented on the following page.

RATES OF INTEREST AT THE ESTATES BANK

	<u>Lower Income Group</u>	<u>Upper Income Group</u>	<u>Commercial Loans</u>
1967-1969	3%	4%	6%
1970	4%	4-6%	10%
1971-1972	3%	3%	10%
1973	4%	6%	10%
1974-1975	5%	8%	11%
1976-Current	5%	6%	12%

In addition to these loan programs, the Estates Bank's funds are also used for investment in the construction and rental of multi-story apartments; investment in a building materials company; capital for a subsidiary insurance company; a special loan program for the Bank's employees; and a special branch and lending program for the police. Some of these are discussed in Section (4), Special Projects.

Finally, two new schemes--a new branch for PEWC employees and a joint venture with the Industrial Bank for a construction company--have been proposed and funds are being sought.

(3) Policies and Operations

In an effort to understand the policies and operations of the Estates Bank, the Consultant held discussions with operations personnel, middle-level managers, senior officials, and two members of the Board of Directors.

The Estates Bank was established in 1966 by the Sudanese Estates Bank Act (Appendix E). The first objective of the Bank is "to make loans to any Sudanese person who is owner or lessee of a plot of land for the construction of new buildings or the improvement of existing buildings." Other objectives as stated in the Act give it broad purposes within the general area of real estate.

The Bank is managed by the Managing Director. There is a Board of Directors which has the power to make regulations controlling the Bank's operations. The members of the Board are:

The Managing Director
One representative of each of the following:

Ministry of Finance and National Economy
Ministry of Construction & Public Works
Local government
Bank of Sudan
Three other persons appointed by the Minister
of Finance and National Economy

The Minister of Finance and National Economy has the power to "give to the Board directions of a general character" and "the Board shall follow such directions." Strong concern has been expressed for the role of the Board with indications that it is not provided with detailed information and does not play an active role in decision making.

The main branch of the Estates Bank in Khartoum serves as the headquarters. Additionally, there is a special branch in Khartoum to serve the police, and branches in El-Obeid and Atbara. Also, the Unity Bank in Juba serves as an agent for the Estates Bank. The branch in El-Obeid was opened in 1976 and the one in Atbara in 1978.

The steps in the lending sequence are listed along with discussions of relevant policies:

(a) Application Process

Every Sudanese citizen who owns land and has a job is eligible for a loan. The applicant must:

- (i) Present a certificate establishing ownership of land and proof that the land is not mortgaged.
- (ii) Submit plans for his building with cost estimates. These are discussed with the Estates Bank's engineering department and at times recommendations are made for changes.
- (iii) Present a building permit.
- (iv) Present proof of income. Income is defined as the provable earnings of the applicant from the primary job. Excluded are: income that cannot be established by previous income tax returns or public sector salary; allowances that supplement the regular salary; income of a spouse or other members of the family; income from a secondary job. Additionally, applicants from the private sector are sometimes

required to have countersignatures on the loan. It is estimated that about 70% of the Estates Bank's loans go to individuals employed in the public sector.

- (v) The Engineering Department must inspect the site and determine that it is currently vacant.

The applicant is then classified as being in the upper or lower income group, depending upon whether his income exceeds LS 600. Finally, the application is placed into the queue awaiting funding. There are currently in excess of 1,000 applications in the queue.

(b) Allocation of Funds

Loans are made on a first-come/first-served basis. As funds become available, the oldest applications in the queue are funded. Although there is some disagreement within the Bank about the policy that governs the allocation of loans between income groups, the Assistant Manager for Loans, who has direct responsibility for the processing of loans, clearly defined the operating procedure. He said that there is a single queue for applications, that is, no formal allocation between upper and lower income groups, and that loans were processed purely on a first-come/first-served basis with the resulting allocation between income groups occurring totally by chance.

(c) Loan Terms and Conditions

The interest rate is determined by Bank policy. Currently, it is 5% for the lower income group and 6% for the upper income group. For persons up to 40 years of age, the loan maturity is 20 years; for persons between 40-55 the maturity date is the 60th birthday. The maximum age for loan eligibility is 55. The amount of the loan is a function of the applicant's income and the maturity of the loan. The policy is that 25% of annual income can be used towards paying the loan. By using the maximum income available for repayment, the rate of interest charged, and the maturity of the loan, the amount of the loan can be taken from a table. Additionally, there are limits for the minimum and maximum loans. The minimum loan is LS 850. This minimum loan corresponds to a minimum annual income of LS 273 for a 20 year loan with 5% interest.

The maximum loan available is LS 5,000 (except for Estates Bank employees - see page III-46). Additionally, there is a maximum limit upon lower income loans. This limit has been described as LS 1,500 and LS 1,300 by two different officials. In either case, it is considerably below the LS 1,869 loan for which a person earning LS 600 per year would otherwise be eligible if there were no limit (assuming 5% interest and 20 year maturity). Representative loan limits are presented below.

REPRESENTATIVE LIMITS FOR ESTATES BANK LOANS

<u>If the Head of Household Earns an Annual Income of:</u>	<u>Then He Can Qualify for a Maximum Loan of:*</u>
Less than LS 273	Loans not available
LS 273	LS 850
400	1,246
300	2,294
1,200	3,440
Greater than LS 1,743	5,000

*Assuming 20-year maturity, interest rate is 5% if income is less than LS 600; otherwise it is 6%.

(d) Funding Procedure

Loans are issued in four separate installments, with an inspection by the Engineering Department before each payment is made. The Assistant Manager for Engineering, who is responsible for costing each stage of house construction, stated that the funding percentages are 35%, 35%, 20%, and 10%. The full cost for mandatory insurance, ranging between 5 and 12% of the total loan value, is deducted from the first installment. The required levels of construction for each installment were described as follows:

- i. Initial installment should be sufficient for the completion of the foundation.
- ii. After an inspection has verified that the foundation has been properly completed, the second installment should be sufficient for all construction to the level of the roof.

- iii. After an inspection has verified the completion up to the roof, the third installment should be sufficient to cover the full cost of the roof.
- iv. The last installment is given after the house is completed to the point of being liveable.

The inspectors recognize that these criteria are very difficult to meet under the limited loan amounts permitted by the Bank, and it has been suggested that these criteria are not always strictly enforced.

Other concerns about the use of loan funds have been voiced. Some loans are thought not to be used for housing at all; one Bank official estimated that 10% of loans fell into this category. The same official also estimated that an additional 10% of loans have been used to begin construction of houses but that the loan recipient has run out of money before completing construction. Officials in the Department of Housing identified the same two problems. An official at another Ministry admitted personally borrowing money from the Estates Bank for a strictly non-housing purpose.

(e) Loan Repayments

Repayments begin either six or twelve months from the time of issue. A senior Bank official indicated that personal loan repayments have never been a problem. He attributed this to: 1) the automatic payroll deductions from public employees for mortgage repayments; and, 2) the ease of prosecution in the case of refusal to pay. Conversations with the Assistant Manager of Finance, however, indicated a slightly different problem. He produced a folder containing lists of those people in a current state of arrears, which he estimated at approximately LS 250,000. He has the list organized by Ministries and stated that the arrears were not personal refusals to pay, but, rather, delays in receiving the money from the various Ministries. In many cases the delays have been more than a year.

Several officials in the Department of Housing expressed concern that the Estates Bank did not coordinate its lending with government planning units. During the many conversations at the Estates Bank, no reference was ever made to coordination of lending policies with government housing plans or policies.

Two individuals at the Bank expressed concern for the Bank's personnel policies, referencing the decline in the number of loan officers with a college education during the past six years.

Emphasis has been placed upon training clerical personnel to fulfill these roles.

The commercial lending program is operated separately from the regular mortgage lending program. Commercial loans are currently issued at 12% interest with a maximum two-year maturity. The funds for this program are taken from the savings deposits.

(4) Special Projects and Programs

(a) Insurance Program

In August 1977 the Estate Insurance Company, a fully owned subsidiary of the Estates Bank, was created with LS 50,000 of the Estates Bank's share capital. Life insurance from the Estate Insurance Company is compulsory for all loan recipients. The cost varies from 5% to 12% of the loan value, depending primarily upon the age of the recipient, and is paid in a lump sum as or before the loan is issued.

Many criticisms have been levied against this program. First, the cost seems to be far greater than an actuarial rate and it places a major burden upon the loan recipient. The burden is further magnified by the method of payment. While insurance charges in most countries are amortized over the life of the mortgage, here it is paid in a lump sum at the onset. For example, if a person qualified for an LS 5,000 loan, he would be allocated an initial installment of LS 1,750 from which an LS 500 insurance charge would be immediately deducted. Finally, since loan defaults have not been a problem at the Estates Bank and loan recovery by the sale of the house is considered relatively simple, the need for any insurance requirement must be seriously questioned.

(b) Lending to Bank Employees

A mortgage lending program for Estates Bank employees was started in 1975. Every employee is eligible for a mortgage loan at a 3% rate of interest, with a maximum equal to 42 months of salary and no upper limit. The loan can be repaid until the age of 60, with a maximum maturity of 20 years, and there is a 15-month grace period. In addition to house construction, the loan can be used for the purchase of land or the purchase of an existing house. Thirty employees have used this program, with average proceeds of LS 5,970. Several senior officials have individual loans in excess of LS 10,000.

(c) Multi-Story Apartments

This project was financed by an LS 750,000 loan from National and Grinley's Bank and LS 250,000 from the Estates Bank's share capital. The loan carries an interest rate of 7% and a maturity of ten years. For the first five years, interest only is paid; during the last five years, interest and principal will be repaid. Ten buildings with 16 flats each are planned, of which four, or 64 flats, have already been completed. The investment in these four buildings was LS 880,000, or LS 13,750 per flat. The flats are being rented to the University of Khartoum at a rate of LS 200 per month per flat for total annual revenues of LS 153,600. The funds from this rental are being used to finance the fifth building currently under construction. Funds are also being sought to finance the remaining five buildings, as planned.

Building design, costing, construction supervision, and some of the purchasing of materials were executed by the Estates Bank's Engineering Department.

c. Informal Methods of Housing Finance

More than 75% of all housing investment is financed by informal sources, about which very little is known. Household savings, which are usually personally held and not entrusted to financial institutions are the primary sources of such funds. The individual, when investing in his own house, utilizes his own savings supplemented with loans from his extended family and friends. These loans seldom carry an interest charge.

The full extent of personal savings has never been documented. However, during discussions with officials in the Department of Housing, in planning offices in Juba, Port Sudan, and El Obeid, in other Ministries, and in financial institutions, a strong and consistent belief was expressed that the savings rate is very high, between 10% and 20% for a typical household. Cash savings is a highly emphasized cultural value throughout the Sudan. For a seemingly poor family to have cash holdings of LS 100 - LS 300 is viewed as quite commonplace.

While quantification is not possible, there seems to be a high level of personal savings that the current financial infrastructure of Sudan has not been able to mobilize.

E. Construction Sector Analysis

1. Contractors' and Self-Help Activities

In the informal sector where shelter is quite rudimentary and erected expeditiously - especially in squatter settlements - the construction of a dwelling is generally carried out by the owner and his family with the help of relatives, friends, and neighbors. Seldom is a building contractor called in. During subsequent stages of improvement, when community organization has been strengthened among the residents of a settlement, it is customary for cooperative groups to form, including people of different skills who assist each other in completing or enlarging their dwellings. It is through this process that squatter settlements or Class IV housing areas are eventually upgraded, with government agencies providing technical guidance and administrative coordination to obtain land tenure and basic infrastructure and municipal services. The infrastructure works are usually not performed by private contractors but by workers employed by government agencies and by organizations like FEWC.

The presence of the formal construction industry begins to be felt in Class III residential areas, where most of the houses are of permanent materials and, to a greater degree, in residential areas of Classes II and I, where the standards of construction are progressively higher. Yet, in all cases, the building contractors are generally small. The main difference rests in the fact that, for Class III houses, which are usually too small to interest a private architect, the contractors work without architectural supervision, while for most Class II houses and even more Class I houses the architects who designed them also supervise the construction. Generally, the level of craftsmanship was found to be quite satisfactory.

The contractors would accept responsibility for the labor but not for the supply of building materials because of the high rate of price escalation experienced in recent years; they fear that such escalation during the construction period (which is often prolonged because of material shortages or the owner's inability to sustain the required payment schedule) would entail financial losses which they cannot afford to absorb. The contractors are paid gradually for work completed according to usual measurement contracts.

Although the government-financed low cost housing projects are generally constructed by workers employed by the Ministry of Construction and Public Works' Housing Department, it happens sometimes that private contractors are retained for selective project components--especially those which require cement, e.g., concrete roofs. Apparently, the reason for bringing in

private contractors is that, in case of a material shortage, they can procure the materials from the black market while a government agency cannot.

The largest Sudanese contracting firms--such as S.A. Sayed and Partners, which has 500 employees, 25 of whom are professional technical and administrative staff--are oriented to engineering projects which have thus far been mainly in the area of irrigation and water works where they are able to operate with 15% overhead and 20-25% profit margin. They do not find house-building contracts attractive or profitable as they would require competing with a large number of small contractors with much lower overhead. The few large multi-story buildings currently under construction have been undertaken by foreign contractors - the Kuwait Building being done by the MISR contracting firm from Cairo is an example. Another high-rise building of equal importance is being erected by a Korean contractor.

The 1973 Census reported 38,000 people in the construction sector in urban areas, or 5% of the total urban labor force. An additional 31,000 are employed in construction in the rural sector, so that construction workers comprise 2% of the labor force on a national basis. These 38,000 urban workers are, of course, the source of labor for all public works, infrastructure, and commercial construction as well as residential construction.

Wages in 1973 averaged about LS 4.60 per week for construction workers and LS 13.29 for salaried construction employees. (See Appendix A-18.) These rates are about equal to average earnings in manufacturing in the case of workers, but somewhat lower in the case of salaried employees (who earn LS 14.63 in manufacturing).

Construction labor rates have increased dramatically in the past five years (probably far more than other sectors of the economy) in defense against the highly attractive wages paid to skilled workers in other Arab countries. Examples of labor rate increases are demonstrated in the following section:

2. Building Materials, Standards and Costs

In addition to the traditional building materials like mud, straw, bamboo, and zimbala, which are common in rural areas as well as in small and large urban areas, the most commonly used building materials for housing construction are bricks, cement, lime, lumber, and reinforced steel bars.

Cement is produced in the Sudan by two state-owned plants which produce annually 130,000 to 170,000 tons of Portland cement of very good quality. For a variety of reasons, these plants

operate only at approximately 50% of their capacity. A third plant now under construction at Deruped will have a capacity of one million tons per annum and is expected to be completed by 1983. A severe shortage of cement has prevailed since the beginning of 1978 due in part to new demands generated by large-scale irrigation and road projects. More reliance is now placed on imported cement to meet urgent needs. As a result, prices have escalated drastically. While the official price has been set at below LS 40 per ton, commercial suppliers are now charging LS 140 compared to LS 12 in 1973. A major factor contributing to the price increase is the ground transportation cost from Port Sudan - where the cement is imported - to Khartoum, which is reported to be around LS 65. This has, of course, a direct impact on housing cost since it takes three to four tons of cement to complete a standard Class III house with reinforced concrete roof.

Sun-dried and soft burnt bricks are produced on the banks of the White and Blue Nile and other rivers across the country. In the Khartoum area alone around 400 million bricks are produced yearly with an average size of 21 x 10 x 5.5 cm, a compressive strength of 25 to 50 kg/cm², a porosity of about 35%. The main difference between sun-dried and soft burnt red bricks is that the latter are water-resistant and therefore last longer. The firing process is quite inadequate, and as a result, 30% of the bricks are either overfired or underfired. Because demand is so far in excess of supply, the quality as well as the dimensions of the bricks have been gradually cut down by opportunistic suppliers. At the same time, prices have risen rapidly. For example, between 1973 and 1978, the price of bricks per 1,000 has gone from LS 5 to LS 15. This has been having a direct impact on overall housing price escalation since bricks are so widely used in residential construction.

Reinforcement steel bars for concrete work are produced locally from imported steel. They are used increasingly for concrete slab roofs in Class III houses with brick bearing walls and also in Class II and Class I houses for foundations and columns. The price of steel bars has also increased considerably during the last five years from LS 120 in 1973 to LS 450 now. The sand and gravel required for concrete works have experienced similar price escalation during this 5-year period: sand, which used to cost LS 1 per cubic meter in 1973, now costs LS 3, and the price of gravel has gone from LS 50 per cubic meter to LS 205 for pine wood.

Labor costs have also risen considerably. While an unskilled laborer's daily wage has increased from LS 0.25 to 1 between 1973 and 1978, a skilled worker's daily wage has gone up from LS 1.5 to 4.5 during the same period.

These various increases in building material and labor costs have been compounded in overall construction costs. For average Class III houses, the cost per square meter has increased over the last five years from LS 20 to LS 60 according to local architects and contractors. A minimum size Class III house with a roofed area of 50 square meters comprising a bedroom, a veranda, a kitchen and a toilet room would therefore now cost around LS 3,000 exclusive of site and services costs. However, the majority of Class III houses have a roofed area of over 100 square meters. For Class II and Class I houses, the overall cost has increased over the same five-year period from LS 40 to LS 150 per m². For these higher standard houses, the cost escalation has been greater mainly because of the more extensive use of imported items. But even the Class III houses have a significant import content estimated at approximately 30% of total cost. The main imported items are steel, wood, cement in numerous instances, electrical conduits, wiring and fixtures, glasswares, plumbing pipes and fixtures, toilets (even of the oriental type), sinks, and paint (the basic ingredient of which is imported although it is mixed and containerized in the Sudan).

For more modest, traditional "jalous" and "zibala" mud houses, the import content is significantly lower than in Class III houses and may be almost nil when no electricity and running water are available, as is often the case in the squatter settlements and in the poorest urban quarters.

Unfortunately, the mud houses require considerable maintenance; in particular, the roof, which is made of bamboo, straw, mud, and zibala (made of animal manure), must be repaired every year by adding new layers of zibala. After approximately ten years, the zibala which has been accumulated must be completely removed and the roof virtually redone. For this reason, a good deal of research is being undertaken to develop new roof designs that would achieve the strength of the reinforced concrete slab but would cost less than the current LS 45 per square meter.

3. Building Codes and Land Development Standards

Building and land development standards for housing areas are applied to create a safe, healthy, and pleasant environment. The following acts and laws are used to accomplish the above objective:

- The town and country planning act
- Town planning regulations
- The replanning act

- Public health laws
- Regulations of buildings

Most of these regulations, which were developed during the colonial period, demand high standards. They include: residential density; adequacy of sewage facilities; water closets; protection against fire, flooding, and other harmful matters; safe access; structural strength; ventilation; lighting; and waste removal.

Due to financial limitations, inadequate supply of local building materials, and the high cost of imported materials, a large majority of the families willing to build in new sites and services areas find it difficult to comply with these regulations. Class III plot owners are required to construct outside walls, a kitchen, and a bathroom of permanent material, which adds significantly to the cost of a house. Local authorities sometimes relax some of the more stringent requirements to accommodate local traditions, especially in the south.

Planning practices for sites and services projects throughout the Sudan have evolved mainly from British urban development principles applied since colonial times with standards that were and continue to be quite high. In spite of the fact that the main urban centers have grown considerably with a heavy influx of impoverished citizens from rural regions, the land planning standards for sites and services projects remain quite high with streets of 20 m of right-of-way and residential plots of 300 m² or more even in low-income (Class III) housing project areas. Moreover, large portions of these project areas are left vacant as "government reserve" or "spill-over" sites in addition to large open spaces allocated for sports.

The direct consequence of using such high planning standards for sites and services projects is reflected in a sprawling infrastructure network that is very costly to build. This consequence is not immediately felt because of protracted delay in the provision of infrastructure components: in many instances, the electricity and water distribution systems remain uncompleted for years, roads are not paved, and sewerage hardly reaches the planning stage. However, when the infrastructure network is completed, the actual costs will be still more prohibitive with the effect of price escalation.

The professional staff of the Housing Department is aware of the implications of using such high standards for moderate and low-income residential development areas. Nonetheless, these high standards are still applied because of the insistence of policy makers in the People's Assembly and their recent refusal

to accept the recommendations of the Housing Department to reduce the standard plot size from 300 m² to 200 in new sites and services projects. This refusal may have reflected the lack of influential strength of the Housing Department, which as explained elsewhere, has a rather low position in the administrative structure of the Ministry of Construction and Public Works.

F. Environmental Protection

The environmental protection agency of the Sudan is the National Research Council's Committee for the Environment. Its Secretary General is Professor Osman Khidier. The Committee has only a very limited staff of highly educated academicians. Their sphere of concern is not the urban environment--since the Sudanese cities are still relatively small and apparently do not yet feel the symptoms of the malignant ecological predicaments afflicting large urban centers elsewhere--as Dr. Karouri, the Committee's Acting Secretary General during Professor Khidier's absence, readily admits.

The environmental problem which has the highest priority in the Committee's work program is desert encroachment, which is seen as a man-made phenomenon caused by such land misuse pressures as overgrazing, irrational utilization, wood cutting and deforestation, uprooting of shrubs for fuel, and the lowering of water tables caused by increased water use and burning of grasslands, forests, and shrublands. The problem has been under study for several years, and a program of desert encroachment control and rehabilitation (D.E.C.A.R.P.) was prepared in 1976 by a team of specialists from the Ministry of Agriculture's General Administration for Natural Resources and from the National Council for Research working in collaboration with the United Nations Environment Programme and the F.A.O.

Desert encroachment has also become a matter of concern for urban planners in the Sudan. In planning the expansion of the city of El Obeid, for example, the planners decided to protect the city from desert encroachment on the west and north sides by creating a reforested green belt on these two sides and directing further urban growth to the east and south of the existing built-up area.

Another environmental question which is given very high priority in the work program of the Committee is aquatic weed management. The outbreak of water hyacinth in the Nile has been called "one of the environmental disasters of the century." The water hyacinth is a South American plant. It was first seen in the Upper Nile region in 1958. By 1962, the plant had succeeded in infesting the whole stretch of the White Nile from Juba to the Jebel Aulia Dam as well as other rivers and lakes. In the period of April to October, vast amounts of water hyacinth plants drift north toward the Jebel Aulia Dam where they accumulate, completely covering the water surface. During this period wind and current action continuously compress them into a thick carpet that people can walk on. The accumulation of water hyacinth on the Nile decreases the river's normal water yield, makes water transportation

difficult and costly, constrains fishing, provides breeding sites for mosquitos and snakes, and also creates conditions which force crocodiles to leave the river, causing unrest among the villagers.

The Sudanese government has launched a control program to limit the spread of the plant at a cost of US \$2.5 million per year. Researchers have expressed concern over the limitations and dangers of using herbicides which have been the means of control utilized thus far. They expressed interest in the efforts made in South America by an AID team of entomologists to select insects that live on and destroy water hyacinth, and they hope that the U.S. government could assist in extending the experiment to the Sudan.

G. Rural Housing

Over 13 million people, or 80% of Sudan's population, are estimated to be living in rural areas. Of these, 4.4 million people live in permanent houses made with local material such as mud, timber, and straw, and another 8.6 million people are either nomads with portable light-weight shelters or seasonal migrants living in houses built with temporary material.

Housing density is very low in a typical rural village settlement. Cattle herdsman will cluster a number of huts around fenced areas where they keep their cattle. Farming communities have a tendency to build shelters at the edge of their farmland, where cattle areas and huts are placed side by side.

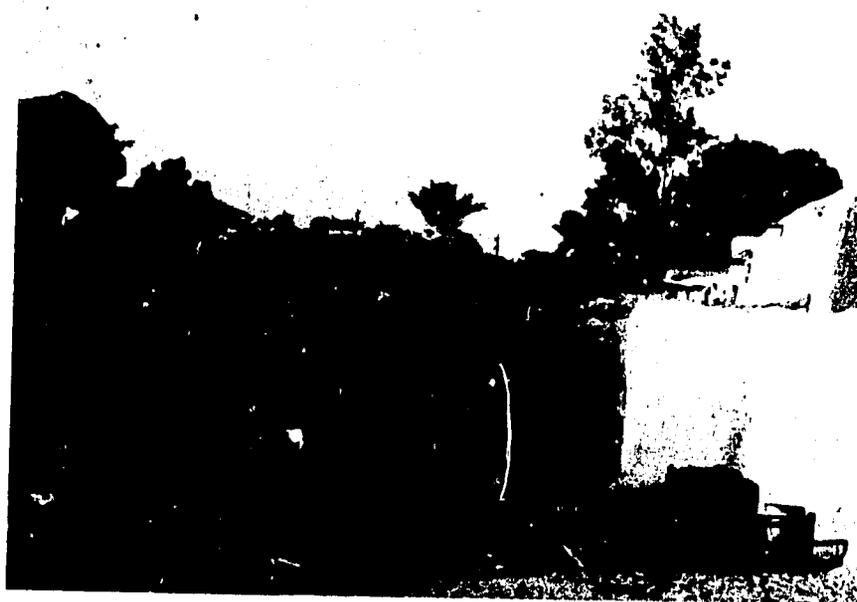
The design and materials used for rural housing vary from area to area depending upon local raw material availability. In the northern and western parts of the country, the rural shelters are predominantly made with mud, have thatched or straw roofs, and the walls are sometimes plastered with zibala. In the southern region, the predominant one-room house, called a toukal, is made of circular mud or straw walls and a conical, layered straw roof. This type of unit requires constant maintenance and creates a fire hazard.

Water supply, whether from a river, spring, or man-made well, is the distinguishing feature of a permanent rural settlement. Often, these water sources expose rural residents to organisms which may cause endemic diseases. Sanitary waste does not present a significant problem in rural disposal areas, due to very low residential densities. However, it is important to keep human and animal wastes away from the water supply in order to limit the spread of diseases and parasites. Improvement of rural housing and services poses problems of a different nature than those characteristic of urban areas. In general, rural housing meets the basic needs of rural residents; this area is given low priority for investment compared to the major cities, some parts of which have serious housing problems.

KHARTOUM



*Photo 1
Typical indigenous straw hut in outlying
village of Khartoum.*

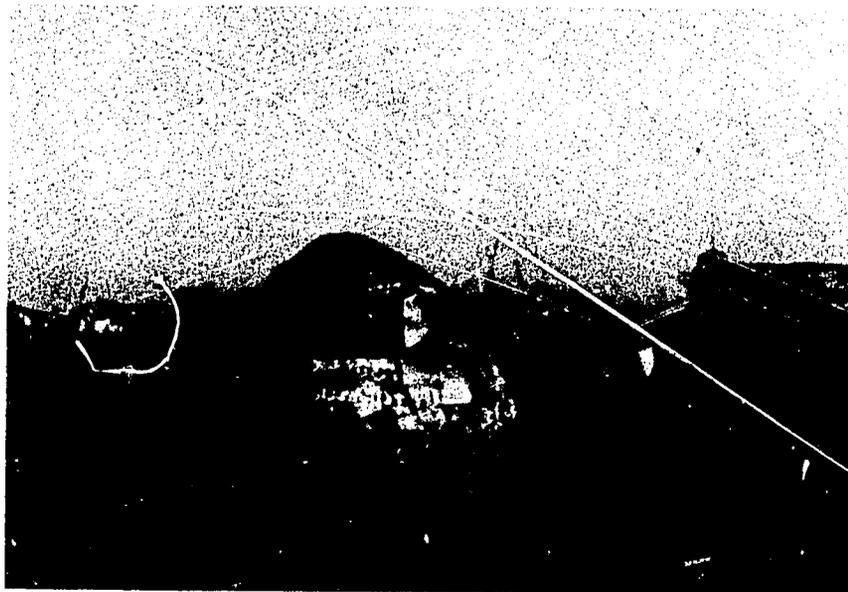


*Photo 2
Typical indigenous mud hut.*

KHARTOUM

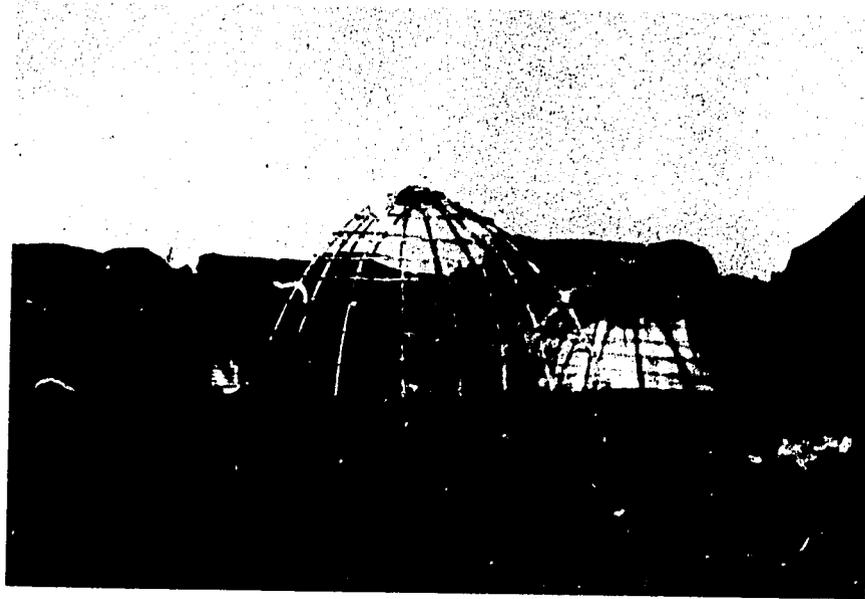


*Photo 3
Modern local construction with traditional
walls (without finishing mud plaster) and
corrugated iron roof.*

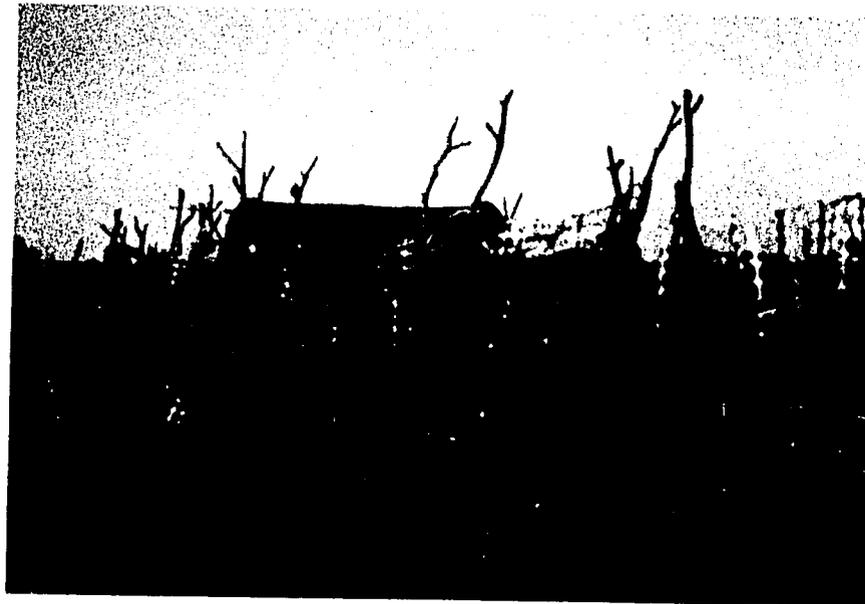


*Photo 4
Squatter huts made of burlap and other
scrap materials (left) and mud (right).*

KHARTOUM



*Photo 5
Pole structure prepared to support a squatter
hut to be completed with burlap and card-
board.*



*Photo 6
Even the most rudimentary housing has a
privacy fence, this one of sheet metal
scrapped from manufacturing.*

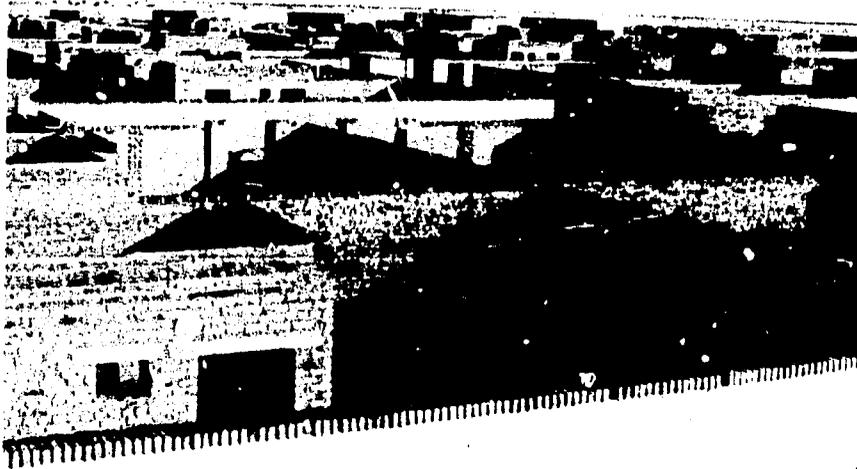


Photo 7
Department of Housing low income units in Khartoum North. Completion of roofs has been delayed by unavailability of materials that must be imported.

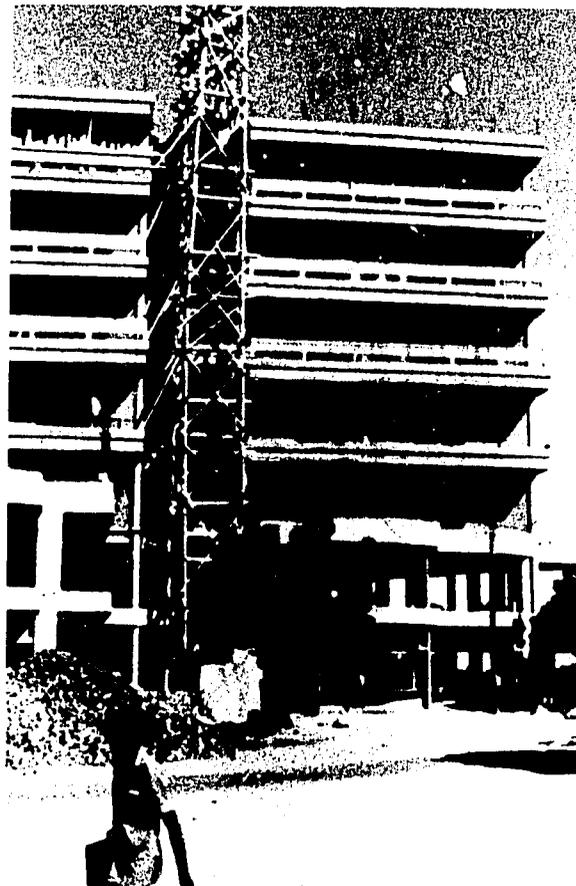


Photo 8
Downtown high-rise construction that can be used for residential or office purposes at the choice of tenant.



*Photo 9
Class IV house on legal but not upgraded
plot in an overcrowded area. (The house
dates from colonial times and is unusually
detailed.)*



*Photo 10
Typical Class IV development.*

PORT SUDAN



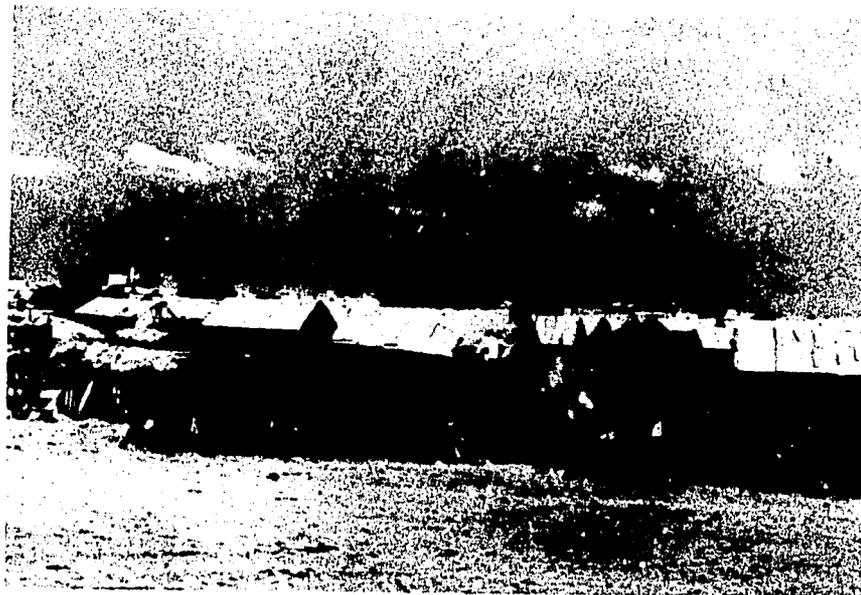
*Photo 11
Unusual two-level and finely detailed construction in a Class IV house.*



*Photo 12
House of temporary materials within a Class IV area.*



*Photo 13
Class IV housing.*



*Photo 14
Squatter housing with typical density and
lack of linear plot layout.*

PORT SUDAN



*Photo 15
Modern Class III housing built for railroad
employees.*

JUBA

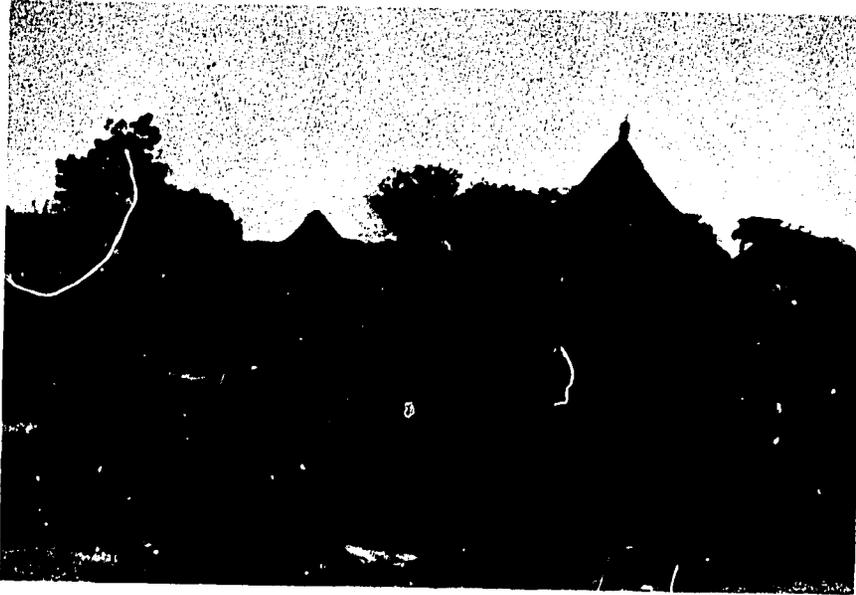


Photo 16
Typical toukals, partially surrounded by
reed privacy wall.



Photo 17
Toukal under construction.

JUBA



Photo 18
Housing constructed for University of Juba.

IV. CONCLUSIONS AND RECOMMENDATIONS

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Sources of Encouragement

Before highlighting the conclusions and recommendations, which in a planning study of this kind must concentrate on problems, constraints--things that ought to be changed in order to achieve desired progress--it is good to note certain positive factors important to the Sudanese housing situation as they represent opportunities and sources of encouragement.

1. Employment and Economic Dispersion

Employment is high in urban areas. Although incomes are low, employment opportunities are plentiful.

Economic strength and urbanization are well spread among the different regions of the country. Sudanese cities have been experiencing rapid growth but none has yet reached such a scale that its problems are unmanageable.

2. Land Availability and Tenure

The Sudan is land rich, and the government controls most of the land. Private use of the land is easily achieved through a well-institutionalized leasehold system. Sites and services schemes are well understood and accepted by the people and the government with strong reliance on self-financing for the infrastructure and self-help for the construction of shelter.

3. Climate - Implications for Shelter

Most of the country has a relatively benign climate, which favors inexpensive solutions to housing.

4. Policy and People Factors

The government and the people accept sites and services projects, relying on the private sector for construction and especially on the indigenous house-building skills and traditions of the Sudanese people.

There is a small cadre of able and highly motivated civil servants in the Department of Housing, in PEWC, and in other agencies important to the housing sector. A system of using the limited number of trained professionals effectively and of providing some measure of coordination of central policy and provincial implementation has developed in

the relationship between central government agencies and their people assigned to the provinces at the Assistant Commissioner level. While there are breakdowns in this system, it has evident merits as well.

The education system in the country is quite good, with special acknowledgement to the fine reputation of the University of Khartoum. School attendance is not high, but a respectable education is achieved by those who stay in it.

B. Constraints

Conclusions about constraints on the housing system and recommendations for easing these constraints are presented in the following pages. Reference is made to the findings discussed in Chapters II and III which have led to these conclusions.

1. Housing as a National Priority - Policy Implications

The current financial position of the country and the urgent need to continue to orient major national investment towards projects that will produce exports and raise health and education standards argue strongly against housing subsidies (Section II-B). Further, the relatively benign climate in most areas of the country and the housebuilding skills indigenous to the Sudanese lessen the need for seeking housing standards that require subsidy.

Therefore current policies to minimize and eliminate housing subsidies are strongly supported by this analysis. More rigorous analysis of programs to identify and prevent unintended subsidies is needed. The Department of Housing should seek technical assistance to upgrade the quality of financial analysis in developing housing programs.

2. Affordability

The major constraint to the housing situation on the demand side is affordability. The median household income in urban areas of the Sudan is judged to be LS 860 per year in 1978 (Page II-23 and Appendix A-24).

A minimal one-bedroom house costs LS 3,000 plus LS 315 for a Class III plot (Page III-51). If the purchaser could acquire the land with saving, use it as his equity, and get a 90% mortgage on the total cost (mortgage loan of LS 3,000) with 9% interest and term of 20 years, then his monthly payments would total LS 27.40. Annual household income of LS 1,315 would be required to carry that debt service at 25% of household income. Only about 30% of urban households make this much or more. Thus, 70% of urban households cannot afford the house presently conceived of as the least expensive by the Department of Housing.

The present focus of the Department of Housing on providing minimal urban services rather than building houses should be affirmed. As experimentation is undertaken in the design and construction of low cost houses, it should be made clear who can afford them, as contractor-built houses are not affordable by lower middle income or low income families.

Employment opportunities and housing conditions are closely related in the Sudan as well as in other countries. Lack of employment brings poverty, and it has been said that "bad housing is the physical expression of poverty." Thus, to achieve the goal of improving housing, it is necessary to combat poverty mainly by increasing employment opportunities.

Therefore, a housing improvement program has its best chance of success when it is supported by good employment opportunities. While the jobs generated by housing construction projects are in most instances of a temporary nature, these jobs can be effectively used to train unskilled workers in various building trades. Such projects should also be used to provide small contractors with the opportunity to develop their capabilities on technical as well as on managerial grounds.

It is therefore recommended that, in all shelter projects, every effort be made to provide employment and training opportunities to individuals and small contractors, especially those living in the community where such projects take place. Special efforts should also be made in sites and services projects to reserve well-located plots for workshops and businesses to locate permanently in the project areas and, thereby, reduce the need for project residents to travel long distances to work.

3. Capital Available for Shelter Financing

Home ownership has strong appeal to most Sudanese families. This is true for the poor as well as for the rich, and is reflected in several ways. For example, the primary use of money saved by Sudanese working for a few years in oil-rich Arab countries, whether they are professionals or skilled workers, is to build a house back in the Sudan. So strong is this desire that, even before departing for their work abroad, they very often arrange to secure a plot and to have the house plan drawn up by an architect in advance. Also, workers from rural areas who migrate to the cities seek, as early as possible, to locate a piece of land where they will surreptitiously put up a rudimentary shelter using whatever scrap materials they can obtain. They will eventually obtain leasehold right to the occupied plot, or to a new plot through the government's squatter settlement upgrading program. Also eager to acquire a house of their own are the middle-class families, many with steady income through government employment. They have been the most successful in getting home mortgage loans from the Estates Bank. But the Bank's resources are so limited that very few can actually obtain loans, and those who do find it very difficult to complete the house with the loan amount.

The incapacity of the financial sector to make available loans at an adequate level, on reasonable terms, and to a broad range of families is the greatest institutional impediment to housing production in the Sudan (Section III-D.3).

The current level of government debt, both from the Bank of Sudan and from foreign sources, is extremely high; there is an acute shortage of foreign exchange; and the requirements for new capital investment remain great. Industrial and agricultural projects

will probably continue to be given higher priority than housing in the allocation of scarce Central Government capital resources (Pages II-10 and III-4).

The present policies which require funding mortgage lending activities through Central Government advances simply will not work. The magnitude of financing required for housing is so great that current policies cannot lead to broad and equitable availability of mortgage credit.

THEREFORE IT IS RECOMMENDED THAT STEPS BE TAKEN NOW TOWARDS ESTABLISHING PRIVATE MONEY MARKET MECHANISMS TO AUGMENT GOVERNMENT SOURCES OF CAPITAL FOR HOUSING FINANCE. THESE STEPS MIGHT INCLUDE:

- a. DEVELOPMENT OF NEW SPECIALIZED INSTITUTIONS, LIKE COOPERATIVE BUILDING SOCIETIES, SAVINGS AND LOAN INSTITUTIONS, MORTGAGE COMPANIES, AND SPECIALIZED AGENCIES FOR GUARANTEEING MORTGAGES OR FOR FACILITATING A SECONDARY MARKET FOR MORTGAGES. The present interest within the Ministry of Cooperation in a cooperative bank should be encouraged along these lines.
- b. ENCOURAGEMENT OF SUDANESE INSURANCE COMPANIES AND THE PPOVIDENT FUND TO INVEST IN MORTGAGES DUE TO THE UNIQUE COMPATIBILITY BETWEEN THEIR SOURCES OF FUNDS (which are fixed and contractual) AND THE LONG TERM NATURE OF THE MORTGAGE MARKET. Their involvement might begin through purchase of mortgages generated by the Estates Bank at market interest rates (discussed below).
- c. NEW PROGRAMS TO MOBILIZE PERSONAL SAVINGS. The reluctance of Sudanese families to use institutional savings vehicles may represent the greatest opportunity to increase funds available to housing finance provided that:
 - (i) Interest rates are raised on mortgages (discussed below) to enable savings to be a source of funds.
 - (ii) An effective marketing program can be developed to make it convenient and appealing for more families to use formal savings programs.
 - (iii) Confidence of depositors can be engendered and maintained in the institutions and in the financial strength of the country (presumably savings deposits would be guaranteed).

The Estates Bank is the primary mortgage lending institution in the Sudan. Its activity in mortgage lending has been far below that which is needed. It has completely run out of available mortgage funds and has consequently not issued any new loans since

June, 1977. The current Six-Year Plan has proposed to increase the share capital of the Estates Bank to LS 40 million from the current level of LS 10 million (Page III-40).

THE TRANSFER OF FUNDS TO THE ESTATES BANK SHOULD BEGIN IMMEDIATELY AND A SCHEDULE DEVELOPED FOR ITS CONTINUANCE THROUGHOUT THE SIX YEAR PLAN. THE LOAN APPLICATIONS HAVE ALREADY BEEN APPROVED AND THE APPLICANTS ARE AWAITING THE FUNDS.

THE PERSONAL SAVINGS PROGRAM OF THE ESTATES BANK SHOULD BE AGGRESSIVELY EXPANDED. The issuance of savings growth certificates in the form of discounted notes is suggested for this purpose. For example, a one-year certificate costing LS 9.25 and returning LS 10.0 at the end of the year could be offered. This certificate, bearing the equivalent of 8% interest, offers the following advantages:

- a. It can be advertised as a fixed level of profit, avoiding the stigma attached to interest.
- b. It is a form that can be distributed (for a fee) by Cooperatives and Post Offices throughout the country.
- c. It is a form that complements the current Post Office Savings Deposit and Premium Bond Systems. As such it would tend to attract new investors rather than the ones currently using the formal financial sector.
- d. It is easily manageable. By controlling the rate at which the certificates are issued, the weekly maturities can be controlled and growth can be properly managed. This offers the special advantage of minimizing the risk of a "run" on the Bank.

IN GENERAL, THE PRESENT POLICIES AND PROGRAMS OF THE ESTATES BANK SHOULD BE REVIEWED WITH RESPECT TO THE ISSUES RAISED HERE AND IN THE PAGES WHICH FOLLOW.

4. Credit Terms and Availability - The Estates Bank

Sudanese families do not have access to sufficient credit, and what is available is on unnecessarily conservative terms (with the exception of the interest rate, which is discussed below). Housing credit policies do not seem to acknowledge that a finished house on land with adequate tenure is security, and do not seem to be oriented towards providing effective financing at reasonable cost to the borrower. A significant portion of houses that are started with mortgage credit remain uncompleted for years (Page III-40).

- a) Income allowed in the calculation of the mortgage amount does not include income earned by other members of the family, and does not include some allowances earned by the primary wage-earner that clearly are applicable to housing cost (e.g. cost of living allowance).
- b) Life insurance required on the borrower's life is expensive (perhaps costing more than actuarial rates warrant) and is required up front rather than being paid over the life of the mortgage as the value of the insurance is being realized.
- c) The amount that can be borrowed is insufficient to complete construction even to the point of livability. As a consequence many houses are not completed with resulting risks or losses both to the borrower and to the institutions.
- d) Loans are not made for plot acquisition or for materials acquisition (by the family who will build its own house).

Income that qualifies in calculation of the mortgage amount would be probably half or three fourths of actual household income if allowances to the primary wage earner were included and if earnings to other family members were included. If this additional income were considered and if interest were raised to 10%, important benefits might result. The illustration below assumes that income presently qualified for mortgage calculation is 67% of total household income.

	Income Taken As Presently Qualified. <u>Interest = 5%</u>	Income Taken As Estimated Actual. <u>Interest = 10%</u>
Annual Household Income	LS 400	LS 600
Monthly Mortgage Payment at 25% of Income	LS 8.33	LS 12.50
Term of Loan	20 years	20 years
Constant Annual Payment	7.92%	11.58%
Allowable Loan Amount	LS 1,246	LS 1,295

This analysis demonstrates that:

- a) The amount of the mortgage loan would be about the same, or even increased, without relaxing the rule that debt service should not be more than 25% of income.

Other considerations include:

- b) The ability to earn 10% on funds invested in home mortgages would enable the financial institution (the Estates Bank) to aggressively pursue and profitably invest savings obtained at an interest cost of 8%.
- c) The additional monthly cost of approximately LS 4 to the household illustrated above would not be an impediment to seeking a loan or to the ability to repay it.
- d) Defaults and arrearages would not increase to unacceptable levels, since at present they are virtually non-existent except for the delays in transferring paycheck deductions from one government agency to another.

THEREFORE IT IS STRONGLY URGED THAT INTEREST RATES ON ALL NEW HOME MORTGAGES BE RAISED TO MARKET RATES IMMEDIATELY, AND THAT TOTAL HOUSEHOLD INCOME AS REASONABLY SUBSTANTIATED BE USED IN THE CALCULATION OF THE MORTGAGE AMOUNT.

In view of the significant role of the Estates Bank as the only source of funds available to individual borrowers for shelter construction, a more detailed analysis of its policies and programs and their impact on shelter sector activity is required.

THEREFORE IT IS RECOMMENDED THAT A TEAM OF CONSULTANTS, EXTERNAL TO THE ESTATES BANK, UNDERTAKE A THOROUGH INVESTIGATION OF ITS OPERATIONS, POLICIES, AND IMPACT UPON THE COUNTRY. THESE CONSULTANTS SHOULD REPORT DIRECTLY TO THE COUNCIL OF MINISTERS. The team's responsibilities would include a detailed analysis of the current operations of the Estates Bank; a determination of the impact of the Bank's policies and operations upon the housing sector of the economy; recommendations for any changes in policies that may be appropriate; and establishment of procedures to ensure that the Board of Directors is provided with adequate and timely information in order for it to fulfill its role of general supervision and direction of the Estates Bank. Comparison of the policy and performances of the Estates Bank vs. comparable institutions in other developing countries will be important to this, as well as consideration of important local issues such as how costs can be anticipated and controlled so that houses can be completed within available funds and what can be done about the inventory of partially finished houses on which construction has stopped.

5. Administrative Efficiency

The intricacies of the system analyzed in Sections III A and D whereby housing projects are processed through numerous administrative units of government agencies and public corporations create unnecessary delays which cause shelter projects to be left with incomplete infrastructure and to cost substantially more than budgeted for; moreover, they diminish the overall effectiveness of the shelter delivery system, preventing it from processing as many shelter project units (i.e., sites and services plots, upgraded built-up plots or low-cost housing units) as would otherwise be possible even with the administrative resources presently available.

The housing projects executing agencies at the central and provincial level presently lack the strength and importance that would be commensurate with the magnitude of the problems which they are charged to address. This lack of strength and status inhibits their ability to pursue aggressively and efficiently their work objectives.

Morale is presently low at the Housing Department, which has suffered a severe "brain drain" with the loss of almost two-thirds of its former staff of 30 professional urban planners to other countries offering higher salaries. Because of the relatively low position of the Department in the bureaucratic structure of the Ministry of Construction and Public Works, the prospects of significantly rewarding promotions for the present staff are rather dim. The Minister is conscious of the situation, and the staff is hoping that the current plans for reorganization and upgrading will be promptly finalized and approved.

There has been insufficient coordination so far between the Housing Department and some key organizations involved in the housing delivery system - mainly the Estates Bank and the Public Electricity and Water Corporation.

For example, the investments made or planned by the Estates Bank do not always reflect the priorities of the national housing policies and programs for which the Department of Housing is responsible. Similarly, the Public Electricity and Water Corporation has not always been responsive to the Housing Department's infrastructure program requirements.

To alleviate the lack of administrative efficiency discussed above, it is recommended that the government take urgent action to achieve the following:

- a. The present project administration system should be modified by letting the executing agencies assume more responsibility for the financial management of the projects. THE TWO MAIN EXECUTING AGENCIES (I.E., THE HOUSING DEPARTMENT OF THE MINISTRY OF CONSTRUCTION AND PUBLIC WORKS, AND THE PLANNING DEPARTMENT OF EACH PROVINCIAL COMMISSSTONER'S OFFICE) SHOULD BE GIVEN MORE RESPONSIBILITY FOR PROJECT ACCOUNTING AND FINANCIAL MANAGEMENT and be required to check all financial transactions related to project execution with the Ministry of Finance once at each stage of implementation. The funds which the central ministries have already approved for specific shelter projects should be gradually transferred to the accounts of the executing agencies at the beginning of each stage of project implementation.
- b.
 - (i) THE PRESENT HOUSING DEPARTMENT OF THE MINISTRY OF CONSTRUCTION AND PUBLIC WORKS SHOULD BE PROMOTED WITHIN THE ADMINISTRATIVE STRUCTURE OF THE MINISTRY AND THE DEPARTMENT HEAD SHOULD BE AN OFFICER REPORTING DIRECTLY TO THE MINISTER. Also, in recognition of the fact that the responsibilities of the Housing Department are not only for housing projects but also for urban development, the department should be renamed the Housing and Urban Development Department.
 - (ii) THE PROPOSED REORGANIZATION SHOULD NOT ONLY PROVIDE BETTER STAFF COMPENSATION, BUT SHOULD ALSO ALLOW STAFF TO RELATE MORE EFFECTIVELY WITH THE HIGH RANKING STAFF OF THE OTHER PUBLIC AGENCIES THEY HAVE TO WORK WITH IN THE PREPARATION AND EXECUTION OF HOUSING PROGRAMS. It is therefore important that the reorganization and upgrading of the Housing Department be undertaken without delay to avoid further erosion of the remaining qualified staff and to allow the department to carry out its responsibilities with more confidence, vigor, and efficiency.
 - (iii) Since the responsibility for national housing policies and programs rests with the Housing Department, this department should be charged as well with the coordination of the housing-related activities of other organizations - mainly the Estates Bank and the PEWC - active in the housing sector. THIS SHOULD BE ACHIEVED IN THE CONTEXT OF THE PROPOSED REORGANIZATION OF THE DEPARTMENT, WHICH SHOULD BE MANDATED TO REVIEW THE CURRENT AND PROPOSED HOUSING-RELATED ACTIVITIES OF THOSE AGENCIES AND TO APPROVE THEIR INVESTMENT PROGRAMS IN THE HOUSING SECTOR.

- c. The Planning Department of each provincial commissioner's office should be given authority to act as an executing agency for sites and services projects and settlement upgrading projects.

6. Planning Standards

Land use planning standards which have been adopted for past and current sites and services projects are so generous - especially for open "spill-over" or "government-reserve" space, street right-of-way, plot size - that the overall density ends up being quite low, as discussed earlier in Section III-E. Street right-of-ways of 20 m currently found in most sites and services projects are excessive, especially for low-cost housing development. Similarly, plot dimensions which in most instances are above 300 m² are much too high compared to standards normally used in other countries with similar climate and economic conditions to those found in the Sudan.

The direct consequence of using such high standards of residential site development is reflected in an infrastructure network that is too extensive and therefore too costly. The implications of higher infrastructure costs for construction and maintenance may not be immediately felt since, in many instances, the infrastructure is left largely uncompleted (e.g. roads are not actually built or paved, water and power distribution networks are seldom completed, and sewerage is generally non-existent). The consequence of having used excessive land development standards will eventually be felt when the time comes to complete the infrastructure.

In order to avoid problems of excessive land development standards and costs in new projects, it is important to adhere to the following:

- a. The planning practices that prevailed over many years when the Sudanese cities were still relatively small must now be adjusted to accommodate economically a much larger urban population. THE PLANNING AUTHORITIES MUST ADOPT NEW, MORE ECONOMICAL LAND-USE STANDARDS FOR THE PURPOSE OF ACHIEVING GREATER EFFICIENCY IN SHELTER PROJECTS and, thereby, serve equitably a larger portion of the population with the limited resources available. More specifically, it is important that:
 - (i) Plot sizes be reduced by as much as half (from 200 - 400 m² to 100 - 200 m² on average for moderate and low-income households).
 - (ii) Right-of-way for local access streets in low-cost housing projects be reduced from 20 m to approximately 10 m, while minor alleyways can be still more narrow, especially when they are not required for normal vehicular traffic.

(iii) THE PRACTICE OF LETTING VAST "GOVERNMENT RESERVE" AREAS REMAIN UNBUILT FOR INDEFINITE PERIODS OF TIME IN RESIDENTIAL BUILT-UP AREAS BE REVIEWED IN ORDER TO REDUCE THE SIZE OF THESE UNUSED AREAS AND KEEP THE TIME LIMIT OF THEIR USELESSNESS TO A STRICT MINIMUM.

Current building regulations for sites and services projects are relatively stringent especially in relation to the limited means of low-income families willing to participate in shelter upgrading efforts or to build a Class III house: Present regulations make it mandatory that "permanent material" - which is generally understood by the local authorities to mean masonry or cement work - be used for the essential parts of the house.

THESE BUILDING REGULATIONS SHOULD BE REPLACED IN ORDER TO ACCOMMODATE INITIAL SHELTER SOLUTIONS IN CLASS III AREAS WITH A VIEW TO INCREMENTAL IMPROVEMENT IN SUBSEQUENT YEARS. Such changes have already been initiated in Juba. At the same time, building standards for Class I and Class II houses must be lowered to appropriate minimum levels which could serve as a means of determining the excess or luxury addition, for special taxation purposes, when houses are built with higher standards, as is often the case in Class II and Class I residential areas.

7. Plot Pricing

Prices charged for plots have not been increased to keep pace with inflation. The immediate problem can be resolved by a straightforward revaluation of cost. However, unless a procedure for periodic inflation adjustments is implemented, this problem will be repeated.

Provisions should be developed for periodic review of costs with automatic price increases (for example, 6% every six months) to take effect if the review is delayed.

All plots (Class I, II, III, and IV) are offered at the basic cost of preparation with only nominal charge for the value of the land itself. This is justified on the basis that the land belongs to the people and that they have a right to its use. However, it is suggested by the consultant that people have a basic right to the amount of land that they need, not to the amount that they want, and a rich man does not necessarily need more than a poor man.

Class I and II plots should be priced on a premium basis, with profits in excess of land preparation costs being used to help pay for community facilities (schools, health clinics, or transportation facilities) which will be used by all people.

8. Production and Supply of Building Materials

Building materials required for housing purposes are often in short supply and, as a result, suppliers tend to reduce quality and increase prices. In such a situation, low income families are the most severely affected when they try to improve their housing conditions.

While the cement produced in the Sudan is known to be excellent, the quality of local bricks, sun-dried or soft-burnt, is poor and getting worse as demand increases.

The shortage of building materials has been a major constraint to shelter construction throughout the country. This predicament is aggravated by the inadequacies of the regional road network, which make it extremely difficult and costly to move building materials from production places (and, in the case of imported materials, from Port Sudan, the only seaport) to construction sites in various parts of the country.

In order to reduce the constraints caused by the inadequate production and supply of building materials, the government should urgently consider taking the following actions:

- a. BECAUSE BRICK IS SO WIDELY USED IN HOUSING CONSTRUCTION, IT IS IMPORTANT THAT THE MINISTRY OF CONSTRUCTION AND PUBLIC WORKS ACT VIGOROUSLY TO BRING ABOUT THE URGENTLY NEEDED IMPROVEMENTS IN THE PRODUCTION OF LOCAL BRICKS. The necessary raw materials (silt and clay) are plentiful along the rivers and are of excellent quality. The flaw is in the production process, especially in the firing method, as discussed in the Battelle Institute's reports recently prepared after nine months of research by their German team in the Sudan. The production process can be considerably improved with proper technical assistance and management. An effort in this direction was initiated in Khartoum last year for the production of asphadobe bricks, sponsored by the UNDP, but was unfortunately stalled. Another one is proposed for Juba. It is important that efforts of this type be carried out effectively and that their results be disseminated among producers who should also receive adequate managerial guidance in order to maximize the beneficial impact on the industry.
- b. THE PRODUCTION OF BRICKS AND OTHER BUILDING MATERIALS SHOULD BE MORE CLOSELY MONITORED BY RESPONSIBLE GOVERNMENT AGENCIES TO ASCERTAIN THAT THE OFFICIAL STANDARDS OF ADEQUACY AND CORRESPONDING PRICE GUIDELINES ARE ADHERED TO.

- c. IT IS NECESSARY AND URGENT NOT ONLY TO INCREASE LOCAL PRODUCTION OF BUILDING MATERIALS - ESPECIALLY CEMENT AND BRICK - BUT ALSO TO ACHIEVE GREATER GEOGRAPHICAL DISTRIBUTION OF PRODUCTION PLANTS IN ORDER TO MINIMIZE TRANSPORTATION REQUIREMENTS.

9. Water and Electricity

The supply of water remains inadequate or hardly existent in many low-income residential areas. Of all housing infrastructure components, water supply is by far the most important to human health and should therefore be given the highest priority when available resources are insufficient to provide all the infrastructure and municipal services required.

Because of the inadequacies of water resources and water treatment facilities in many urban centers, particularly Port Sudan and Juba, it may be thought that extending the water distribution network to squatter settlements and other low income areas would mainly worsen the shortage in the established quarters already served.

If for a given reason or combination of reasons it were to become necessary to ration water in a city, the rationing would, in all fairness, have to be applied to all parts of the city on a rotating basis. **THUS, THERE SHOULD BE NO JUSTIFICATION FOR NOT EXTENDING THE WATER DISTRIBUTION NETWORK TO THE LOWEST INCOME AREAS. AT THE SAME TIME, EVERY EFFORT SHOULD BE MADE TO INCREASE WATER SUPPLY AND TREATMENT CAPACITY TO ACCEPTABLE MINIMUM STANDARDS FOR HEALTH'S SAKE.**

Electricity, unlike water, is not an absolute necessity for low income shelter programs although it is a very useful amenity. It can also be pointed out that the availability of electricity in slum areas tends to generate premature needs for relatively expensive household items such as radios and even television sets which, being imported, add to the country's foreign exchange outlays.

There is a power shortage in virtually every Sudanese city. Industries and business establishments are more affected by such a shortage than residential areas are. The least affected are the low income residential districts where there is almost no refrigeration or air-conditioning. Extensive residential areas in the city of El Obeid have never had electricity. A power shortage - unlike a water shortage - does not entail an immediate threat to human health. **THEREFORE, WHEN FINANCIAL LIMITATIONS PREVENT THE SIMULTANEOUS SUPPLY OF BOTH WATER AND POWER TO NEW LOW INCOME SHELTER PROJECT AREAS OR TO EXISTING SETTLEMENTS IN THE PROCESS OF BEING UPGRADED, THE PRIORITY SHOULD NORMALLY BE GIVEN TO THE SUPPLY OF WATER.**

10. Urban Services and Planning

While some efforts are made by the responsible public agencies to provide the schools and clinics required in the squatter settlement upgrading areas and other low-income districts (see Section III-B), the needs are far from being met.

THIS IS AN AREA WHERE THE GOVERNMENT SHOULD BE MORE ACTIVELY ENGAGED IN ORDER TO PREVENT DETERIORATION OF PERSONAL HEALTH THAT MAY BE VERY COSTLY TO RESTORE LATER, AND TO GIVE TO THE POOREST CITIZENS THE BASIC EDUCATION AND SKILLS WHICH WILL ENABLE THEM TO SECURE THE EMPLOYMENT THAT WILL PROVIDE THEM WITH THE RESOURCES REQUIRED FOR THEIR SHELTER AND OTHER ESSENTIAL HUMAN NECESSITIES".

Garbage collection leaves much to be desired in low-income residential areas at the moment, although the central districts of cities like Khartoum and Port Sudan appear to be very well kept. In the poorest areas, garbage is piled up in open public spaces where dead animals are also left. There is a definite need to extend garbage collection services to all urban quarters.

TO DO SO MAY REQUIRE INCREASING CONSIDERABLY THE EXISTING FLEET OF GARBAGE TRUCKS. THIS COULD NOT BE ACHIEVED WITHOUT SUBSTANTIAL FOREIGN EXCHANGE OUTLAYS. AN ALTERNATIVE WOULD BE TO USE, AS IT IS WIDELY DONE IN CAIRO, DONKEY-DRAWN CARTS, ESPECIALLY IN LOW-INCOME RESIDENTIAL AREAS WHERE THEY WOULD NOT INTERFERE WITH HEAVY VEHICULAR TRAFFIC. THIS ALTERNATIVE SHOULD BE TRIED AS IT WOULD INVOLVE MINIMUM CAPITAL AND OPERATING COSTS AND VIRTUALLY NO FOREIGN EXCHANGE COST AT ALL.

The site selection process for shelter projects has in many instances neglected the transportation requirements of future residents. This has resulted in long, difficult, and costly work trips for the inhabitants of new sites and services project areas who often work in the central urban quarters. This is particularly true in Port Sudan and the Greater Khartoum area.

THE PLANNERS SHOULD ENDEAVOR TO RELATE MORE CLOSELY NEW LOW INCOME SHELTER PROJECT SITES TO MAJOR EMPLOYMENT AREAS IN ORDER TO MINIMIZE DAILY TRANSPORTATION COSTS FOR WORKERS WHO WILL RESIDE IN THOSE PROJECTS.

11. Collection of Property Taxes - Implications for Services

Taxes upon land and buildings in the form of "general rates" have not been collected to their full potential. Two specific problems have been suggested by the officials involved. First, many properties have not been assessed and added to the tax rolls. Second, many of those that have been assessed are greatly undervalued. Improved collection of property taxes would provide funds for municipal administration and for an increased level of service (Page III-9).

APPENDIX A – BACKUP TABLES FOR ANALYSIS

APPENDIX A

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POPULATION, URBANIZATION, AND GROWTH

	1955/56		1973		Growth Rate
	Population (000's)	Percent	Population (000's)	Percent	
Northern Provinces					
Urban	690.4	9%	2,213.0	19%	6.9%
Rural	<u>6,789.0</u>	91%	<u>9,520.4</u>	81%	<u>2.0%</u>
Total	7,479.4		11,733.4		2.6%
Southern Provinces					
Urban	46.7	2%	274.7	9%	10.7%
Rural	<u>2,736.4</u>	98%	<u>2,750.2</u>	91%	<u>-</u>
Total	2,783.1		3,024.9		.5%
Total Sudan					
Urban	737.1	7%	2,487.7	17%	7.2%
Rural	<u>9,525.4</u>	93%	<u>12,270.6</u>	83%	<u>1.5%</u>
Total	10,262.5		14,758.3		2.1%

Source: ILO report, p. 304.

Note: Discrepancy vs. 1973 Census (Appendix A-13) is due to adjustment for undercounting in data as used in the ILO report.

POPULATION, URBANIZATION, AND GROWTH BY PROVINCE

	1973 Popula- tion ¹ (000's)	Annual Growth Since 55/56 ¹	1973 Urban Popula- tion ² (000's)	Annual Growth Since 55/56	Percent Urban ²		
					1955- 56	1964- 66	1973- 74
<u>Northern Provinces</u>							
Red Sea, Kassala	1,547	2.8%	326	6.0%	12.1%	14.5%	21.6%
Nile, Northern	958	.5	64	3.2	4.2	4.9	6.9
Khartoum	1,146	4.7	300	6.6	50.2	57.4	71.9
Gezira, White & Blue Nile	3,740	3.2	260	5.3	5.0	5.7	7.1
North & South Kordofan	2,202	1.3	120	3.1	3.9	3.4	5.7
North & South Darfur	<u>2,140</u>	<u>2.7</u>	<u>177</u>	<u>6.5</u>	<u>4.3</u>	<u>6.5</u>	<u>8.5</u>
Total Northern	11,733	2.6%	1,747	5.8%	8.4%	NA	14.9%
<u>Southern Provinces</u>							
Upper Nile, Junglei	836	-.4	37	7.7	1.1	1.6	4.9
Buheyra, Bahr el Ghazal	1,397	2.0	53	11.1	.8	1.2	4.0
West & East Equatoria	<u>792</u>	<u>-.7</u>	<u>57</u>	<u>9.7</u>	<u>1.2</u>	<u>1.7</u>	<u>7.9</u>
Total Southern	<u>3,025</u>	<u>.5%</u>	<u>147</u>	<u>9.6%</u>	<u>1.0%</u>	<u>NA</u>	<u>4.9%</u>
Total Sudan	14,758	2.1%	1,894	6.0%	6.4%	8.3%	12.8%

¹ ILO report, p. 303.

² ILO report, p. 364. Urban population here is defined as resident population in urban centers which had 20,000 inhabitants or more in 1973.

PROJECTION OF URBAN/RURAL POPULATION IN THE SUDAN

	<u>1973</u>	<u>1978</u>	<u>1985</u>
<u>Urban Population</u>			
Towns 20,000+	1,854.2	2,795.0	4,580.9
Towns 10-20,000	412.6	586.8	930.0
Towns under 10,000	<u>470.1</u>	<u>597.1</u>	<u>834.7</u>
Total Urban	2,736.9 (18%)	3,978.9 (24%)	6,345.6 (31%)
(Growth Rate)	(+7.2%/yr)	(+7.8%/yr)	(+6.9%/yr)
<u>Rural Population</u>	12,082.1 (82%)	12,898.0 (76%)	14,002.9 (69%)
(Growth Rate)	<u>(1.5%/yr)</u>	<u>(+1.3%/yr)</u>	<u>(+1.2%/yr)</u>
Total Sudan	14,819.0 (82%)	16,876.9	20,348.5
(Growth Rate)	(+2.1%/yr)	(+2.6%/yr)	(+2.7%/yr)

Source: Building materials industry study by team from Battelle Institute in Frankfurt on assignment to Ministry of National Planning.

URBAN CENTERS RANKED BY 1973 POPULATION

<u>City (Province)</u>	<u>Resident Population</u>			<u>Annual Growth Rate</u>	
	<u>1955-56</u>	<u>(000's)</u> <u>1964-66</u>	<u>1973-74</u>	<u>1955/56</u> <u>1964/66</u>	<u>1964/66-</u> <u>1973/74</u>
Khartoum (Khartoum)	93.1	173.5	349.1	6.8%	8.6%
Omdurman (Khartoum)	113.6	185.4	300.5	5.3	5.8
Khartoum North (Khartoum)	46.9	80.0	150.2	5.8	7.7
*Greater Khartoum Urban Area	253.6	438.9	799.8	5.9%	7.3%
*Port Sudan (Red Sea)	47.6	78.9	135.1	5.5	6.5
*Wad Medani (Gezira)	47.7	63.7	118.0	3.1	7.5
*Kassala (Kassala)	40.6	68.1	100.5	5.6	4.7
*El Obeid (Northern Kordofan)	52.4	62.6	92.2	1.9	4.7
*Gedaref (Kassala)	17.5	45.1	66.2	10.5	4.6
*Atbara (Nile)	36.3	48.3	64.3	3.1	3.4
*Nyala (Southern Darfur)	12.3	26.2	62.8	8.3	10.8
*Kosti (White Nile)	22.7	37.9	60.6	5.5	5.7
Juba (Eastern Equatoria)	10.7	19.8	56.7	6.7	13.2
*El Fashir (Northern Darfur)	26.2	40.5	54.5	4.7	3.6
Wau (Bahr el Ghazal)	8.0	14.8	53.4	6.7	16.3
*El Genaina (Northern Darfur)	11.8	20.7	38.6	6.1	7.6
Malakal (Upper Nile)	9.7	17.9	37.1	6.7	9.0
Sennar el Medina (White Nile)	8.1	17.6	32.6	8.5	7.5
*El Nahud (Northern Kordofan)	16.5	19.8	27.6	1.9	4.0
*Duiem (White Nile)	12.3	15.9	26.8	2.7	6.3
Halfa el Gadida (Kassala)	8.7	12.1	24.3	3.5	8.5
El Gezira Aba (White Nile)	11.4	16.7	22.3	4.1	3.5
El Deain (Southern Darfur)	6.3	8.9	20.7	3.7	10.4
Total 22 Urban Centers	660.4	1074.4	1894.1	5.3%	6.9%

*The 13 cities given priority in the Six Year Plan

Source: ILO report, p. 364.

PROJECTION OF POPULATION IN SELECTED CITIES
(000's)

	<u>1973</u>	<u>1978</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>
Khartoum (3 City Area)	800 (+7.3%/yr)	1,050 (1) (+5.6%/yr)	1,740 (+7.5%/yr)	2,500(1) (+7.5%/yr)	5,150 (+7.5%/yr)
Port Sudan	135 (+6.5%/yr)	250 (2) (+13.1%/yr)	388 (+6.5%/yr)	530 (+6.5%/yr)	1,000 (+6.5%/yr)
El Obeid	92 (4.7%/yr)	107 (3) (+3.5%/yr)	136 (+3.5%/yr)	165 (+4.0%/yr)	245 (+4.0%/yr)
Juba	57 (+13%/yr)	90 (4) (+9.6%/yr)	150 (+7.5%/yr)	215 (+7.5%/yr)	440 (+7.5%/yr)

Sources: (1) MEFIT Report
 (2) Department of Town Planning in Port Sudan
 (3) Louis Berger team
 (4) Low Cost Housing Study in Juba by British team

Note: Future figures are tentative projections for planning purposes.

AVERAGE HOUSEHOLD SIZE
(1973 Census)

Khartoum	5.7
Omdurman	6.2
Khartoum North	<u>5.8</u>
Greater Khartoum Urban Area	5.9
Port Sudan (see Note 4)	4.5
El Obeid	5.6
Juba (see Note 5)	5.4
Total Sudan Urban Area	5.4

Note 1: Excludes population living in institutional housing.

Note 2: Household is defined in 1973 Census (and in ILO survey of 1974) as persons sharing a dwelling unit and having common arrangements for meals and expenses regardless of whether they are related or not. Servants and boarders are included, but a lodger who does not share meals is excluded.

Note 3: Average persons per household was reported higher in the 1967/68 National Household Sample Survey:

Urban	6.5
Semi-Urban	6.2
Rural	<u>5.8</u>
All Areas	5.9

Note 4: The Department of Town Planning in Port Sudan uses 5.0 persons per household for planning purposes.

Note 5: Three surveys in Juba indicate persons per household of 8.9, 8.7 and 9.5 for that city. See Appendix A-24.

POPULATION BY MARITAL STATUS
(1973 Census)

	Khartoum			Omdurman			Khartoum North		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Never Married	123,493	82,305	205,798	110,579	79,730	190,309	56,826	37,055	93,881
Married	62,739	52,170	114,909	48,672	45,736	94,408	27,683	23,213	50,896
Widowed	1,275	7,026	8,301	1,320	8,648	9,968	551	3,347	3,898
Divorced	1,680	3,209	4,889	1,332	3,325	4,657	648	1,442	2,090
Not Stated	9		9	55	2	57	222	2	224
Total	189,196	144,910	333,906	161,958	137,441	299,399	85,930	65,059	150,989

	Port Sudan			El Obeid			Juba		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Never Married	46,365	30,575	76,940	30,940	24,515	55,409	19,662	13,640	33,302
Married	26,156	21,349	47,505	13,729	15,045	28,774	10,539	9,841	20,380
Widowed	942	3,955	4,897	400	2,902	3,302	390	1,825	2,215
Divorced	939	2,280	3,219	786	1,637	2,423	251	566	817
Not Stated	69	2	71	131	34	165	22	1	23
Total	74,471	58,161	132,632	45,940	44,133	90,073	30,864	25,873	56,737

	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum North</u>	<u>Port Sudan</u>	<u>El Obeid</u>	<u>Juba</u>
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Selected Indices

Percent Persons Married	34.0%	32.0%	34.0%	36.0%	32.0%	36.0%
Percent Females Divorced or Widowed	7.0%	9.0%	7.0%	11.0%	10.0%	9.0%
Ratio Males to Females	1.3	1.2	1.3	1.3	1.0	1.2
Percent Population Divorced	1.5%	1.6%	1.4%	2.4%	2.7%	1.4%
Percent Population Never Married	62.0%	64.0%	63.0%	58.0%	62.0%	59.0%

Note: These "selected indices" could be distorted by differing age profiles in the various cities, but are presented for tentative review.

POPULATION BY NATIONALITY
(1973 Census)

	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum North</u>	<u>Greater Khartoum</u>	<u>Port Sudan</u>	<u>El Obeid</u>	<u>Juba</u>
Egypt	2,936	3,482	558	6,976	315	146	6
Chad	1,656	2,149	717	4,522	211	58	1
Zaire	128	10	4	142	3	1	1,019
Ethiopia	1,500	486	454	2,440	302	28	2
Nigeria	4,404	1,092	131	5,627	1,566	860	5
Other Africa	481	552	25	1,062	47	12	41
Total Africa	<u>11,105</u>	<u>7,771</u>	<u>1,893</u>	<u>20,769</u>	<u>2,444</u>	<u>1,105</u>	<u>1,074</u>
Yemen	283	518	439	1,240	305	6	-
India	142	483	3	628	456	-	6
Other Middle East/Asia	619	64	31	714	130	6	17
Total Middle East/Asia	<u>1,044</u>	<u>1,065</u>	<u>473</u>	<u>2,582</u>	<u>891</u>	<u>12</u>	<u>23</u>
Greece	392	10	13	415	21	17	35
Other Europe	857	60	76	993	75	30	15
Total Europe	<u>1,249</u>	<u>70</u>	<u>89</u>	<u>1,408</u>	<u>96</u>	<u>47</u>	<u>50</u>
Other	87	1	3	91	1	2	18
TOTAL FOREIGN	<u>13,485</u>	<u>8,907</u>	<u>2,458</u>	<u>24,850</u>	<u>3,432</u>	<u>1,166</u>	<u>1,165</u>
TOTAL SUDANESE	<u>320,418</u>	<u>290,490</u>	<u>148,313</u>	<u>759,219</u>	<u>129,444</u>	<u>88,886</u>	<u>55,572</u>
NOT STATED	<u>3</u>	<u>2</u>	<u>220</u>	<u>225</u>	<u>1</u>	<u>21</u>	<u>--</u>
TOTAL	<u>333,906</u>	<u>299,399</u>	<u>150,989</u>	<u>784,294</u>	<u>132,877</u>	<u>90,073</u>	<u>56,737</u>

Note: All countries which were represented by .1% of the population of any of the six cities below are detailed in this table.

ETHNIC GROUPS OF THE SUDAN

Arabic Groups

- Kababish: camel herding nomads
- Baggara: cattle herding nomads
- Jaalin: settled agriculturalists
- Shaiqiyya: settled agriculturalists
- Beja: Red Sea hill tribes

Arabic-African Groups

- Nubians: sedentary farmers of the Nile Valley (north)
- Nuba: hill tribes of the Nuba Mountains (Kordofan)
- Fur: transhumant agriculturalists of the west (Darfur)

African Groups

- Dinka: transhumant tribe of the Sudd and eastern Bahr el Ghazal
- Nuer: cattle herding tribe of the Sudd
- Shilluk: sedentary farmers of the Nile Valley (south)
- Anuak: transhumant tribe of the southeast (extend into Ethiopia)
- Azande, Ndogo, Sere: transhumant tribes of western plateau (extend into Zaire and Central African Empire)
- Bor, Jo Luo: Luo-speaking tribes of the western Bahr Ghazal
- Acholi, Lango: Luo-speaking tribes of the southern mountains (extend into Uganda)

LABOR FORCE PARTICIPATION RATESLabor Force Participation By Age

<u>1964/66 Population and Housing Survey</u>				<u>1964/65 Census of Agriculture</u>			
<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Both</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Both</u>
				Less than 6	4.7%	4.9%	4.8%
8-12	7.7%	1.0%	4.5%	6-11	34.2	28.6	31.6
13-14	43.1	3.2	24.2	12-14	59.3	45.3	53.2
15+	<u>80.2</u>	<u>9.2</u>	<u>51.0</u>	15+	<u>92.7</u>	<u>62.5</u>	<u>77.1</u>
Total	52.5%	5.3%	30.1%	Total	60.3%	43.9%	52.1%

Labor Force Participation Rates As Estimated For 1973 By ILO

	<u>Age Group</u>	<u>Narrow Concept</u>		<u>Broad Concept</u>	
		<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
<u>Urban</u>	Under 15	8-12%	2- 5%	10-15%	5-10%
	15 and over	88-90%	8-10%	88-90%	10-12%
<u>Rural</u>	Under 15	23-25%	2- 5%	25-27%	15-20%
	15 and over	92-95%	10-12%	92-95%	60-64%

Narrow Concept: Includes in labor force only those persons listing as main occupation an "economically productive activity."

Broad Concept: Includes in labor force those persons listing as either main or subsidiary occupation an "economically productive activity."

Source: ILO report, p.311.

INCOME EARNERS PER HOUSEHOLD

	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum North</u>	<u>3 Cities Combined</u>	<u>Port Sudan</u>	<u>El Obeid</u>
<u>Total</u>						
1	60.9%	54.4%	59.0%	57.8%	69.0%	63.0%
2	20.7	24.5	20.0	22.2	17.2	22.0
3+	<u>18.4</u>	<u>21.1</u>	<u>21.0</u>	<u>20.0</u>	<u>13.8</u>	<u>15.0</u>
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average	1.7	1.8	1.8	1.8	1.6	1.6
<u>Class I Areas</u>						
1	69.5%		85.0%		79.7%	
2	18.2		5.0		13.0	
3+	<u>12.3</u>		<u>10.0</u>		<u>7.3</u>	
	100.0%		100.0%		100.0%	
Average	1.5		1.3		1.3	
<u>Class II Areas</u>						
1	60.0%		58.0%		58.6%	
2	21.6		26.8		22.9	
3+	<u>18.4</u>		<u>15.2</u>		<u>18.5</u>	
	100.0%		100.0%		100.0%	
Average	1.7		1.6		1.8	
<u>Class III Areas</u>						
1	60.6%		55.2%		62.2%	
2	21.3		23.8		17.0	
3+	<u>18.1</u>		<u>21.0</u>		<u>20.8</u>	
	100.0%		100.0%		100.0%	
Average	1.7		1.9		1.8	

Source: 1964/65 Population and Housing Survey

ESTIMATED SIZE AND COMPOSITION OF THE LABOR FORCE - 1973
(Thousands)

	<u>Narrow Concept</u>			<u>Broad Concept</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
<u>Low Estimate</u>						
Urban: Age to 15	51.5	10.9	62.4	64.3	27.3	91.6
Over 15	615.8	48.0	663.8	615.8	60.0	675.8
Total:	667.3	58.9	726.2	680.1	87.3	767.4
Rural: Age to 15	672.8	58.7	731.5	731.3	440.1	1171.4
Over 15	2927.1	323.0	3250.1	2927.1	1937.7	4864.8
Total:	3599.9	381.7	3981.6	3658.4	2377.8	6036.2
TOTAL:	4267.2	440.6	4707.8	4338.5	2465.1	6803.6
<u>High Estimate</u>						
Urban: Age to 15	77.2	27.3	104.5	96.5	54.5	151.0
Over 15	629.8	60.0	689.8	629.8	72.0	701.8
Total	707.0	87.3	794.3	726.3	126.5	852.8
Rural: Age to 15	731.3	146.7	878.0	789.8	586.7	1376.5
Over 15	3022.6	387.5	3410.1	3022.6	2066.9	5089.5
Total	3753.9	534.2	4288.1	3812.4	2653.6	6466.0
TOTAL:	4460.9	621.5	5082.4	4538.7	2780.1	7318.8

Source: See "Labor Force Participation Rates as Estimated for 1973 by ILO, or ILO report, p. 312.

Summary of ILO Data shown above

	<u>Percent Urban</u>		<u>Percent Male in Urban Areas</u>		<u>Percent Male Overall</u>	
	<u>Narrow</u>	<u>Broad</u>	<u>Narrow</u>	<u>Broad</u>	<u>Narrow</u>	<u>Broad</u>
Low	15.4%	11.2%	92%	89%	91%	64%
High	15.6%	11.7%	89%	35%	88%	62%

POPULATION AND EMPLOYMENT IN 1973 AS REPORTED BY THE CENSUS
(All Numbers in Thousands)

<u>Population</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Distribution</u>
Settled Rural	4,567	4,637	9,204	65%
Nomadic Rural	834	796	1,630	12%
Cottonpickers	<u>354</u>	<u>320</u>	<u>674</u>	<u>5%</u>
Total Rural	5,755	5,753	11,508	82%
Urban	<u>1,383</u>	<u>1,223</u>	<u>2,606</u>	<u>18%</u>
Total Sudan	7,138	6,976	14,114	100%
<u>Employment</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>	
Rural	2,070	622	2,692	
Urban	<u>690</u>	<u>71</u>	<u>761</u>	
Total	2,760	693	3,453	
<u>Labor Force Participation</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>	
Rural	36%	11%	23%	
Urban	<u>50%</u>	<u>6%</u>	<u>29%</u>	
Total	39%	10%	24%	

Note: The 1973 Census has not been officially accepted by the Council of Ministers due to concerns about its accuracy. Generally, it is thought to understate population. Furthermore, the ILO report indicates that the role of women in the economic activity of the Sudan is greatly understated by the 1973 Census. These figures and comments are presented as context to other data included in these pages.

COMPOSITION OF THE LABOR FORCE
(From 1973 Census; All Numbers in Thousands)

<u>By Economic Activity</u>	<u>Urban</u>		<u>Total Sudan</u>	
Agriculture	140	18%	2,253	65%
Mining and quarrying	1	-	3	-
Manufacturing	90	12	135	4
Electricity, gas and water	19	2	35	1
Construction	38	5	69	2
Wholesale, retail trade, restaurants and hotels	107	14	186	5
Transport, storage and communications	80	11	129	4
Financing, insurance real estate and business services	4	1	4	-
Community, social and personal services	229	30	380	11
Not adequately classified	53	7	259	8
Total	<u>761</u>	<u>100%</u>	<u>3,453</u>	<u>100%</u>
 <u>By Skill Type</u>				
Professional, technical and related workers	52	7%	92	3%
Administrative and managerial workers	5	1	12	-
Clerical and related workers	35	5	46	1
Sales workers	77	10	144	4
Service workers	148	19	241	7
Agricultural workers	127	16	2,210	64
Production and related workers	211	28	366	11
Workers not classified by occupation	106	14	342	10
Total	<u>761</u>	<u>100%</u>	<u>3,453</u>	<u>100%</u>
 <u>By Employment Status</u>				
Employer	17	2%	98	3%
Self Employed	243	32	1,914	55
Employee	451	60	907	26
Unpaid Family Worker	9	1	325	10
Unpaid Other	1	-	2	-
Unemployed	40	5	207	6
Total	<u>761</u>	<u>100%</u>	<u>3,453</u>	<u>100%</u>
 <u>By Marital Status</u>				
Married	254	33%	835	24%
Unmarried	459	60	2,335	68
Widowed	21	3	162	5
Divorced	26	4	120	3
Unknown	1	-	1	-
Total	<u>761</u>	<u>100%</u>	<u>3,453</u>	<u>100%</u>
 <u>By Education</u>				
Uneducated	343	45%	2,413	70%
Koranic School	79	10	379	11
Primary School	211	28	479	14
General Secondary	63	8	91	3
High Secondary	42	6	64	2
University	14	2	16	-
Post Graduate	6	1	7	-
Other	2	-	3	-
Unknown	1	-	1	-
Total	<u>761</u>	<u>100%</u>	<u>3,453</u>	<u>100%</u>

EMPLOYMENT BY SEX AND URBAN/RURAL SECTOR
(From 1973 Census; All Numbers in Thousands)

<u>By</u> <u>Economic Activity</u>	<u>Urban</u>			<u>Rural</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Agriculture	121	19	140	1,522	591	2,113
Mining and quarrying	1	-	1	2	-	2
Manufacturing	76	14	90	37	8	45
Electricity, gas and water	19	-	19	16	-	16
Construction	38	-	38	31	-	31
Wholesale, retail trade, restaurants and hotels	97	10	107	75	4	79
Transport, storage and communications	78	2	80	49	-	49
Financing, insurance real estate and business services	4	-	4	-	-	-
Community, social and personal services	205	24	229	137	14	151
Not adequately Classified	51	2	53	201	5	206
TOTAL	690	71	761	2,070	622	2,692
 <u>By Skill Type</u>						
Professional, tech- nical and related workers	40	12	52	34	6	40
Administrative and managerial workers	5	-	5	7	-	7
Clerical and related workers	31	4	35	11	-	11
Sales workers	69	8	77	64	3	67
Service workers	134	14	148	86	7	93
Agricultural workers	108	19	127	1,493	590	2,083
Production and related workers	201	10	211	145	10	155
Workers not classified by occupation	102	4	106	230	6	236
TOTAL	690	71	761	2,070	622	2,692

EMPLOYMENT BY SEX AND URBAN/RURAL SECTOR
(From 1973 Census, All Numbers in Thousands)

<u>By Employment Status</u>	<u>Urban</u>			<u>Rural</u>		
	<u>Males</u>	<u>Females</u>	<u>Totals</u>	<u>Males</u>	<u>Females</u>	<u>Totals</u>
Employer	16	1	17	72	9	81
Self Employed	207	36	243	1,306	365	1,671
Employee	421	30	451	418	38	456
Unpaid Family Worker	6	3	9	110	206	316
Unpaid Other	1	-	1	1	-	1
Unemployed	39	1	40	163	4	167
<u>Total</u>	<u>690</u>	<u>71</u>	<u>761</u>	<u>2,070</u>	<u>622</u>	<u>2,692</u>
<u>By Marital Status</u>						
Married	237	17	254	520	61	581
Unmarried	430	29	459	1,471	405	1,876
Widowed	8	13	21	35	106	141
Divorced	14	12	26	44	50	94
Unknown	1	-	1	-	-	-
<u>Total</u>	<u>690</u>	<u>71</u>	<u>761</u>	<u>2,070</u>	<u>622</u>	<u>2,692</u>
<u>By Education</u>						
Uneducated	294	49	343	1,466	604	2,070
Koranic School	77	2	79	293	7	300
Primary School	204	7	211	261	7	268
General Secondary	58	5	63	27	1	28
High Secondary	36	6	42	19	3	22
University	13	1	14	2	-	2
Post Graduate	5	1	6	1	-	1
Other	2	-	2	1	-	1
Unknown	1	-	1	-	-	-
<u>Total</u>	<u>690</u>	<u>71</u>	<u>761</u>	<u>2,070</u>	<u>622</u>	<u>2,692</u>

UNEMPLOYMENT - VARIOUS SURVEYSUnemployment Rates by Sector, 1967/68

<u>Sector</u>	<u>Male</u>		<u>Female</u>		<u>Both</u>	
	<u>Employed</u>	<u>Never</u>	<u>Employed</u>	<u>Never</u>	<u>Employed</u>	<u>Never</u>
	<u>Earlier</u>	<u>Employed</u>	<u>Earlier</u>	<u>Employed</u>	<u>Earlier</u>	<u>Employed</u>
Rural	0.3%	1.2%	0.4%	1.0%	0.3%	1.2%
Semi-urban	1.5	5.0	2.6	12.0	1.6	5.9
Urban	2.1	4.9	1.3	28.7	2.0	7.5
All	0.6	2.0	0.6	3.7	0.6	2.3

Source: Department of Statistics: Household sample survey in the Sudan, 1967/68 (Khartoum, 1970).

Rates of Unemployment in Khartoum

<u>Survey</u>	<u>Period</u>	<u>Percent .ge</u> <u>Unemployed</u>
Population and housing survey	1964/66	5.0%
Migration survey	1971	5.6
Population census	Apr. 1973	5.0
MEFIT survey	Feb. 1974	6.5
ILO/CESM survey	Nov. 1974	5.3

Sources: Population and housing survey, op.cit: Mohamed El-Awad Galal El-Din; Internal migration in the Sudan since World War II, with special reference to migration to Greater Khartoum (Ph.D. thesis, London, 1973), p. 167, table 79; provisional results of 1973 population census; MEFIT, S.P.A. Consulting Engineers: Regional plan of Khartoum and master plan for the three towns (Rome, 1974); and ILO Technical Paper 9.

ILO report, p. 313

AVERAGE WEEKLY EARNINGS IN 1973 BY TYPE OF INDUSTRY OR COMMERCE (LS)
(Establishments With Five Or More Employees)

Economic Activity	Number of Establishments	Wage Earners			Salaried Employees			Total					
		Number of Employees	Average Earnings (LS)		Number of Employees	Average Earnings (LS)		Number of Employees	Average Earnings (LS)				
			Normal	Over-time		Normal	Over-time		Normal	Over-time			
Manufacture of food and tobacco	384	14,253	3.66	0.33	3.99	1,321	13.92	0.17	14.09	15,574	4.53	0.32	4.85
Textile wear, apparel and leather industries	75	14,349	4.02	0.33	4.35	1,370	11.61	0.28	11.89	15,719	4.68	0.32	5.00
Manufacture of wood and wood products	42	436	4.53	0.09	4.62	22	17.82	-	17.82	458	5.17	0.09	5.26
Manufacture of paper and paper products	38	1,849	4.53	0.37	4.90	332	11.12	0.41	11.53	2,181	5.53	0.38	5.91
Chemical and chemical products	50	3,801	5.15	1.33	6.48	531	20.50	0.06	20.56	4,332	7.04	0.12	7.16
Manufacture of non-metallic mineral products except products of petroleum and coal	36	2,157	4.28	0.43	4.71	224	21.30	-	21.30	2,381	5.88	0.39	6.27
Manufacture of fabricated metal products, machinery and equipment	138	4,043	4.28	0.14	4.42	282	17.32	0.19	17.51	4,325	5.13	0.15	5.28
Other manufacturing industries	11	196	3.07	-	3.07	15	13.80	-	13.80	211	3.83	-	3.83
Total manufacturing	774	41,084	4.06	0.41	4.47	4,097	14.43	0.20	14.63	45,181	5.00	0.29	5.29
Electricity, gas and steam	1	632	5.35	1.85	7.20	96	7.13	-	7.13	728	5.58	1.60	7.18
Construction	14	1,500	4.60	-	4.60	94	13.29	-	13.29	1,594	5.11	-	5.11
Wholesale trade	85	5,598	5.01	0.39	5.40	1,563	17.85	0.36	18.21	5,161	8.89	0.39	9.28
Retail trade	220	1,829	5.29	0.10	5.39	1,001	17.50	0.05	17.55	2,830	9.61	0.08	9.69
Restaurants and hotels	345	3,472	4.42	0.04	4.46	165	8.21	0.03	8.24	3,637	4.59	0.04	4.63
Total wholesale and retail trades, restaurants and hotels	650	8,899	4.84	0.20	5.04	2,729	17.13	0.23	17.36	11,628	7.72	0.20	7.92
Transport and storage	44	2,895	5.69	0.19	5.88	1,582	17.16	0.32	17.48	4,477	9.74	0.23	9.97
Financial institutions	42	613	5.72	0.20	5.92	1,294	19.79	0.14	19.93	1,907	15.27	0.16	15.43
Insurance	7	71	4.07	0.03	4.10	191	16.91	-	16.91	262	13.43	0.01	13.44
Real estate and business services	14	132	3.54	-	3.54	66	16.24	-	16.24	198	7.77	-	7.77
	1,546	55,876			4.68	10,149			16.45	65,975			6.49

Notes: Salaried employees, although paid per month, are here calculated as receiving equivalent weekly earnings. All earnings include cost of living allowances.
Source: Department of Labour, Survey of employment, earnings and hours of work, Mar. 1973, Statistical abstract, 1973 (Khartoum, Government of Sudan, 1973) table XII.2.

WEEKLY EARNINGS - COMPARISON OF THREE SURVEYS

	<u>Private Corporations</u>			<u>Public Corporations</u>		
	<u>Salaried</u>	<u>Wage Earners</u>	<u>Total</u>	<u>Salaried</u>	<u>Wage Earners</u>	<u>Total</u>
<u>1973</u>						
No. of Establishments			734			137
No. of Employees	5,688	43,928	49,596	5,399	14,229	19,628
Hours per Week	45.6	49.1	48.8	44.7	50.7	49.0
Weekly Earnings (LS)	14.83	4.32	5.52	16.78	5.40	8.48
<u>1975</u>						
No. of Establishments			700			
No. of Employees	5,933	45,256	51,189			
Hours per Week	41.5	46.8	46.2			
Weekly Earnings (LS)	13.74	4.89	5.91			
Annual Increase 1975 vs. 1973*		+6.4%				
<u>1977</u>						
No. of Establishments			283			
No. of Employees	4,270	31,083	35,353			
Hours per Week	46.9	49.7	49.4			
Weekly Earnings (LS)	32.85	7.35	10.43			
Annual Increase 1977 vs. 1975*		+22.6%				

*Note: Comparisons between these surveys should be made with caution as sampling penetration varied in each year's effort. A 1978 survey is being carried out at a level of penetration comparable to 1973.

Source: Labor Market Information Unit, Department of Labor

SOURCES OF INCOME AND INCOME DISTRIBUTION IN 1967-68Annual Household Income (1967-68)

	Urban		Semi-Urban		Rural		All Areas	
	LS	Percent	LS	Percent	LS	Percent	LS	Percent
Wages and Salaries	254.86	62.1%	123.24	45.7%	34.47	23.3%	67.71	35.8%
Business Profits	111.79	27.2	88.53	32.8	16.43	11.1	33.53	17.8
Agriculture	4.73	1.2	12.92	4.8	49.20	33.2	41.01	21.7
Animals	6.36	1.5	13.89	5.2	29.64	20.0	25.62	13.6
Other	<u>32.96</u>	<u>8.0</u>	<u>30.98</u>	<u>11.5</u>	<u>18.30</u>	<u>12.4</u>	<u>21.06</u>	<u>11.2</u>
Total	410.70	100.0%	269.36	100.0%	148.04	100.0%	188.93	100.0%

Income Distribution (1967-68)

<u>(LS)</u>	<u>Urban</u>	<u>Semi-Urban</u>	<u>Rural</u>	<u>All Areas</u>
1200+ (Annual)	3.8%	1.0%	.1	.6
900-1200	3.6	2.2	.2	.7
600-900	9.5	4.1	.7	2.0
500-600	6.2	3.3	.4	1.2
400-500	9.6	5.8	1.4	2.7
300-400	14.5	11.8	4.3	5.8
200-300	24.8	22.3	11.1	13.4
100-200	24.1	34.0	47.6	42.9
to 100	<u>3.9</u>	<u>15.5</u>	<u>34.2</u>	<u>30.7</u>
Total	100.0%	100.0%	100.0%	100.0%

Source: 1967/68 National Household Sample Survey

HOUSEHOLD INCOME BY CITY IN 1967-68

	<u>Average Household Income per Year</u>	
Khartoum North	490.16	105%
Khartoum	462.94	99%
Omdurman	<u>454.45</u>	<u>97%</u>
Greater Khartoum Urban Area	469.00	100%
Atbara	433.55	92%
Port Sudan	398.50	85%
Wad Medani	382.89	82%
Gedaref	353.77	75%
Kosti	337.69	72%
El Obeid	335.10	71%
Kassala	314.66	67%
El Fasher	299.78	64%
Average Urban	<u>410.70</u>	<u>88%</u>

Source: 1967/68 National Household Sample Survey

SOURCES OF INCOME AND INCOME DISTRIBUTION IN KHARTOUM IN 1974
(From 1974 ILO Survey of 2614 households in the 3 cities)

Annual Household Income (1974)

	All House- holds	1000 +	600-999	400-599	300-399	200-299	100-199	Less Than 100
Number of Households	130,700	37,000	31,250	23,350	17,900	12,060	6,950	2,250
Average Annual Income	907	1,960	772	494	347	248	155	45
Wages and Salaries	60.1	58.2	61.3	65.9	68.1	63.2	46.2	3.5
Self Employment	20.8	22.7	18.5	16.1	16.9	19.2	29.2	10.2
Additional Jobs and Commissions	.9	.9	.6	.9	.9	1.8	1.2	12.5
Lodgers and Boarders	1.7	2.0	1.5	1.0	.9	.9	2.3	3.5
Cash from Persons Outside the Dwelling	.8	.5	.9	1.0	.9	3.7	7.0	40.9
Agriculture and Commodities	.3	.4	.2	.1	.2	.6	.5	1.0
Pensions and Charity	.6	.8	.3	1.0	.3	.4	1.7	2.9
Other	1.1	1.4	.3	1.1	1.0	.9	1.1	14.9
Income from Capital	.8	1.2	.1	-	.2	-	-	-
Cash Income (%)	87.1%	88.1%	83.7%	87.1%	89.5%	90.7%	89.2%	89.4%
Cash Income (LS)	877	1727	646	430	311	227	138	40
Imputed Income								
Goods and Services from Employer	1.9	1.8	2.1	2.4	2.9	1.4	.6	-
Self Consumed Agric. Products	.1	.1	-	-	.1	-	.2	-
Imputed Rent on Owner Occ. Dwelling	10.7	10.1	14.1	10.4	7.4	7.9	10.0	10.6
Total Imputed Income	12.7%	12.0%	16.2%	12.8%	10.4%	9.3%	10.8%	10.6%
Total (with rounding error)	99.8%	100.1%	99.9%	99.9%	99.9%	100.0%	100.0%	100.0%

Note: Median annual household income in this survey was LS 630.

INCOME DISTRIBUTION IN JUBA IN 1977

(Survey by British Team for Low Cost Housing Study)

Income Range-Household Head Only

<u>Monthly</u>	<u>Annual</u>	<u>Number of Households</u>	<u>Cumulative Distribution</u>
500+	6000+	5	1.7%
201-500	2400-6000	20	8.7
151-200	1800-2400	16	14.3
101-150	1200-1800	29	24.4
71-100	840-1200	45	40.1
51- 70	600- 840	37	53.0
41- 50	480- 600	21	60.3
31- 40	360- 480	42	74.9
21- 30	240- 360	42	89.5
11- 20	120- 240	25	98.3
6- 10	72- 120	4	99.7
0- 5	0- 72	<u>1</u>	100.0
		287	

Mean LS 98.8 monthly, 1186 annually \div 75% * = 1580
 Median LS 54.6 monthly, 655 annually \div 75% * = 870

Note 1: Household heads in Class I, II, III housing averaged LS 166 per month.
 Household heads in Class IV and uncontrolled housing averaged LS 67 per month.

* Note 2: Income to household head is estimated at 75% cf total household income based on a survey in Juba in 1970.

MEDIAN ANNUAL HOUSEHOLD INCOME
SURVEY RESULTS AND ESTIMATES

	Survey Results					Estimated 1978*
	1964/65	1967/68	1974	1975	1977	
Total Country						
Urban Areas		145				
Semi-Urban Areas		290 (74%)				860 (74%)
Rural Areas		202				
		133				
Khartoum	300	315				
Omdurman	329	400				
<u>Khartoum North</u>	<u>316</u>	<u>380</u>				
Khartoum (3 cities)	314	390 (100%)	630 (100%)			1,160 (100%)
Port Sudan	204	290 (74%)				
El Obeid	209	275 (70%)				860 (74%)
Juba**					870	810 (70%)
						1,100 (95%)
Port Sudan Squatter Areas			162			

Sources: 1964/65 Population and Housing Survey
 1967/68 National Household Sample Survey
 1974 ILO Survey
 1975 Survey of 5 Squatter Areas in Port Sudan by Department of
 Town Planning
 1977 Survey in Juba by British Team for Low Cost Housing Study

*Assumes full implementation of New Unified Wage Scheme for public employees and that because of "ripple effect" in private sector that impact will be roughly the same at all income levels and in each city.

**Relatively high income for Juba is confirmed by two other surveys and is at least partially explained by large household size and a relatively high proportion of employment in government. A survey in 1970 reported average household income of LS 850 per year and MEFIT reported about LS 1,350 in 1976. Average household size was reported at 8.9 and 8.7 in these two surveys and 9.5 in the survey by the British team in 1977. This contrasts with 5.4 reported in the 1973 Census for Juba.

SUMMARY OF 1975 SURVEY OF SQUATTER AREAS IN PORT SUDAN
(Based on 5 Percent Sample)

Key Data from Each of 5 Areas

<u>Squatter Area</u>	<u>Number of Families in 1975</u>	<u>Average No. Yrs in Residence</u>	<u>Average Monthly Income (LS)</u>	<u>Percent Married</u>	<u>Average Family Size</u>	<u>Percent with Animals</u>
Aulai	753	6.9	12.8	81%	4.3	17%
El Mirghaniya	1,280	10.6	13.3	65%	3.4	0%
Dar el naeem	2,400	6.3	14.2	78%	4.4	3%
Dar es salaam	3,719	7.0	14.2	NA	4.2	NA
Dim and Anqoab	<u>1,160</u>	<u>17.6</u>	<u>14.1</u>	<u>74%</u>	<u>3.4</u>	<u>57%</u>
Total 5 Areas	9,312	8.6	14.0	75%	4.1	15%

Income Distribution (Total 5 Areas)

<u>Income Range (LS)</u>			
<u>Monthly</u>	<u>Annual</u>	<u>Percent</u>	<u>Cum. Percent</u>
36-40	432-480	.3%	.3%
31-35	372-420	.6	.9
26-30	312-360	2.3	3.2
21-25	252-300	5.7	8.9
16-20	192-240	16.0	24.9
11-15	132-180	47.0	71.9
6-10	72-120	24.4	96.3
to 5	to 60	<u>3.7</u>	100.0
		100.0%	

Source: This data was compiled by the Louis Berger SSA team from every 20th respondent in a 100% survey done by the Port Sudan Department of Town Planning.

Note: Monthly income is that which is earned by the primary wage-earner. Additional income is negligible.

INCOME DISTRIBUTION AND INCOME TAX POLICY

Income Distribution as Derived from Income Tax Data

<u>Percentage of Population</u>		<u>Percentage of Income</u>
Top	0.07	0.53
Top	0.19	1.85
Top	1.46	8.46
Top	7.82	28.29
Top	20.53	48.78
Top	42.78	70.26
Bottom	57.22	29.74

Summary Estimate of Income Taxes Collected in 1971/72

<u>Income Group (£S)</u>	<u>Median Income (£S)</u>	<u>Tax Payable On Median Income (£S)</u>	<u>Tax Rate Payable (%)</u>	<u>Estimated Number of Persons Paying Tax ('000)</u>	<u>Approximate Tax Collection (£S '000)</u>
200 - 300	250	0.8	0.32	180.0	120
300 - 600	450	8.5	1.89	70.0	60
600 - 1,000	800	36.3	4.54	40.0	1,300
1,000 - 2,000	1,500	131.3	8.75	20.0	2,600
2,000 - 3,000	2,500	331.3	13.25	4.0	1,400
3,000 - 5,000	4,000	806.3	20.15	0.5	400
5,000 - 7,000	6,000	1,645.3	27.42	} 0.1 }	} 150
7,000 - 9,000	8,000	3,406.3	42.58		
9,000-11,000	10,000	5,006.3	50.06		

According to these figures, a total of 314,600 individuals, or a little more than 2 percent of the country's population, were drawn into the orbit of the personal income tax in 1971/72; their assessable income amounted to £151 million, or very nearly 20 percent of the gross domestic product.

Source: ILO Report, page 510-511.

INFLATION: COST OF LIVING TRENDS
(From The Economic Survey)

Cost of Living Index, Three Towns of Khartoum Region

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
High Income (500-1000)	100.0	101.2	109.5	126.7	157.3	190.4	194.2	228.1
Housing Component	100.0			134.6	172.8	198.6	230.3	
Low Income (300-500)	100.0	101.4	113.3	132.7	167.4	207.5	211.0	246.4
Housing Component	100.0			156.6	202.9	253.8	289.4	
General Price Index	100.0	101.3	111.4	129.7	162.4	199.0	202.6	

Annual Percent Increase

High Income	-	1.2	8.2	15.7	24.2	21.0	2.0	17.5
Housing Component	-	-	-	-	28.3	14.9	16.0	
Low Income	-	1.4	11.7	17.1	26.1	23.9	1.7	16.8
Housing Component	-	-	-	-	29.6	25.1	14.0	
General Price Index	-	1.3	10.0	16.4	25.2	22.5	1.8	

Note 1: Housing price index is based on rent and cost of electricity and is 12.4% of the overall index for low income groups and 11.3% for high income groups.

Note 2: Cost of living increases in 1978 through May are running 13% for high income families and 12% for low income families.

HOUSING CHARACTERISTICS IN SELECTED CITIES
(1973 Census, Number of Dwelling Units)

<u>Number of Rooms</u>	<u>Sudan Urban</u>	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum North</u>	<u>Port Sudan</u>	<u>El Obeid</u>	<u>Juba</u>
1	202,400	23,852	17,987	10,521	16,165	5,974	6,451
2	140,118	16,807	12,004	7,601	8,611	4,149	1,957
3	74,391	10,525	9,708	4,335	3,143	2,586	908
4	32,792	4,329	4,391	2,043	870	1,478	315
5	12,302	1,623	1,677	795	233	766	127
6+	9,487	1,378	1,664	486	121	823	78
Not Stated	-	-	-	-	-	7	-
Total	471,490	58,514	48,431	25,781	29,143	15,783	9,836
<u>House Tenure *</u>							
Owner	273,055	23,323	26,836	14,205	14,788	7,696	4,337
Renter	166,437	30,856	18,905	9,872	12,864	6,825	4,764
Other	31,998	4,335	2,690	1,704	1,491	1,031	733
Not Stated	-	-	-	-	-	231	2
Total	471,490	58,514	48,431	25,781	29,143	15,783	9,836
<u>Percent Households Living in One Room</u>							
1-2 Persons	69%	71%	72%	71%	77%	68%	88%
3-4 Persons	53	55	47	57	62	48	78
5-6 Persons	40	38	38	40	47	35	67
7+ Persons	20	17	16	17	27	15	38
Total	43%	41%	36%	41%	55%	38%	66%

*Note: Tenure does not correlate with income. Squatters who build their own houses are classed as owners while many families living in Class I-II houses are renters.

BUILDING MATERIALS USED IN SELECTED CITIES
(1973 Census, Number of Dwelling Units)

	<u>Sudan</u> <u>Urban</u>	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum</u> <u>North</u>	<u>Port</u> <u>Sudan</u>	<u>El</u> <u>Obeid</u>	<u>Juba</u>
<u>Wall Material</u>							
Grass	87,217	348	217	82	285	2,290	112
Brick*	87,542	21,084	5,993	9,437	557	677	722
Mud	223,246	34,216	40,114	11,653	127	9,419	8,426
Stones*	10,059	102	148	83	2,974	60	476
Wood	20,726	101	10	28	19,665	17	3
Muddy Brick	13,871	404	340	412	10	844	-
Other	28,691	2,255	1,306	4,084	5,524	2,251	96
Not Stated	<u>138</u>	<u>4</u>	<u>103</u>	<u>2</u>	<u>1</u>	<u>218</u>	<u>101</u>
Total	471,490	58,514	48,231	25,781	29,143	15,776	9,936
<u>Roof Material</u>							
Baladi	181,014	29,455	35,784	12,223	91	7,369	61
Wood	56,856	12,569	8,897	5,010	21,162	63	9
Zinc Sheets*	49,630	9,655	1,571	3,248	533	5,679	1,153
Concrete*	10,161	2,907	599	1,035	2,155	7	31
Other	173,669	3,924	1,277	4,263	5,201	2,433	8,581
Not Stated	<u>160</u>	<u>4</u>	<u>103</u>	<u>2</u>	<u>1</u>	<u>225</u>	<u>101</u>
Total	471,490	58,514	48,231	25,781	29,143	15,776	9,936

*Note: These materials are considered "permanent" for purposes of building codes and standards.

HOUSING TYPE AND TENURE - URBAN VS. RURAL

<u>Housing Type</u>	<u>Urban</u>	<u>Semi- Urban</u>	<u>Rural</u>	<u>All Areas</u>
House for 1-2 Families of Brick, Stone, Cement	19.9%	17.2%	1.7%	5.1%
House of Mud or Other Local Material	64.4%	36.9%	25.1%	30.8%
Hut with Walls Other than Straw	2.7%	13.1%	10.1%	9.5%
Straw Hut	12.0%	32.4%	60.2%	52.2%
Tent or Other Mobile Housing Unit	.5%	.3%	2.9%	2.4%
Improvised Dwelling	.2%	-	-	-
Total Single Family	99.7%	99.9%	100.0%	100.0%
Apartment House	.3%	.1%	-	-
Total:	100.0%	100.0%	100.0%	100.0%

Tenure

Owned by Household	60.6%	79.2%	98.2%	92.2%
Rented from Private Owner	26.0%	9.5%	.4%	4.2%
Government House	4.4%	5.3%	.1%	1.1%
Rented from Relative or Employer	1.8%	.1%	-	.2%
Free from Relative or Employer	6.9%	5.8%	1.3%	2.3%
Shared (Bachelor's House)	.3%	.1%	-	-
Total:	100.0%	100.0%	100.0%	100.0%

Of Urban Homes

81% of urban homes had earth floors
 72% of urban homes had walls of straw, branches, mud, mud bricks, or gishua
 65% of urban roofs were straw, palm leaves, or mud
 62% had internally piped water, another 27% had piped water outside, 7% had well
 31% had pit latrine, 15% bucket, 22% water privy, 22% no sanitary system,
 10% water closet

Source: 1967/68 National Household Sample Survey

EXISTING HOUSING CONDITION - SELECTED CITIES 1964/65

	<u>Khartoum</u>	<u>Omdurman</u>	<u>Khartoum North</u>	<u>Port Sudan</u>	<u>El Obeid</u>
Persons per Household	5.5	6.6	6.3	5.0	5.7
Rooms per Household	2.2	2.6	2.4	1.6	2.2
Persons per Room	2.5	2.6	2.6	3.0	2.6
Households Paying Rent	47%	34%	39%	47%	30%
Average Monthly Rent (LS)	11.9	6.3	7.7	4.5	2.8
Facilities Present					
Kitchen	61%	65%	64%	51%	41%
Electricity	55%	60%	56%	22%	10%
Private Bath or Shower	35%	42%	40%	25%	17%
Private Toilet	55%	60%	55%	25%	34%
Private or Shared Toilet	94%	94%	95%	56%	66%
Piped Water Inside	79%	76%	93%	25%	30%
Piped Water Available	96%	86%	96%	73%	69%
No. of Income Earners per Household	1.7	1.8	1.8	1.6	1.6
Income per Household: Monthly	47.6	40.6	40.2	28.9	27.2
Annual	571	487	482	347	326
Population (1964/65)	172,860	185,940	79,210	79,260	62,950
Households	31,610	28,000	12,560	15,930	11,070

Source: 1964/65 Population and Housing Survey

EXISTING HOUSING CONDITIONS - KHARTOUM 1964/65

	<u>Class I</u>	<u>Class II</u>	<u>Class III</u>	<u>Total</u>
Persons per Household	4.1	5.3	5.8	5.5
Rooms per Household	3.7	3.3	1.9	2.2
Persons per Room	1.1	1.6	3.0	2.5
Households Paying Rent	60%	64%	42%	47%
Average Monthly Rent (LS)	39.2	38.0	7.0	11.9
Facilities Present				
Kitchen	80%	78%	73%	61%
Electricity	100%	100%	60%	55%
Private Bath or Shower	97%	85%	31%	35%
Private Toilet	99%	88%	50%	55%
Private or Shared Toilet	100%	100%	99%	94%
Piped Water Inside	100%	98%	99%	79%
Piped Water Available	100%	100%	100%	96%
No. of Income Earners per Household	1.5	1.7	1.7	1.7
Income per Household: Monthly	157.4	129.0	34.5	47.6
Annual	1,889	1,548	414	571

Source: 1964/65 Population and Housing Survey

EXISTING HOUSING CONDITIONS - KHARTOUM NORTH 1964/65

	<u>Class I</u>	<u>Class II</u>	<u>Class III</u>	<u>Total</u>
Persons per Household	4.6	7.3	6.8	6.3
Rooms per Household	4.1	3.1	2.4	2.4
Persons per Room	1.1	2.3	2.9	2.6
%Households Paying Rent	40.0%	36.0%	39.0%	39.0%
Average Monthly Rent (LS)	52.9	15.4	6.9	7.7
Facilities Present:				
Kitchen	90.0%	88.0%	67.0%	64.0%
Electricity	95.0%	88.0%	64.0%	56.0%
Private Bath or Shower	85.0%	73.0%	43.0%	40.0%
Private Toilet	100.0%	100.0%	56.0%	55.0%
Private or Shared Toilet	100.0%	100.0%	97.0%	95.0%
Piped Water Inside	100.0%	93.0%	97.0%	93.0%
Piped Water Available	100.0%	100.0%	99.0%	96.0%
Number of Income Earners Per Household	1.3	1.6	1.9	1.8
Income per Household:				
Monthly	133.0	66.4	41.9	40.2
Annual	1,596	797	503	482

Source: 1964/65 Population and Housing Survey

EXISTING HOUSING CONDITIONS - PORT SUDAN 1964/65

	<u>Class I</u> (Central)	<u>Class II</u>	<u>Class III</u> (Medina)	<u>Over- Crowded Class IV</u> (1)	<u>Squatter</u> (2)	<u>Total</u>
Persons per Household	5.7		6.7	4.4	4.8	5.0
Rooms per Household	3.0		2.3	1.4	1.3	1.6
Persons per Room	1.9		3.0	3.0	3.7	3.0
Percent Households Paying Rent	65.0%		62.0%	71.0%	6.0%	47.0%
Average Monthly Rent (LS)	15.0		6.1	3.2	1.6	4.5
Facilities Present:						
Kitchen	96.0%		77.0%	57.0%	22.0%	51.0%
Electricity	87.0%		69.0%	2.0%	0.0%	22.0%
Private Bath or Shower	87.0%		75.0%	4.0%	5.0%	25.0%
Private Toilet	94.0%		67.0%	6.0%	3.0%	25.0%
Private or Shared Toilet	98.0%		97.0%	57.0%	3.0%	56.0%
Piped Water Inside	94.0%		94.0%	2.0%	0.0%	25.0%
Piped Water Available	100.0%		98.0%	49.0%	68.0%	73.0%
Number of Income Earners per Household	1.3		1.8	1.8	1.3	1.6
Income per Household:						
Monthly	96.0		52.0	27.0	14.5	29.0
Annual	1,152		624	324	174	347

(1) Mousa, Korya, Gabir

(2) El Salam, Salalab (upgrading of Salalab occurred in 1971)

Source: 1964/65 Population and Housing Survey

ANALYSIS OF SHELTER SPENDING IN URBAN AREAS
(BASED ON 1967/68 NATIONAL HOUSEHOLD SAMPLE SURVEY)

Since rent was reported as an average for all households, even those not paying rent, adjustment is made to estimate rent in rent paying households.

Average Rent All Households	LS 17.10
Percent Households Paying Rent	27.8%
Implicit Rent in Rent Paying Households	LS 61.50

	<u>As Reported</u>		<u>Adjusted to</u> <u>Rent Paying Households</u>	
	(LS)		(LS)	
Rent	17.10	4.2%	61.50	15.0%
Fuel and Power	20.91	5.1	20.91	5.1
Water	7.22	1.7	7.22	1.7
Repair and Maintenance	2.97	.7	2.97	.7
Total Housing	<u>48.20</u>	<u>11.7%</u>	<u>92.60</u>	<u>22.5%</u>
Food and Drink	249.06	60.6%	227.87	55.5%
Clothing and Footwear	24.82	6.0	22.71	5.5
Miscellaneous	73.80	18.0	67.52	16.5
Total Spending	<u>395.88</u>	<u>96.4%</u>	<u>410.70</u>	<u>100.0%</u>
Saving	14.82	3.6%	-	-
Total Income	<u>410.70</u>	<u>100.0%</u>	<u>410.70</u>	<u>100.0%</u>

Conclusion: Rent was about 15% of income in 1967/68 among urban renting households. Total shelter spending was about 22.5%. See next page for additional analysis by income level.

ANALYSIS OF SHELTER SPENDING IN URBAN AREAS BY INCOME LEVEL IN 1967/68

	500 LS+		300-500 LS		200-300 LS		Below 200 LS		Total Urban	
	LS	(22%) Per-cent	LS	(25%) Per-cent	LS	(25%) Per-cent	LS	(28%) Per-cent	LS	(100%) Per-cent
Average Rent All Households	36.48		15.72		11.41		4.56		17.10	
Percent Households Paying Rent	39.0%		42.5%		42.8%		30.5%		39.6%	
Implicit Rent in Rent-paying Households	93.54		36.99		26.66		14.95		43.18	
<u>Summary of Spending</u>										
Rent	93.54	11%	36.99	9%	26.66	10%	14.95	10%	43.18	10%
Fuel and Power	39.09	5	20.75	5	14.35	6	8.76	6	20.91	5
Water	10.83	1	6.85	2	6.09	2	5.13	3	7.22	2
Repair and Maintenance	<u>8.13</u>	<u>1</u>	<u>2.47</u>	<u>1</u>	<u>1.03</u>	<u>-</u>	<u>.44</u>	<u>-</u>	<u>2.97</u>	<u>1</u>
Total Housing	151.59	18%	67.06	17%	48.13	18%	9.28	19%	74.28	18%
Food and Drink	445.41	52%	255.23	63%	174.99	66%	106.31	67%	249.06	59%
Clothing and Footwear	52.45	6	24.91	6	13.61	5	7.47	5	24.82	6
Miscellaneous	<u>200.12</u>	<u>24</u>	<u>58.76</u>	<u>14</u>	<u>27.79</u>	<u>11</u>	<u>14.02</u>	<u>9</u>	<u>73.80</u>	<u>17</u>
Total Spending (Adjusted)	849.57	100%	405.96	100%	264.52	100%	157.08	100%	421.96	100%
Adjustment for Rent	<u>(57.06)</u>		<u>(21.27)</u>		<u>(15.25)</u>		<u>(10.39)</u>		<u>(26.08)</u>	
Total Spending (Reported)	792.51		384.69		249.27		146.69		395.88	

Source: 1967/68 National Household Sample Survey

Note: This page differs from the prior page in two important respects. First, the percent renting by income level is derived from a different table in the 1967/68 report and is inconsistent. Second, no adjustment is made in other spending categories for the rent adjustment, so in effect the assumption is made that extra money for rent comes from savings or increased income.

RENT AS PERCENT OF HOUSEHOLD INCOME IN 1964/65

	<u>Average All Areas</u>	<u>Class I</u>	<u>Class II</u>	<u>Class III</u>	<u>Class IV</u>	<u>Squatter</u>
Khartoum	25.0%	24.9%	29.5%	20.3%		
Omdurman	15.5%					
Khartoum North	19.2%	39.8%	23.2%	16.5%		
Port Sudan	15.6%	15.6%		11.7%	11.9%	11.0%
El Obeid	10.3%					

Source: 1964/65 Population and Housing Survey

Note: In this survey rent was reported as an average among rent paying households, thus the above data is taken directly from the report as published. See Appendix A-31,32,33,34, for actual data on rents and incomes from which these percentages were derived.

PROJECTED NUMBER OF HOUSEHOLDS IN MAJOR URBAN AREAS
(through 1985)

City (Province)	Persons per House- hold	Percent Annual Growth Since '56	1973		Percent Annual Growth	1984		Percent Annual Growth	1985	
			Population	House- holds		Population	House- holds		Population	House- holds
Khartoum (Khartoum)	5.70	7.6	333.9	58.5	7.6	481.6	84.5	7.6	804.2	141.1
Omdurman (Khartoum)	6.21	5.7	299.4	48.2	5.7	395.0	63.6	5.7	582.3	93.8
Khartoum North (Khartoum)	<u>5.86</u>	<u>8.1</u>	<u>151.0</u>	<u>25.9</u>	<u>8.1</u>	<u>222.9</u>	<u>38.0</u>	<u>8.1</u>	<u>387.5</u>	<u>65.6</u>
*Greater Khartoum Urban Area	5.92	6.9	784.3	132.5	7.0	1,099.5	186.1	7.0	1,771.0	300.5
*Port Sudan (Red Sea)	4.54	5.9	132.6	29.2	13.5	250.0	55.1	9.5	470.0	103.5
*Wad Medani (Gezira)	5.30	4.5	106.7	20.1	4.5	133.0	25.1	4.5	181.0	34.2
*Kassala (Kassala)	5.00	5.5	99.7	19.9	5.5	130.2	26.0	5.5	189.4	37.9
*El Obeid (Northern Kordofan)	5.69	3.1	90.1	15.8	3.5	107.7	18.8	3.5	136.1	23.9
*Gedaref (Kassala)	5.00	8.0	66.5	13.3	8.0	97.7	19.5	8.0	167.4	33.5
*Atbara (Nile)	5.32	3.5	66.1	12.4	3.5	78.5	14.8	3.5	99.9	18.8
*Nyala (Southern Darfur)	4.36	8.9	60.0	13.8	8.9	91.3	20.9	8.9	160.8	38.0
*Kosti (White Nile)	5.30	6.4	65.4	12.3	6.4	89.2	16.8	6.4	137.7	26.0
Juba (Eastern Equatoria)	5.74	9.9	56.7	9.9	9.6	90.0	15.7	7.5	150.0	26.1
*El Fashir (Northern Darfur)	4.36	3.7	51.9	11.9	3.7	62.3	11.3	3.7	80.3	18.4
Wau (Bahr el Ghazal)	6.15	11.3	52.8	8.6	7.6	76.1	12.4	7.6	127.0	20.6
*El Genaina (Northern Darfur)	4.36	6.4	35.4	8.1	6.4	48.3	11.1	6.4	74.6	17.1
Malakal (Upper Nile)	5.76	6.9	34.9	6.1	6.9	48.7	8.5	6.9	77.7	13.5
Sennar el Medina (White Nile)	5.30	7.3	28.5	5.4	7.3	40.6	7.7	7.3	66.5	12.5
*El Mahud (Northern Kordofan)	4.98	2.4	26.0	5.2	2.4	29.3	5.9	2.4	34.6	6.9
*Dukem (White Nile)	5.30	4.3	26.3	5.0	4.3	32.4	6.1	4.3	43.5	8.2
Halfa el Gadida (Kassala)	5.00	5.8	24.4	4.9	5.8	32.3	6.5	5.8	47.9	9.6
El Gezira Aba (White Nile)	5.30	5.8	22.2	4.2	5.8	29.5	5.6	5.8	43.7	8.2
El Deain (Southern Darfur)	<u>4.36</u>	<u>2.2</u>	<u>18.5</u>	<u>4.2</u>	<u>2.2</u>	<u>20.6</u>	<u>4.7</u>	<u>2.2</u>	<u>24.0</u>	<u>5.5</u>
Total 22 Urban Centers	5.39	6.0	1,849.0	342.8	6.9	2,586.5	481.6	6.8	4,088.1	762.9

Source: Berger SSA team using notes from the Battelle Institute team. Generally, their projections were used except for Port Sudan, El Obeid, and Juba.

Note for later verification: Population is from the 1973 Census, but households are calculated for cities other than the six examined in detail based on persons per household for the province. The number of households should be checked for 1973 against the census.

There is no data to establish trends in persons per household, so the assumption is made that household size is constant through 1985.

*indicates towns given priority in Six Year Plan

PROJECTED NUMBER OF HOUSEHOLDS IN TOTAL SUDAN

(all numbers in 000's)

Population (see Appendix A-3)

	<u>1973</u>	<u>1978</u>	<u>1985</u>
22 Largest Cities	1,849 (+6.0%/yr)	2,587 (+6.9%/yr)	4,088 (+6.8%/yr)
Other Urban	<u>888</u>	<u>1,392</u>	<u>2,258</u>
Total Urban	2,737 (+7.2%/yr)	3,979 (+7.3%/yr)	6,346 (+6.9%/yr)
Rural	<u>12,082</u> (+1.5%/yr)	<u>12,398</u> (+1.3%/yr)	<u>14,003</u> (+1.2%/yr)
Total Sudan	14,819 (+2.1%/yr)	16,877 (+2.6%/yr)	20,349 (+2.7%/yr)

Households

	<u>1973</u>	<u>Additional Households in 5 Years</u>	<u>1978</u>	<u>Additional Households in 7 Years</u>	<u>1985</u>
22 Largest Cities (5.38 pph)	343	139	482	263	763
Other Urban (5.2 pph est.)	<u>171</u>	<u>97</u>	<u>268</u>	<u>181</u>	<u>431</u>
Total Urban	514	236	750	444	1,194
Rural (5.0 pph est.)	<u>2,416</u>	<u>164</u>	<u>2,580</u>	<u>220</u>	<u>2,800</u>
Total Sudan	2,930	400	3,330	664	3,994

Source: Population is based on data from the Battelle team. Households are estimated using the persons per household (pph) assumptions given.

Note: This should be revised when additional access to the 1973 is possible.

ESTIMATED NEW HOUSEHOLDS IN MAJOR URBAN AREAS
FROM 1978-1985 (SEVEN YEARS)

	<u>Estimated New Households</u>
Greater Khartoum Urban Area	114,400
Port Sudan (Red Sea)	48,400
Wad Medani (Gezira)	9,100
Kassala (Kassala)	11,900
El Obeid (Northern Kordofan)	5,100
Gedaref (Kassala)	14,000
Atbara (Nile)	4,000
Nyala (Southern Darfur)	17,100
Kosti (White Nile)	9,200
Juba (Eastern Equatoria)	10,400
El Fashir (Northern Darfur)	4,100
Wau (Bahr el Ghazal)	8,200
El Genaina (Northern Darfur)	6,000
Malakal (Upper Nile)	5,000
Sennar el Medina (White Nile)	4,800
El Nahud (Northern Kordofan)	1,000
Duiem (White Nile)	2,100
Halfa el Gadida (Kassala)	3,100
El Gezira Aba (White Nile)	2,600
El Deain (Southern Darfur)	<u>800</u>
Total 22 Urban Centers	281,300

Source: Appendix A-38

ESTIMATED HOUSING NEED BY INCOME LEVEL IN SELECTED CITIES
FROM 1978-1985 (Seven Years)

	<u>Khartoum</u> <u>(3 cities)</u>	<u>Port Sudan</u>	<u>El Obeid</u>	<u>Juba</u>	<u>All</u> <u>Urban</u> <u>Areas</u>
<u>Housing Need</u>					
New Households	114,400	48,400	5,100	10,400	444,000
Estimated Backlog	19,600	4,600	1,100	1,300	45,000
Squatter Upgrade Goal	<u>6,000</u>	<u>5,000</u>	<u>2,500</u>	<u>3,000</u>	<u>36,000</u>
Estimated Need	140,000	58,000	8,700	14,700	525,000
<u>Income Profile Assumed</u>					
Like Existing House- holds	54,000	15,200	4,200	4,200	178,000
Like Squatters	<u>86,000</u>	<u>42,800</u>	<u>4,500</u>	<u>10,500</u>	<u>347,000</u>
Estimated Need	140,000	58,000	8,700	14,700	525,000
<u>Distribution by Income</u>					
LS 1200 + per year	25,920	5,230	1,350	1,930	61,230
900-1200	7,560	1,910	540	590	22,430
600-900	9,290	2,890	830	680	34,890
500-600	4,210	1,280	300	370	14,950
400-500	9,150	4,580	680	1,010	42,050
300-400	12,640	6,490	1,000	1,460	56,720
200-300	31,450	15,590	1,760	3,800	128,570
100-200	25,640	12,790	1,420	3,120	105,080
below 100	<u>14,140</u>	<u>7,150</u>	<u>820</u>	<u>1,740</u>	<u>59,080</u>
Total	140,000	58,000	8,700	14,740	525,000

NOTE: See Appendices A-42 through A-46 for derivation of these estimates.

DERIVATION OF SEVEN-YEAR HOUSING NEED IN KHARTOUM (3 CITIES)

Step 1: Projected Growth Rate	7.0%	(100%)
Natural Growth Rate	2.1%	(30%)
	<hr/>	<hr/>
Immigration	4.9%	70%

Step 2:	<u>Source of Need</u>	<u>Total</u>	<u>Like Existing Households</u>	<u>Like Squatters</u>
	New Households	114,400	34,400 (30%)	80,000 (70%)
	Est. Backlog (6% of 186,100)	19,600	19,600	
	Upgrade 50% of Squatters	6,000		6,000
		<hr/>	<hr/>	<hr/>
	Estimated Total Need	140,000	54,000	86,000

Step 3:	<u>Distribution by Income</u>	<u>Like Existing Households</u>		<u>Like Squatters</u>		<u>Total</u>
		<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	
	LS 1,200+	48.0	25,920	-	-	25,920
	900 - 1,200	14.0	7,560	-	-	7,560
	600 - 900	17.2	9,290	-	-	9,290
	500 - 600	7.8	4,210	-	-	4,210
	400 - 500	5.0	2,700	7.5	6,450	9,150
	300 - 400	3.5	1,890	12.5	10,750	12,640
	200 - 300	2.5	1,350	35.0	30,100	31,450
	100 - 200	1.3	700	29.0	24,940	25,640
	below 100	0.7	380	16.0	13,760	14,140
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
		100.0	54,000	100.0	86,000	140,000

* The Five-Year Plan estimated the backlog of unmet need in Khartoum to be 35,000.

DETERMINATION OF SEVEN-YEAR HOUSING NEED IN PORT SUDAN

Step 1: Projected Growth Rate	9.5%	(100%)
Natural Growth Rate	2.1%	(22%)
	<hr/>	<hr/>
Immigration	7.4%	(78%)

Step 2:	<u>Source of Need</u>	<u>Total</u>	<u>Like Existing Households</u>	<u>Like Squatters</u>
	New Households	48,400	10,600 (22%)	37,800 (78%)
	Est. Backlog (8% of 55,100)	4,600	4,600	
	Upgrade 50% of Squatters	5,000		5,000
		<hr/>	<hr/>	<hr/>
	Estimated Total Need	58,000	15,200	42,800

Step 3:		<u>Like Existing Households</u>		<u>Like Squatters</u>		
	<u>Distribution by Income</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>Total</u>
	LS 1,200+	34.4	5,230	-	-	5,230
	900 - 1,200	12.6	1,910	-	-	1,910
	600 - 900	19.6	2,980	-	-	2,980
	500 - 600	8.4	1,280	-	-	1,280
	400 - 500	9.0	1,370	7.5	3,210	4,580
	300 - 400	7.5	1,140	12.5	5,350	6,490
	200 - 300	4.0	610	35.0	14,980	15,590
	100 - 200	2.5	380	29.0	12,410	12,790
	below 100	2.0	300	16.0	6,860	7,150
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
		100.0	15,200	100.0	42,800	58,000

DERIVATION OF SEVEN-YEAR HOUSING NEED IN EL OBEID

Step 1: Projected Growth Rate	3.5%	(100%)
Natural Growth Rate	2.1%	(60%)
Immigration	1.4%	(40%)

Step 2:				
	<u>Source of Need</u>	<u>Total</u>	<u>Like Existing Households</u>	<u>Like Squatters</u>
	New Households	5,100	3,100 (60%)	2,000 (40%)
	Est. Backlog (6% of 18,800)	1,100	1,100	
	Upgrade 50% of Squatters	2,500		2,500
	Estimated Total Need	8,700	4,200	4,500

Step 3:					
	<u>Distribution by Income</u>	<u>Like Existing Households</u>		<u>Like Squatters</u>	
		<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>
	LS 1,200+	32.2	1,350	-	-
	900 - 1,200	12.8	540	-	-
	600 - 900	19.8	830	-	-
	500 - 600	7.2	300	-	-
	400 - 500	8.0	340	7.5	340
	300 - 400	10.5	440	12.5	560
	200 - 300	4.5	190	35.0	1,570
	100 - 200	2.5	110	29.0	1,310
	below 100	2.5	100	16.0	720
		100.0	4,200	100.0	4,500
					8,700

DERIVATION OF SEVEN-YEAR HOUSING NEED IN JUBA

Step 1: Projected Growth Rate	7.6%	(100%)
Natural Growth Rate	2.1%	(28%)
	<hr/>	<hr/>
Immigration	5.5%	(72%)

Step 2:	<u>Source of Need</u>	<u>Total</u>	<u>Like Existing Households</u>	<u>Like Squatters</u>
	New Households	10,400	2,900 (28%)	7,500 (72%)
	Est. Backlog (8% of 15,700)	1,300	1,300	
	Upgrade 50% of Squatters	3,000		3,000
		<hr/>	<hr/>	<hr/>
	Estimated Total Need	14,700	4,200	10,500

Step 3:	<u>Distribution by Income</u>	<u>Like Existing Households</u>		<u>Like Squatters</u>		<u>Total</u>
		<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	
	LS 1,200+	46.0	1,930	-	-	1,930
	900 - 1,200	14.0	590	-	-	590
	600 - 900	16.2	680	-	-	680
	500 - 600	8.8	370	-	-	370
	400 - 500	5.4	220	7.5	790	1,010
	300 - 400	3.8	160	12.5	1,300	1,460
	200 - 300	2.8	120	35.0	3,680	3,800
	100 - 200	1.6	70	29.0	3,050	3,120
	below 100	1.4	60	16.0	1,680	1,740
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
		100.0	4,200	100.0	10,500	14,700

DERIVATION OF SEVEN-YEAR HOUSING NEED IN ALL URBAN AREAS

Step 1: Projected Growth Rate	6.9%	(100%)
Natural Growth Rate	2.1%	(30%)
	<hr/>	<hr/>
Immigration	4.8%	(70%)

Step 2:	<u>Source of Need</u>	<u>Total</u>	<u>Like Existing Households</u>	<u>Like Squatters</u>
	New Households	444,000	133,000 (30%)	311,000 (70%)
	Est. Backlog (6% of 750,000)	45,000*	45,000	
	Upgrade 50% of Squatters	36,000		36,000
		<hr/>	<hr/>	<hr/>
	Estimated Total Need	525,000	178,000	347,000

Step 3:		<u>Like Existing Households</u>		<u>Like Squatters</u>		
	<u>Distribution by Income</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>Total</u>
	LS 1,200+	34.4	61,230	-	-	61,230
	900 - 1,200	12.6	22,430	-	-	22,430
	600 - 900	19.6	34,890	-	-	34,890
	500 - 600	8.4	14,950	-	-	14,950
	400 - 500	9.0	16,020	7.5	26,030	42,050
	300 - 400	7.5	13,350	12.5	43,370	56,720
	200 - 300	4.0	7,120	35.0	121,450	128,570
	100 - 200	2.5	4,450	29.0	100,630	105,080
	below 100	2.0	3,560	16.0	55,520	59,080
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
		100.0	178,000	100.0	347,000	525,000

*The Six-Year Plan suggests a backlog of 65,000 plots in urban areas.

NOTES ON THE METHODOLOGY FOR PROJECTING HOUSING NEED

1. Project individual cities based on current trends and judgements about the constraints and forces that will effect growth. Corroborate this with the projections of local planners and other consultants. (Appendix A-38)
2. Project population and households in the total country and the urban rural split. Corroborate this with the judgements of other planners and consultants. Check to verify that the urban projection is compatible with the projection of individual cities. (Appendix A-39)
3. Identify new households to be accommodated in major cities. (Appendix A-40)
4. Determine that portion of new households which represent natural growth as opposed to that portion which represents immigration (most of which is rural-urban). This is done by choosing a "Natural growth rate" which in this case is the recent historical growth rate for the country as a whole. Khartoum is projected to grow at 7% and natural growth is assumed at 2.1%, so it is assumed that 30% of its growth is natural and 70% is immigration.
5. Assume that the income distribution of new households from natural growth will be like the income distribution of existing households. This introduces a bias towards the overstatement of household income, but is acceptable in an attempt at a relatively simple analysis of demand.
6. Assume that the income distribution of immigrants is like the income distribution in squatter areas. Since the only income distribution data on squatter areas is from Port Sudan, that data has been used in all cities, with adjustment to 1978, assuming that incomes are 45% higher than they were in 1975 when the survey was taken. It should also be pointed out that that squatter survey reported four persons per household and only one income earner per household. This probably introduces a bias towards the understatement of household income, but it is acceptable for simplification purposes.
7. Estimate the backlog of unmet need. This has been done simply as 6% (Khartoum and El Obeid) or 3% (Port Sudan and Juba) of the existing housing stock. This represents couples or families who would like and can afford a plot but who are doubling up with friends or family until a plot is available. These are assumed to have income distribution similar to existing households, but this is a bias towards overstatement of income.

8. Establish a goal for squatter upgrading. In this analysis it has been assumed to be a goal of upgrading 50% of squatter plots that existed at the beginning of the seven-year period.
9. Determine the total number of housing units needed that are like existing households in income distribution and the number of new housing units needed which are like squatters in terms of income distribution. Distribute each of these in accord with income distribution assumptions developed elsewhere in this study.

SUMMARY OF FOREIGN TRADE

(IN LS. MILLIONS)

D A T E	EXPORTS	IMPORTS	TRADE BALANCE
1965	67.96	72.29	- 4.33
1966	70.73	77.46	- 6.73
1967	74.71	81.18	- 6.47
1968	81.18	89.71	- 8.56
1969	85.25	89.32	- 3.07
1970	103.91	100.12	+ 3.79
1971	114.37	115.44	- 1.07
1972	124.35	117.91	+ 6.44
1973	152.19	151.85	+ 0.34
1974	122.01	247.50	-125.49
1975	152.47	359.87	-207.40
1976	193.01	341.39	-148.38
1977	230.18	376.48	-146.30
1978 *			
January	8.12	39.56	- 31.44
February	14.83	38.70	- 23.87
March	15.43	48.39	- 32.96
April	18.64	27.11	- 8.47

* Revised Figures.

Source: Economic and Financial Statistics Review, Vol. XIX, No. 2 (April-June 1979). Issued by the Bank of Sudan, Khartoum, 1978. Table XIV.

EXPORTS BY COMMODITY

COMMODITY	VALUE IN LS. MILLIONS					AS PERCENTAGE OF TOTAL EXPORTS				
	73/74	74/75	75/76	76/77	1977/78 (JULY-APR.)	73/74	74/75	75/76	76/77	1977/78 (JULY-APR.)
Cotton	71.8	55.5	104.6	99.5	91.6	54.1	37.1	54.6	48.1	55.8
Gum Arabic	5.8	14.6	10.7	11.9	9.6	4.4	9.8	5.6	5.8	5.9
Sesame	8.0	19.2	11.5	21.6	16.8	6.0	12.8	6.0	10.4	10.2
Groundnuts	11.1	28.6	40.2	36.0	20.8	8.4	19.1	21.0	17.4	12.7
Cotton Seeds	0.2	0.3	-	-	-	0.2	0.2	-	-	-
Dura	3.8	3.8	1.8	4.5	2.7	2.9	2.6	0.0	2.2	1.7
Hides and Skins	5.2	3.0	3.5	4.2	3.0	3.9	2.0	1.8	2.0	1.8
Castor Seeds	0.4	0.2	1.1	1.0	0.2	0.3	0.1	0.6	0.5	0.1
Karkadeh	0.9	0.5	0.4	1.4	0.4	0.7	0.3	0.2	0.7	0.2
Cake and Meal	8.0	1.8	5.6	9.1	2.0	6.0	1.2	2.9	4.4	1.2
Others	17.4	22.2	12.3	17.6	17.1	13.1	14.8	6.4	8.5	10.4
T O T A L	132.6	149.7	191.7	206.8	164.2	100.0	100.0	100.0	100.0	100.0

Source: Same as A-48, Table XVI.

IMPORTS BY COMMODITY

COMMODITY	VALUE IN L.S. MILLIONS					AS PERCENTAGE OF TOTAL IMPORTS				
	1973/74	1974/75	1975/76	1976/77	1977/78 (JULY-APR.)	1973/74	1974/75	1975/76	1976/77	1977/78 JULY-APR.
Tea	4.8	4.9	4.1	5.3	9.6	2.6	1.6	1.1	1.6	2.3
Coffee	3.5	3.0	1.8	2.8	-	1.9	0.8	0.5	0.8	-
Sugar	19.8	26.1	31.7	20.3	15.2	10.8	8.8	8.6	5.9	4.4
Other Food Stuffs	16.4	14.4	15.8	16.2	14.1	8.9	4.8	4.3	4.7	4.1
Machinery & Equipments	23.3	46.0	96.0	99.1	108.7	12.7	15.4	26.0	28.9	31.4
Transport Equipments	23.2	48.4	60.8	43.1	35.0	12.6	16.3	16.5	12.6	10.1
Medicine and Chemicals	20.5	34.5	40.8	30.3	29.5	11.2	11.6	11.0	8.8	8.5
Textiles	18.2	41.5	27.1	27.2	29.8	9.9	13.9	7.3	7.9	8.6
Petroleum Products and other Crude Materials	13.3	22.3	31.2	38.5	41.3	7.2	7.5	8.4	11.2	11.9
Manufactured Goods	38.2	53.8	55.1	55.0	57.8	20.8	18.1	14.9	16.0	16.7
Drinks and Tobacco	2.5	3.6	5.3	5.5	5.1	1.4	1.2	1.4	1.6	1.5
T O T A L	183.7	297.5	369.7	343.3	346.1	100.0	100.0	100.0	100.0	100.0

Source: Same as A-48, Table XVII.

FOREIGN RESERVES
(In LS Thousands)

	31.12.75	31.12.76	1 9 7 7				1978	
			31.3.77	30.6.77	30.9.77	31.12.77	31.3.78	30.6.78
<u>KUWAITI DINARS:</u>								
Current Accounts	19	4	88	20	10	10	7	30
Securities	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
<u>BELGIUM FRANCS:</u>								
Current Accounts	6	6	5	1	5	17	20	3
Securities	744	744	744	833	833	833	833	833
<u>L. M. P.</u>								
	3,054	-	328	373	340	557	2	665
<u>OTHER CURRENCIES:</u>								
Current Accounts	+1,022	-8,396	-14,654	-11,419	+ 70	+1,003	+ 486	+ 171
T O T A L	+12,045	- 442	-6,229	-2,992	+8,458	+9,646	+8,548	+8,902

Source: Same as A-48, Table IX.

THE POSITION OF PUBLIC SECTOR LOANS
(LS. MILLIONS)

		RATE OF INTEREST	DRAWINGS DURING APR. JUNE 1978	REPAYMENTS DURING APR. JUNE 1978	CUMULATIVE REPAYMENT AT 30.6.78	DEBT OUTSTANDING AT 30.6.78	UNDISBURSED BALANCES AT 30.6.1978
<u>INTERNATIONAL ORGANIZATIONS:</u>							
<u>I. B. R. D.:</u>							
1st. Sudan Railways Project	g. 39,000,000	5½%	-	0.4	10.5	3.1	-
2nd. Sudan Railways Project	g. 31,000,000	5½%	-	-	6.3	4.5	-
Managil Extension	g. 15,000,000	6%	-	-	4.0	1.4	-
Roseires Project	g. 18,836,881	5½%	-	-	3.9	3.0	-
Central Elec. and Water Corp.	g. 19,000,000	5¾%	-	-	1.5	5.3	-
Mechanized Farming Corporation	g. 3,898,275	6½%	-	-	0.2	1.1	-
<u>I. D. A.:</u>							
Southern Region	g. 10,700,000	Free	0.2	-	-	1.2	2.5
Roseires Project	g. 13,000,000	"	-	-	0.5	3.8	-
Education Project	g. 8,500,000	"	-	-	-	1.2	1.6
Roads	g. 7,000,000	"	-	-	-	0.2	1.6
Rahad Project	g. 42,000,000	"	-	-	-	5.9	8.6
M.F.C.	g. 11,250,000	"	0.1	-	-	1.6	2.3
Industrial Bank	g. 4,000,000	"	-	-	-	1.1	0.3
Sudan Railways		"	-	-	-	4.6	-
Central Elec. and Water Corp.	g. 23,000,000		-	-	-	2.0	5.8
<u>I. M. F.:</u>							
			3.1	5.7	-	43.3	-
<u>AFRICAN DEVELOPMENT BANK:</u>							
1st. Sudan Railways Project	g. 2,800,000	6%	-	-	0.1	1.2	-
Animal Resources	g. 800,000	6%	-	-	-	0.1	0.2
<u>O. P. E. C.:</u>							
	g. 7,500,000	Free	-	-	-	2.6	-
SUB - T O T A L			3.4	6.1	26.8	87.2	22.9

Source: Same as A-48, Table X.

		RATE OF INTEREST	DRAWINGS DURING APP. JUNE 1978	REPAYMENTS DURING APR. JUNE 1978	CUMULATIVE RE PAYMENT AT 30.6.78	DEBT OUTSTANDING AT 30.6.78	UNDISBURSED BALANCES AT 30.6.1978
U.S.A. AND WESTERN EUROPEAN COUNTRIES:							
Union Bank of Switzerland	S.F. 45,000,000	8 %	-	-	5.0	0.2	-
Euro Dollar Loan	£. 200,000,000	7/8 LIBOR	-	4.7	4.7	64.9	-
Societe Commercial De Cereal (Wheat Facility)	£. 5,000,000	11.5% and 12.25%	-	-	0.6	1.1	-
West Germany:							
Roseires Project	D.M. 73,600,000	4 1/2%	-	-	5.3	1.1	-
Khashm El Girba Sugar Factory	D.M. 33,513,611	6 %	-	-	2.9	-	-
1st. German Loan for goods	D.M. 56,997,683	6 %	-	-	0.2	5.2	2.2
2nd. German Loan for goods	D.M. 48,002,317	6 %	-	-	-	6.2	0.2
3rd. German Loan for goods	D.M. 20,000,000	6 %	-	-	-	2.1	0.6
4th. German Loan for goods	---	6 %	-	-	-	0.8	-
United Kingdom:							
2nd. E.C.G.D. Credit	£. 5,000,000	6 1/2%	-	-	2.9	2.0	-
3rd. E.C.G.D. Credit	£. 10,000,000	6 1/2%	-	-	-	0.4	8.2
Sudan Railways	£. 200,000	Free	-	-	-	0.2	-
1st. Sennar Dam Loan	£. 459,000	"	-	-	-	0.4	-
2nd. Sennar Dam Loan	£. 360,000	"	-	-	-	0.1	0.2
Northern Province Purps Loan	£. 1,100,000	"	-	-	-	0.4	0.6
Italy:							
Construction of Bridges, Transport and Water Supply Equipment	Lira. 7,500,000,000	4 1/2%	-	-	2.5	1.6	-
Bonifica Credit Facilities for Water and Rural Development	£. 5,000,000	5 %	-	-	1.3	-	0.4
Denmark:							
The Danish Credit Facilities for Water and Rural Development	Kroner. 1,164,368	4 %	-	-	-	0.5	0.2
Sweden:							
1st. Loan for Water & Rural Devel.	S.K. 35,000,000	2 %	-	-	-	2.4	-
2nd. Loan for Water & Rural Devel.	S.K. 15,000,000	2 %	-	-	-	1.0	-
U.S.A.:							
C.C.C. Credit and P.L. 480	(£. 32,042,384)		-	-	16.7	N.A	N.A
Bank of America (Boeing)	(K.D. 10,331,250)		-	-	3.9	-	-
The Export and Import Bank of Washington (Boeing)	£. 10,331,250	1/2% above the market rate	-	-	0.4	3.2	-
Boeing Company	£. 4,132,500	6 %	-	-	0.7	0.7	-
American Agency for International Development (Rahad)	£. 11,000,000	1 1/2% above the market rate	-	-	0.1	1.5	2.4
1st. Chicago & other Banks (Boeing)	£. 11,500,000	2.3%	-	-	-	4.0	-
1st. Chicago and U.B.A.P.	£. 20,000,000	1 1/2% above London M. Rate	-	-	0.3	6.7	-
SUB - T O T A L			-	4.7	47.5	106.7	15.0

Appendix A-52
(continued)

		RATE OF INTEREST	DRAWINGS DURING APR. JUNE 1978	REPAYMENTS DURING APR. JUNE 1978	CUMULATIVE REPAYMENT AT 30.6.78	DEBT OUTSTANDING AT 30.6.78	UNDISBURSED BALANCES AT 30.6.1978
<u>EAST EUROPEAN COUNTRIES:</u>							
<u>Yugoslavia:</u>							
Tannery, Ships, Training and Equipment	£. 8,000,000	3 %	-	0.1	7.2	0.6	-
<u>Russian Credits:</u>							
1st. Loan	Rouble. 20,000,000	2 %	-	-	5.4	0.9	3.1
2nd. Loan	Rouble. 5,000,000	2½%	-	-	0.3	1.1	1.0
Others			-	2.4	12.1	N.A	N.A
<u>Czechoslovakia.</u>							
Czechoslovakia Loan	¥. 10,000,000	3 %	-	0.3	2.5	0.6	-
<u>East Germany:</u>							
East German Loan	LS. 4,000,000	2½%	-	0.1	0.8	1.0	2.2
<u>People Republic of China:</u>							
1st. Chinese Loan	Yuan. 105,000,000	Free	-	-	-	2.1	12.4
<u>Iran:</u>							
Oil Credit Facility		5 %	-	-	-	15.2	-
SUB - T O T A L			-	2.9	28.3	21.7	18.7
GRAND T O T A L			9.0	16.0	141.0	394.8	66.2

		RATE OF INTEREST	DRAWINGS DURING APR. JUNE 1978	REPAYMENTS DURING APR. JUNE 1978	CUMULATIVE REPAYMENT AT 30.6.78	DEBT OUTSTANDING AT 30.6.78	UNDISBURSED BALANCES AT 30.6.1978
ARAB COUNTRIES:							
Kuwait:							
Sudan Railways	Dinar. 7,000,000	4 1/2 %	-	1.0	6.7	0.1	-
Khasma El Girba Sugar Factory	Dinar. 1,700,000	3 1/2 %	-	0.5	1.8	-	-
Land Development Scheme	Dinar. 5,070,000	2 1/2 %	-	-	1.8	3.1	-
M.F.C.	Dinar. 1,600,000	2 1/2 %	-	-	-	0.8	0.8
Kuwait Foreign Trading Contracting and Investments Company	Dinar. 3,000,000	8 %	-	0.6	2.9	0.7	-
Kuwait Foreign Trading Contracting and Investments Company	Dinar. 25,000,000	8 1/2 %	-	-	15.4	14.5	-
Fertilizer	Dinar. 13,467,542	2 1/2 %	-	-	-	18.3	-
Rahad Project	Dinar. 3,300,000	2 1/2 %	0.9	0.2	0.8	5.6	-
Sennar Sugar Factory	Dinar. 4,500,000	3 1/2 %	-	-	0.4	4.6	-
Kuwait Metal Pipe Lines Company	Dinar. 17,000,000	8 1/2 %	-	-	-	20.4	-
Kuwait Foreign Trading Contracting & Investment Co. (Boeing 737)	Dinar. 2,500,000	9 %	-	-	-	2.9	-
Libya:							
Cash Loan	£. 7,250,000	2% above British T. B.	-	-	-	6.1	-
A.K.E.:							
2nd. Loan for Digging Wells and Construction of Roads	£. 8,500,000	Free	-	-	2.6	0.9	3.6
Algeria:							
Algerian Cash Loan	Dinar. 10,000,000	Free	-	-	0.6	0.1	-
Saudi Arabia:							
3rd. Cash Loan	£. 1,000,000	5 %	-	-	2.9	2.3	-
4th. Cash Loan	£. 15,000,000	5 %	-	-	1.1	4.1	-
5th. Cash Loan	£. ---	-	-	-	-	3.9	-
6th. Cash Loan	Saudi Rial. 40,000,000	7 1/2 %	-	-	-	3.3	-
Rahad Project	N.A.	-	-	-	-	1.2	N.A.
Saudi Arabia Monetary Ag. (Loan)	£. 200,000,000	-	4.7	-	-	13.7	-
Abu Dhabi:							
1st. Cash Loan	£. 10,000,000	2 1/2 %	-	-	-	3.5	-
2nd. Cash Loan	£. 30,000,000	-	-	-	-	10.4	-
Port-Sudan Haya Road	-	-	-	-	-	7.2	-
Qatar:							
Cash Loan	£. 14,000,000	5 %	-	-	-	4.9	-
Iraq:							
Iraq Cash Loan	£. 10,000,000	2 1/2 %	-	-	0.3	3.2	-
Iraq Oil Facility	-	2 1/2 %	-	-	1.1	18.4	-
ARAB ORGANIZATIONS:							
Arab Fund:							
Oil Facility	-	Free	-	-	-	19.1	-
Arab Fund for Economic Development:							
(Kassel El Gadaraf Road)	K.D. 4,800,000	4 %	-	-	-	2.8	-
(Microwave)	£. 7,000,000	2% above LIBOR	-	-	-	2.0	4.0
Arab Investment Co.	-	-	-	-	-	1.1	1.2
SUB - T O T A L			5.6	2.3	38.4	174.2	9.6

APPENDIX B – THE COST OF CAPITAL

THE COST OF CAPITAL

For many years academics have debated the true cost of capital. No solution has been universally accepted. Three major concepts and their applicability to the Sudan are discussed below.

1. The Average Rate of Interest

The government of Sudan has a portfolio of loans ranging from the interest free to a maximum of 15 7/8% (First Chicago & UBAF -- LS 6.7 million outstanding as of 30 June 1978). This theory states that the cost of capital to the Government is simply the weighted average rate of interest for all of these loans. Several challenges are made to this theory. The first concern is the time frame for consideration. The current debt portfolio has been accumulated over many years. At historic rates of interest it is questionable whether historic rates are appropriate indicators of the current cost of capital. The next difficulty is the artificial rate of interest applied to internal debt. A large part of the government's debt portfolio is composed of loans by the Bank of Sudan which have been reduced to an interest rate of 1/2 of 1%. Finally, opponents to the average rate of interest theory ask the question, "If this is the true cost of capital, why is the government borrowing at a rate higher than this true cost?" The concept underlying this paradox is that of matching a particular investment to a particular loan. This concept has caused many theorists to reject the use of the average rate of interest and instead adopt the next theory.

2. The Marginal Rate of Interest

When considering any specific investment, the funds used for this investment can be matched with the highest cost loan the government is currently forced to accept. Although a 15 7/8% rate of interest had been accepted by the Government in the past, the market demands have fortunately been reduced. A significant group of recent loans lie in the 10-12% range. This theory states that any reduction in investment could be matched with an equivalent reduction in the need to borrow at this marginal rate. Therefore, it is argued, the marginal rate is the true cost of capital.

3. The Opportunity Cost of Capital

The theory here is quite analogous to the preceding one. It states that in any investment of funds the opportunity exists to instead invest those funds in another project that will otherwise not be executed. It concludes that the rate

of return on the most profitable potential project that will not be executed due to lack of funds is the opportunity cost of capital. A proponent of this argument would point to the vast agricultural potential of the Sudan which has yet to be developed. For each and every investment of funds within the Sudan, it can be argued, the opportunity exist, to instead divert those funds to the cultivation of additional acreage and generation of additional crops for export.

The specific rate of return on capital for this opportunity cost is hard to evaluate. The rate of inflation is often suggested as a minimum indication of the opportunity cost. Finally, an aggressive proponent of this theory would conclude that additional investments in currently unused agricultural land would generate earnings far beyond the simple rate of inflation.

APPENDIX C – SHARE CAPITAL OF THE ESTATES BANK

SHARE CAPITAL OF THE ESTATES BANK

Bank capital transferred from Ministry of Finance on January 1967	LS 2,761,574
Bank Capital end of 1968	3,043,138
" " " 1969	3,095,826
" " " 1970	3,716,282
" " " 1971	3,769,558
" " " 1972	3,783,975
" " " 1973	5,103,878
" " " 1974	8,800,000
" " " 1975	10,000,000
" " " 1976	10,000,000
" " " 1977	10,000,000

**APPENDIX D – FINANCIAL STATEMENT OF THE PUBLIC ELECTRICITY AND
WATER CORPORATION (PEWC)**

PUBLIC ELECTRICITY AND WATER CORPORATION
JOINT BALANCE SHEET AS AT 30TH JUNE 1978

<u>Capital and Reserves</u>		<u>Fixed Assets</u>	
<u>Equity Capital</u>	LS 34,415,274	<u>Fixed Assets</u>	LS 99,422,165
<u>Capital Reserves</u>	56,233,130	<u>Current Assets</u>	<u>31,853,559</u>
<u>General Reserve</u>	<u>7,513,511</u>		131,275,724
	98,119,733		
<u>Long Term Liabilities</u>	<u>25,378,377</u>		
<u>Total Equity and Long-</u>	123,430,292		
<u>Term Liabilities</u>			
<u>Current Liabilities</u>	<u>7,735,432</u>		
	131,275,724		

PUBLIC ELECTRICITY AND WATER CORPORATION
JOINT OPERATING ACCOUNTS AS AT 30TH JUNE 1978

	<u>Electricity</u>	<u>Water</u>	<u>Total</u>
<u>Income</u>	<u>LS 16,479,463</u>	<u>LS 4,779,069</u>	<u>LS 21,258,532</u>
<u>Expenditure</u>			
<u>Production Costs</u>	7,356,429	2,841,040	10,197,469
<u>Distribution Costs</u>	3,587,750	2,716,115	6,303,865
<u>Administration Costs</u>	<u>2,310,420</u>	<u>1,263,360</u>	<u>3,573,780</u>
<u>Total Operating Costs</u>	<u>13,254,599</u>	<u>6,820,515</u>	<u>20,075,114</u>
Interest	242,021		242,021
Provision for D/Debts	<u>176,295</u>	<u>94,545</u>	<u>270,840</u>
Total Financial Expenses	<u>418,316</u>	<u>94,545</u>	<u>512,861</u>
Total Costs	<u>13,672,915</u>	<u>6,915,060</u>	<u>20,587,861</u>
Surplus (Deficit) for the the Year	2,806,548	(2,135,991)	670,557

PUBLIC ELECTRICITY AND WATER CORPORATION
SCHEDULE OF LONG TERM LIABILITIES
(LOAN) AS AT JUNE 30TH 1978

<u>Description</u>	<u>1977/78 (LS) Outstanding Balance</u>	<u>Repayment Begins</u>	<u>Interest Rate</u>
I. B. R. D.	5,864,526	N/A	N/A
A. D. B. (E)	1,065,542	January 1979	7%
A. D. B. (W)	48,691	N/A	N/A
Kuwait Fund 53	262,912	N/A	N/A
Kuwait Fund 34	125,593	N/A	N/A
I. D. A. 564	13,978,211	January 1979	8%
I. D. A. 364	577,086	N/A	N/A
Saudi Fund	779,003	December 1980	3%
Ploish Loan	5,965	N/A	N/A
G. D. R.	729,465	N/A	N/A
Swiss Loan	260,976	January 1979	7.75%
C. I. B. L.	<u>440,000</u>	July 1978	9.25%
	24,137,970		

N/a - not available

PUBLIC ELECTRICITY AND WATER CORPORATION
UNIT REVENUE VS. UNIT COST FOR WATER, 1977/78

<u>Description</u>	<u>Amount (Million)</u>	<u>Volume of Water (m³)</u>	<u>Amount per m³</u>
Revenue	LS 4.8	90,000,000	LS 0.053
Operating Cost*	LS 6.9	90,000,000	<u>LS 0.077</u>
		Loss per m ³	LS 0.024
		Loss per m ³ /cost per m ³	31%

*Exclusive of Interest Charges

APPENDIX E – SUDANESE ESTATES BANK ACT

APPENDIX E

THE SUDANESE ESTATES BANK ACT, 1966

AN ACT to establish an Estates Bank in the Sudan for Development.

BE IT HEREBY Enacted by the Constituent Assembly in accordance with the provisions of Sudan Transitional Constitution (amended 1964) as follows :-

CHAPTER I

PRELIMINARY

1. This Act may be cited as " The Sudanese Estates Bank Act, 1966" and shall come into force in the Appointed Day. Title and Commencement
2. In this Act unless the context otherwise require, the following words and expressions shall have the meanings hereinafter respectively assigned to them :-
- | | |
|---------------------|--|
| "Minister" | means Minister of Finance & National Economy |
| "Bank" | means the Sudanese Estates Bank established by this Act. |
| "Board" | means the Board of Directors of the Bank |
| "Managing Director" | means the Managing Director of the Bank |
| "Director" | means a Director of the Bank and includes an alternate member. |
| "Prescribed " | means prescribed by regulations |
| "Appointed Day" | means such day as the Minister may appoint by notification in Gazette. |

CHAPTER II

ESTABLISHMENT AND COMPOSITION OF THE BANK

3. (1) There is hereby established a Bank to be called the Sudanese Estates Bank.
- (2) The Bank shall on the appointed Day, be a body corporate having a common seal.
- (3) The Head Office of the Bank shall be at Khartoum, and shall be competent to open branches or agencies in any area or at any place approved by the Board.
4. The Bank shall have a Board which shall be constituted of :- Establishment and Constitution of the Board.
- | | |
|---|--|
| (a) The Managing Director | |
| (b) One Representative of each of the following:- | |

- (i) Ministry of Finance and National Economy
 - (ii) Ministry of Construction and Public Works
 - (iii) Ministry of Local Government, Housing and Community Development (Housing Department)
 - (v) Bank of Sudan.
- (a) Three other persons appointed by the Minister, not holding any office of profit under the Government.
- (2) Every representative shall have a deputy holding a post not less than assistant under-secretary of a ministry.
5. The members appointed under clause (2) of the preceding section shall hold office for a period of three years from the date of their appointment and may be eligible for reappointment Tenure of Office
6. All appointments of members of the board shall be published in the Gazette. Publication of appointments of Members of the Board
7. A person shall be disqualified from being or continuing as a member in the Board if he :- Disquali-
- a) is a member to Sudan Legislature.
 - b) becomes of unsound mind
 - c) is convicted of an offence involving moral turpitude or dishonesty by a court of competent jurisdiction.
 - d) resigns
 - e) dies.
 - f) is, or has at any time been adjudicated insolvent; or compounds with his creditors or suspends payment of his debts.
 - g) accepts an office of profit in the Bank other than the office of the Managing or Deputy Managing Director.
 - h) is one of the members specified in paragraph (o) of section 4 hereof, and absents himself from three consecutive meetings of the Board, without any good cause to the satisfaction of the Board.
8. If any of the offices of the members specified in paragraph (o) of section 4 becomes vacant it shall be filled by a person to be appointed by the Minister after consultation with the Board. Filling of Vacancies
9. (1) The Board shall meet at least once every month Board Meetings.
- (2) The meeting shall be presided over by a Director to be appointed by the Minister to act as Chairman either generally or for a particular meeting and in his absence the members shall elect from amongst themselves a chairman for such meeting.

(3) No meeting of the Board shall be legal unless it is attended by at least five members. The Board shall pass its decisions by a majority of its members present and voting.

(4) Each member shall have one vote and in case of equality of votes the matter in dispute shall be referred to another meeting to be fixed by the Board, and if there is also equality of votes in that other meeting the matter in dispute shall be deemed to be refused " provided that in case of equality of votes in respect of any matter which affects the general policy of the Bank and which must be put for vote, the chairman shall, in addition to his ordinary vote, have a casting vote"

10. The Board shall cause minutes to be made and kept of the proceedings of its meetings, including the names of those present at each meeting, and these minutes shall be signed by all members attending.

Minutes and
Records of
of the Board
Meetings.

11. The Board may, if it considers it at any time expedient or fit, appoint from amongst its members a committee of not more than three members and define its functions.

Committee
of Directors

12. The Minister, may, as and when he considers it necessary or expedient give to the Board directions of a general character in regard to any such function, activity or affair of the Bank which appears to him to be public interest and the Board shall follow such directions.

Power of
Minister
to give
Directions

13. Subject to the provisions of the preceding section, the general supervision and direction of the affairs of the Bank shall vest in the Board which exercise all powers and perform all functions on behalf of the Bank.

Administration

14. (1) There shall be a Managing Director of the Bank who shall be a person of suitable qualifications and shall be appointed by the Council of Ministers on recommendation of the Minister on such terms and for such period as may be determined and he may be eligible for re-appointment.

Managing
Director

(2) The Board shall delegate to the Managing Director such of its functions under this Act as are necessary or enable him to transact effectively the day-to-day business of the Bank of every kind whatsoever and in particular and without prejudice to the generality of the foregoing shall delegate to him the power to exercise supervision and control over the acts of all servants of the Bank in matters of executive administration and in matters concerning the accounts and records of the bank, and subject to any general restrictions which may be imposed by the Board, the power to dispose of all questions relating to the service of the said servants and their pay, privileges and allowances.

CHAPTER III

OBJECTS AND POWERS OF THE BANK

15. The main objects of the Bank shall be :-

1. Objects.

(a) To make loans to any Suddhese person who is owner or lessee of a plot of land for the construction of new buildings or the improvement of existing buildings in consideration of mortgaging that plot

and the buildings thereon to the Bank on such terms and restrictions as the Bank may prescribe.

- "(b) to transact in the field of estate credits by providing short or long term loans to any Sudanese person in any field or any activity connected, directly or indirectly, with objects of the Bank; provided that the rate of interest shall be the current rate and the period for repayment of the loan shall not exceed the period prescribed by the Bank; and provided further, that the borrower shall offer sufficient security different from any other securities offered for any previous debt".
- (c) To buy and sell houses shops, and other buildings on such terms and restrictions as the Bank may prescribe.
- (d) To conduct researches and studies with the object of reducing the costs of buildings, and assimilate local materials in building operations in as far as this is practicable.
- (e) To carry out any other object as may be necessitated directly or indirectly by the nature of its business.

16. The Bank shall, in addition to any powers granted thereto by this Act, exercise the powers specified in the following sections :-

2- Powers
of the Bank

17. In carrying into effect the objects of this Act, the Bank shall be competent to :-

Power to
Grant Loans
etc.

- (1) grant loans, discount bills or provide credit facilities to persons approved by the Board in cash, kind, goods or services on such security and on such other terms and conditions as it may deem fit, appropriate or expedient.
- (2) extend, renew, or call up, at its discretion any loan or credit facility, not paid or adjusted in accordance with the terms on which it was originally granted.
- (3) Obtain any rights accrued or assigned to it, make any settlement in respect to them and accept payment of loans before they fall due as may be prescribed.

18. For any or all of the purposes mentioned in the preceding section, the Board may call for information from applicants for loans and from borrowers in regard to their financial position, assets and liabilities as it may consider necessary.

Power to
call for
Information

19. The Bank may, with the approval of the Minister borrow or raise funds in such manner as may be expedient and give security for money so borrowed, or issue bonds on guarantee by the Government.

Power of
Borrowing.

20. The Board shall keep any part of the Bank's fund in current or deposit accounts with the Bank of the Sudan, and may with the consent of the Minister keep it in any other Bank and may authorize operations on these accounts in such manner as it may deem proper.

Power to
Open
Accounts
with Other
Banks.

21. The Bank may invest its idle or surplus funds in such manner and to such extent as may be authorized by the Minister

Power to
invest
Funds.

22. The Bank may in carrying into effect the provisions of this Act :-

Power to
Enter Into
Contracts and
to Acquire
Property

(1) Enter into any contracts which it deems necessary or expedient for the running of its business.

(2) Acquire such movable or immovable property as may be necessary or expedient for the running of its business and may sell, lease, mortgage or dispose of any of the property it owns by any other means.

23. The Bank may :-

Power to
Accept
Deposit

(1) Accept without interest free deposits in current accounts payable on demand;

(2) Receive interest bearing deposits, subject to notice of withdrawal, and on such other terms and conditions as the Bank may from time to time determine.

CHAPTER IV

PROVISIONS RELATING TO LOANS

24. Repealed

25. The amount of the loan granted to any person shall be determined in accordance with the studies made by the Bank for ascertaining the cost of the building and the ability of the borrower to construct the same.

Determination
of Amount of
Loan

26. A loan may be granted for long or short period as prescribed by the Board and shall be repayed by monthly instalments in the interest being calculated as prescribed by the Board

Repayment
of Mort-
gaging
selling or
Disposing
of Plot
Prohibition
of Mortgaging
Selling or
Disposing
of Plot.

27. (1) The person to whom the loan is made shall not make a second or any other mortgage of the plot to any person neither shall he sell it or dispose of it in any manner whatsoever without the Bank's previous consent in writing.

(2) Any other mortgage, sale or disposition of the plot without the Bank's consent is deemed null and void.

28. The person to whom the loan is made shall notify the Bank at once in writing of any damage whatsoever occurring to the plot and buildings thereon and the Bank if it considers that the damage may affect its rights in the plot, may enter the plot to make such enquiries or inspection as it may consider necessary for discovering the cause of the damage or for taking any other measures.

Duty to
Notify the
Bank in
Case of
Damage to
Plot

29. If the Bank is of opinion that the plot and buildings thereon are in a medium or even which may expose them to damage, destruction or fire or any other danger it may require the person to whom the loan is made to insure them on his account for the benefit of the Bank and, if he fails so to do, the Bank shall insure the same and the costs of insurance shall be added to the debts of that person.

Insurance
of Plot and
Buildings

CHAPTER V
FINANCE AND ACCOUNTS

30. The Financial Year of the Bank shall start as from the first day of January of every calendar year and shall end on the thirty first day of December of the same year except in case of the first year where it shall start on the Appointed Day.

31. The Board shall cause correct and proper accounts to be kept of all transactions of the Bank and of records and books pertaining.

Accounts

32. The accounts of the Bank shall be audited by Auditors appointed by the Board with the approval of the Minister, The remuneration of the Auditors shall also be fixed by the Board from year to year.

Auditing
of Accounts

33. (1) As soon as possible after the close of each working year, but in any case not later than fourteen days from the date of the annual closing of accounts, the Board shall cause an annual Balance Sheet to be drawn up in respect of the annual profit and loss account. The Balance Sheet and the profit and loss statement shall be signed by the Managing Director and one Director.

Making of
Balance
Sheet and
and
Reports

(2) A copy of the annual Balance Sheet and Profit and Loss Statement, together with the Directors' and Auditors, reports shall be submitted to the Minister within three months of the closing of the working year of the Bank. The Minister shall cause the Balance and Profit and Loss Statement to be published in Gazette and shall also lay a copy thereof upon the table of Sudan Legislature.

34. The Board shall determine from time to time, the manner in which documents, cheques, promissory notes, drafts, bills of exchange and other negotiable instruments and all receipts for money paid to the Bank shall be signed, drawn, accepted, endorsed or otherwise executed.

Authen -
tication

35. (1) The authorized capital of the Bank shall be seven million pounds liable to increase to ten million pounds to be paid by the Bank of Sudan on behalf of the Government.

Authorized
Capital

(2) The Bank of Sudan shall transfer to the Bank the rights of the Government in such existing housing loans made by it as it may wish to transfer together with interest accrued thereon to the date of the transfer whether paid or unpaid. Such transfer shall carry with it guarantee of the Bank of Sudan to the effect that if any such loan or part thereof remains unpaid beyond the due date of repayment, the outstanding amount together with interest accrued thereon and all legal expenses

incurred by the Bank in connection with the loan, shall be paid in cash by the Bank of Sudan to the Bank to the Bank on demand.

36. The Bank shall establish a Reserve Fund, and the Minister shall annually after meeting such liabilities of the Bank as referred to in section 37, determine the amounts that are to be allotted to this Fund and to the Bank of Sudan out of the surplus revenues of the Bank.

Reserve Fund

37. Subject to the preceding section and after allowing for the expenses of operations, and subject to provisions being made for any bad or doubtful debts, depreciation in assets, contributions to staff provident and pension funds and such other contingencies as may be necessary or as are usually provided for by Banks, the Board may, out of the profits of the Bank, carry to reserve or reserves such sums as it thinks proper and which shall, at the discretion of the Board, be applicable for meeting contingencies or for any other purpose to which the profits of the Bank may properly be applied and, pending such application to the business of the Bank, invest the same in accordance with the provisions of section 21 hereof.

Distribution
of Profits

CHAPTER VI

38. The Bank shall have a Deputy Managing Director to be appointed by the Minister with approval of the Council of Ministers pursuant to such terms and for such period as may be determined and shall perform the duties/carry out the functions assigned to him by the Managing Director.

Appointment
of the Deputy
Managing
Director

39. The Managing and Deputy Managing Directors and all staff of the Bank shall devote the whole of their time for the service of the Bank and no one of them during his service in the Bank shall serve in any other enterprise or carry on any business or trade.

Devotion
of time for
Bank's Service

(a) Everything relating to the appointment, promotion, transfer, retirement and discipline of the officials of the Bank shall be prescribed by the regulations made under this act.

Discipline
and retire-
ment etc. of
the Officials
of the Bank

40. No liability shall attach to any member of the Bank or any office or employee thereof in respect of anything which he may have done or omitted to do in good faith in the execution of his duties as a Director, Officer or Employee of the Bank.

Protection
of Directors
and Employees
of the Bank.

41. (1) The salaries of the Managing and Deputy Managing Directors shall be determined by the Minister with approval of the Council of Ministers

Salaries
and Other
Entitlements

(2) The salaries and entitlement of the other staff of the Bank shall be determined by the Board with approval of the Minister.

of the
Bank's
Staff.

42. (1) The Managing Director and Directors specified in paragraph (b) of section 4 of this Act shall not be entitled to any remuneration or to any fees for attending Board or Committee meetings but may be paid out of the funds of the Bank actual travelling expenses, hotel or incidental expenses which they may incur in attending meetings held outside their Headquarters.

Remuneration
of
Directors

(2) The other Directors specified in paragraph (c) of section 4 hereof shall be paid out of the funds of the Bank, by way of remuneration for their services, such fees, allowances and expenses as the Minister after consultation with the Board may by order determine.

CHAPTER VII

LEGAL MATTERS

43. (1) Any person who obstructs any of the staff of the Bank when taking any measures under section 29 of this Act shall be committing an offence under section 161 of the Penal Code.

Punishment
when Bank's
Staff are
Obstructed

(2) Any person who is injured by any measure taken under section 29 of this Act may apply to a Judge of the High Court for the removal of that injury.

44. If any person obtains any advantage under this Act by dishonestly supplying any information which is not true, correct or complete, he shall be deemed to have committed an offence under section 362 of the Penal Code.

Punishment
for Wrong
or False
Information

CHAPTER VIII

GENERAL PROVISIONS

45. Any Director who is in any way directly or indirectly interested in any matter or proposal placed before the Board for consideration shall disclose the nature of his interest to the Board and shall take no part in any deliberation or decision of the Board with regard to such matter or proposal.

Disclosure
of Directors'
Interest

46. The Bank shall not at any time go into liquidation except in accordance with an Act of Sudan Legislature.

Liquidation
of the
Bank.

47. Every Director, official and employee of the Bank shall treat as top secret every matter connected with the Bank.

Secrecy
in Bank
Matters

CHAPTER IX
REGULATIONS

48. (1) The Board may make regulations not inconsistent with this Act to provide for all matters for which provision is necessary or expedient for the purpose of giving effect to the provisions of this Act.

Power
to Make
Regulations

(2) In particular and without prejudice to the generality of the foregoing such Regulations may provide for :-

- (a) the proper working of the Bank.
- (b) the proper conduct of business of the Board and keeping records thereof.
- (c) Appointment of subsidiary committees and the specification of their powers and functions.
- (d) The form and manner in which any information is to be supplied to the Bank or to any other authority or officer specified therein.
- (e) the form in which any application is made to the Managing Director by persons applying for loans and specification of the information required before inspection of application.
- (f) the form in which agreements, contracts, accounts and returns relating to the business of the Bank are made.
- (g) the manner by which branch offices or agencies are opened by the Bank.

49. The Board may make such bye-laws as may be necessary for the regulation of its meetings.

bye-Laws

**APPENDIX F – LIST OF SUDANESE OFFICIALS AND CONTRACTORS WITH
WHOM THE STUDY TEAM MET**

LIST OF SUDANESE OFFICIALS AND CONTRACTORS WITH WHOM THE STUDY
TEAM MET

- Mr. Mohammed Sid Ahmed Abdulla, Minister of Construction and Public Works
- Mr. Omar Musharaf, Acting Director, Dept. of Housing, Ministry of Construction and Public Works
- Mr. Joseph Nakla, Architect/Liaison Officer, Dept. of Housing
- Mr. Omar A'Nabi, Chief of Sewerage Section, Department of Housing
- Mr. Awad El Karim Mohd., Chief of Town Planning Section, Department of Housing
- Mr. Mohammed Khasan Eisa, Architect, Building Research Unit, Department of Housing
- Mr. Mohammed Daak, Urban Planner, Department of Housing
- Mr. Abdel Ahmed El Agib, Director, Council for Scientific & Technological Research
- Dr. A'Wahab Osman, Under-secretary, Ministry of Finance
- Mr. Ahmed El Mansour, Service Sector Officer, Ministry of National Planning
- Mr. Konani, Managing Director, Estates Bank
- Mr. Suleiman Ibrahim Mohed, Assistant Managing Director, Estates Bank
- Dr. Fadl, Director, Road & Building Research Institute
- Mr. Abdel Rahman Salman, Commissioner, Red Sea Province
- Mr. Mohammed El Hassan Shingrai, Head of Regional Planning Office of the Department of Housing, Port Sudan
- Mr. Ahmed Abdel Latif, Deputy Commissioner of Land, Red Sea Province
- Mr. A'Rahman Hag Musa, Deputy Commissioner of Survey, Red Sea Province
- Mr. Nur El Dayem Ahmed Saeed, Architect-Planner, Regional Office of Housing, Port Sudan

- Mr. El Daw Mohammed El Mradi, Assistant Commissioner of Town Planning, North Kordofan Province, El Obeid
- Mr. Yahia Hasan Hamad, Assistant Commissioner of Finance, Khartoum Province
- Mr. Mohammed Sid Ahmed, Chairman, Development Committee, Khartoum People's Council
- Mr. Bakri Abdel Rahim, Assistant Commissioner of Land and Housing, Khartoum Province
- Mr. Gamar El Anbya, Deputy Under-Secretary Ministry of Cooperation
- Dr. Abdul Osama, Assistant Under-Secretary for Loans and Research, Ministry of Finance
- Mr. Abou El Aziz Abdel Rahim Soliman, Assistant Under-Secretary, Ministry of Finance
- Mr. Tawfig El Gazi, Director, Executive Office, Ministry of Finance
- Mr. Mohammed Osman Hassan Hussein, Assistant General Manager, Bank of Sudan
- Mr. Fath El Rahman Idris, General Manager for Economic Research & Statistics, Bank of Sudan
- Mr. Ibrahim Mohammed Ali Nimir, Governor, Bank of Sudan
- Mr. Mohammed Sayed Gadi, Acting Director General of Posts and Telegraphs
- Mr. Mohammed Farah, Head of Premium Bonds, Posts and Telegraphs
- Mr. Tag El Din, Financing Manager, General Insurance Company
- Mr. Hamad Satti, Chairman & Managing Director, Real Estate Public Corporation
- Dr. Swour El Dahab Ahmed Eisa, General Director, Center for Management & Productivity
- Mr. Galobawi Mohammed Salih, Deputy Minister, Ministry of Public Service and Administrative Reform
- Miss Berta Fahmi Saeed, Chief, Labor Market Information Unit, Ministry of Public Service and Administrative Reform
- Mr. Osman Mohammed Adam, Building Contractor
- Mr. Sayed Abdulla El Sayed, Consulting Engineers and Contractor

- Mrs. Badia Mohammed Abdel Rahman, Deputy Director, Personnel Division, Civil Service Department, Ministry of Public Service and Administrative Reform
- Mr. Ahmed Abdel Rahman Ishag, Acting Director, Central Bureau for Public Corporation, Ministry of Public Service and Administrative Reform
- Mr. Abdel Latif Ibrahim, Director of Planning, Division of Power, Public Electricity and Water Corporation
- Mr. Salah Behir, Director, Central Bureau for Job Classification and Evaluation, Ministry for Public Service and Administrative Reform
- Mr. Mathew Othow, Director of Housing, Ministry of Housing and Public Utilities, Southern Region
- Mr. Richard K'Paratio, Deputy Commissioner for Administration, East Equatoria Province
- Mr. Stanly Ajo Dedi, Commissioner, East Equatoria Province
- Mr. Daniels Dhanho, Deputy Director of Buildings and Works, Ministry of Housing and Public Utilities, Southern Region
- Mr. John Rong, Area Manager, Public Electricity and Water Corporation, Southern Region
- Mr. Joseph Akol, Senior Water Engineer, Public Electricity and Water Corporation, Southern Region
- Mr. Barnaba D. Wani, Regional Minister, Ministry of Housing and Public Utilities
- Mr. Omar Hamid, General Manager, Public Electricity and Water Corporation
- Mr. Mohammed El Madir Mirghni, Deputy General Manager, Public Electricity and Water Corporation