

**Regional Case Studies for the Africities Conference
Report**

KHARTOUM

Dr. Mona Serageldin

Study Team

Dr. Tarek Waly
Dr. François Vigier
Oriol Monfort
Maren Larsen

November 20, 2015

ACKNOWLEDGEMENTS

The authors would like to thank the following senior officials and consultants at Khartoum State Units, Councils, and Ministries for meeting and for providing invaluable information about Khartoum: Dr. Gamal Mahmoud Hamid from the University of Khartoum; Dr. Tarig Obeid Medaniand and Eng. Shamaselden Almoutsem from the Khartoum State Ministry of Infrastructure and Transportation; Eng. Haram Osman and Eng. Akram Idris from the Technical Unit of Structure Plan Implementation; Dr. Salah Abukashawa from the Ministry of Urban Planning; Eng. Faiz Abbas Mohamed Sallam from the KPP Implementation Unit; Dr. Amir Mirgani AbdElrahman, Mr. Alfatih Ahmed Abdrahman, and Dr. Hassan Abdelaziz Mohamoud from the Higher Council on Strategic Planning; and Mr. Aljallany Omar Hassan Traibow and Mr. Tariq Abd Alwahab Moussa from the Local Government Chamber.

Table of Contents

| | | |
|-------|---|----|
| 1 | OVERVIEW..... | 5 |
| 2 | SYSTEMIC ANALYSIS OF THE CITY | 8 |
| 2.1 | Managing the Spatial Development of Khartoum..... | 8 |
| 2.2 | Characteristics of Khartoum..... | 13 |
| 2.2.1 | Human Characteristics | 13 |
| 2.2.2 | Health and Education | 15 |
| 2.2.3 | Economy..... | 15 |
| 2.3 | Governance and Administrative Structure | 17 |
| 2.4 | Challenges facing Khartoum | 23 |
| 2.4.1 | Environmental Challenges | 23 |
| 2.4.2 | Pollution | 24 |
| 2.4.3 | Poverty | 24 |
| 2.4.4 | Population movements and Internally Displaces Persons (IDPs) | 25 |
| 3. | LOOKING TO THE FUTURE | 26 |
| | Bibliography | 35 |
| | Figure 1: Map of Khartoum | 5 |
| | Figure 2: Growth of Khartoum 1920 - 2008..... | 6 |
| | Figure 3: Conceptual Approach | 7 |
| | Figure 4: Traditional Zoning Categories in Sudan..... | 8 |
| | Figure 5: McLean's 1910 Plan of Khartoum (Left); Doxiadis 1958 Master Plan (Right) | 10 |
| | Figure 6: MEFIT 1974-77 Regional and Master Plan (Left);..... | 10 |
| | Figure 7: CENTECS and MEFIT 2008 KPP5 Plan at the State (Left) and City Scale (Right) | 11 |
| | Figure 8: Population Projection – 2008 - 2018 (x1,000) | 13 |
| | Figure 9: Population Pyramids for Khartoum State in 2008 and 2017 | 14 |
| | Figure 10: Table of Administrative Structure of Khartoum Province | 17 |
| | Figure 11: Organizational Structure of National Strategic Planning | 19 |
| | Figure 12: Proposed Treatment of Squatter Areas..... | 22 |
| | Figure 13: Flooding in Khartoum State in 2014 | 23 |
| | Figure 14: Existing built-up area (Left) and KPP5 Plan (Right) | 31 |
| | Figure 15: Near-term Development Scenario | 32 |
| | Figure 16: Longer-term Development Scenario | 34 |

List of Acronyms

CBD – Central Business District

CPA – Comprehensive Peace Agreement

GCC – Gulf Cooperation Council

GDP – Gross Domestic Product

GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit

HDI – Human Development Index

ICT – Information and Communication Technology

IDP – Internally Displaced Person

IFRC – International Federation of Red Cross and Red Crescent Societies

IPCC – Inter-governmental Panel on Climate Change

JAM – Joint Mission on Needs Assessments

KPP5 – Fifth Khartoum Structure Plan (2008-2033)

MEFUD – Ministry of Environment, Forestry, and Urban Development

MDG – Millennium Development Goal

NASA – National Aeronautics and Space Administration

NCUD – National Council for Urban Development

NGO – Non-governmental Organization

OCHA – Office for the Coordination of Humanitarian Affairs

PRB – Population Reference Bureau

UN – United Nations

UN-DESA – United Nations Department of Economic and Social Affairs

UNDP – United Nations Development Program

UNEP – United Nations Environment Program

UNESCO – United Nations Educational, Scientific, and Cultural Organization

UNFPA – United Nations Population Fund

UN-Habitat – United Nations Human Settlements Programme

UNITAR – United Nations Institute for Training and Research

USAID – United States Agency for International Development

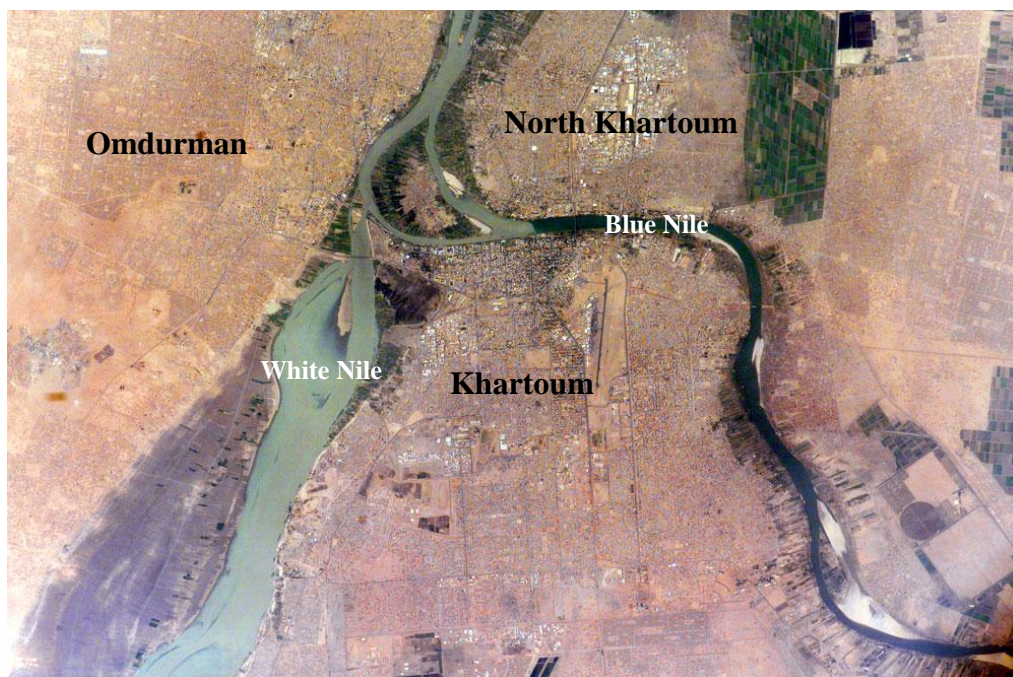
USD – United States Dollar

1 OVERVIEW

Khartoum, the capital of Sudan, is located at the confluence of the Blue and White Niles. This strategic site was bound to be the location of an important settlement. The first was Omdurman to the west of the White Nile where it had some protection from the annual flooding of the two rivers. The original Khartoum was built in the 1830s by the Ottoman colonial administration. Today, metropolitan Khartoum consists of Khartoum proper (the seat of government), North Khartoum, and Omdurman; the three settlements have grown in tandem since the construction of the Blue Nile Bridge in 1909 and the White Nile Bridge in 1928.

Khartoum State is the smallest state in Sudan with a total area of a little over 2 million hectares, but also the most populous, with 17.1% of Sudan's total population and over half of the urban population. Urbanization in Sudan is driven predominantly by push factors, including the mechanization of agriculture, drought, and population displacements caused by tribal conflicts and a civil war that ended with the secession of the southernmost states that became independent South Sudan.

Figure 1: Map of Khartoum



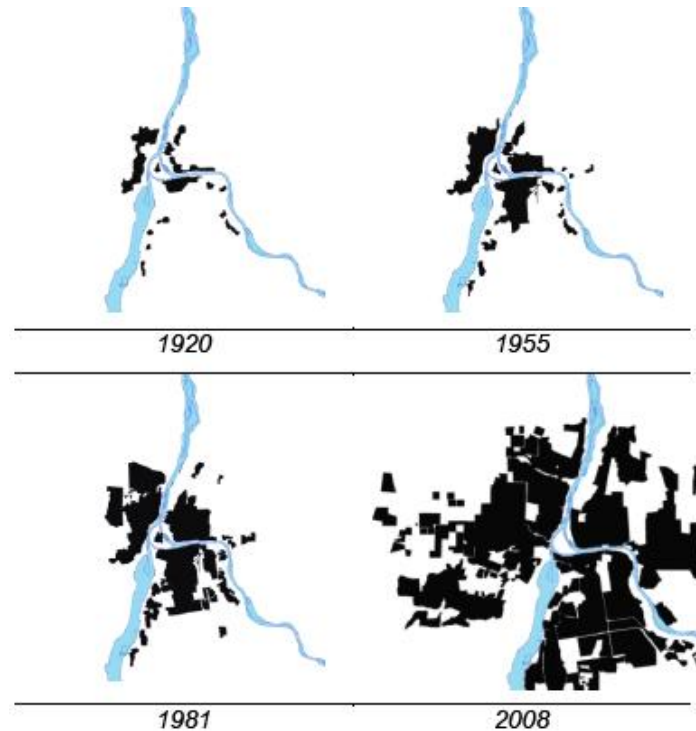
Source: NASA Earth Observatory. 2005.

Khartoum's Growth and Development Stages

Greater Khartoum has grown rapidly from a small urban center with only 245,000 inhabitants at the time of independence in 1956, to about 784,000 in 1973, 1,343,000 in 1983 and, according to the census, 2,918,000 in 1993. Today, it has an estimated population of seven million, or about 21% of the country's population. The growth of the built-up area has been extraordinary, as it was 48 times larger in 1998 than in 1955. This substantial horizontal expansion of Greater

Khartoum has been driven by high population growth rate, an abundance of land, albeit unserviced, the availability of cheap building materials, a building code skewed toward low density development and a government policy of allocating a relatively large plot of land to every family (Eltayeb 2003).

Figure 2: Growth of Khartoum 1920 - 2008



Source: Khartoum State Structure Plan 2008

North Khartoum is the industrial center. Omdurman, the historic center, with a central marketplace designated as a UNESCO world heritage site, retains its traditional character with narrower streets and houses built with local materials. Khartoum's downtown, the commercial core of the city, is characterized by its mix of architectural sites. The recent relocation of the central bus station and associated markets further out has diminished its importance and resulted in greater commercial activity in upper-class areas. The urban poor and displaced people, many of whom live in camps, are concentrated on the urban periphery.

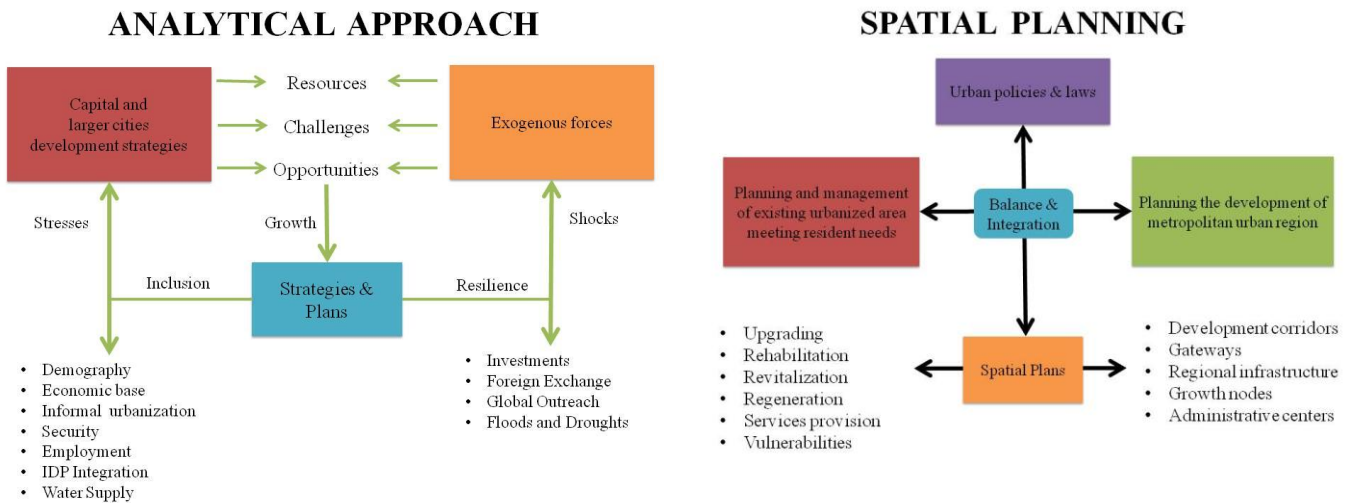
In Sudan's decentralized, federal system of government all decisions affecting the Greater Khartoum region are made at the level of the Khartoum State (*wilaya*) and within the municipalities (*mahaliya*). The lack of an explicit national urban spatial policy has resulted in a fragmented vision of urban and rural development and land use throughout each state in the country.

The management of a capital city that has grown as rapidly as Khartoum requires an understanding of its role in the national economy and its emerging position in the global context. Khartoum has to adapt its strategies, plans, and interventions to the changes caused by the

prolonged conflicts and secession of South Sudan. Khartoum is the driver of Sudan’s economy. Building its resilience in the face of sudden changes in macroeconomic conditions and climate change impacts, increasing in severity, are key to the recovery from the current downturn. As elsewhere in Africa this process is complicated by the stresses created by the youthfulness of the population, unemployment, social disparities, wasteful urbanization patterns, and large un-serviced areas. In Sudan, the situation is exacerbated by massive population movements and large numbers of internally displaced persons (IDPs).

The sharp decline in oil revenues has highlighted the competitiveness between investing in creating an enabling environment for future development and meeting pressing needs to alleviate service deficiencies and hardships.

Figure 3: Conceptual Approach



* * * *

The preparation of this case study combines a thorough literature review of English and Arabic documents and online resources with a one-week field mission completed by Dr. Tarek Waly in August 2015. Unless otherwise noted, the information presented refers to the entire jurisdiction of Khartoum State, which is 81% urban.¹

¹ According to the 2008 census, 81% of the population of Khartoum State lives in urban areas.

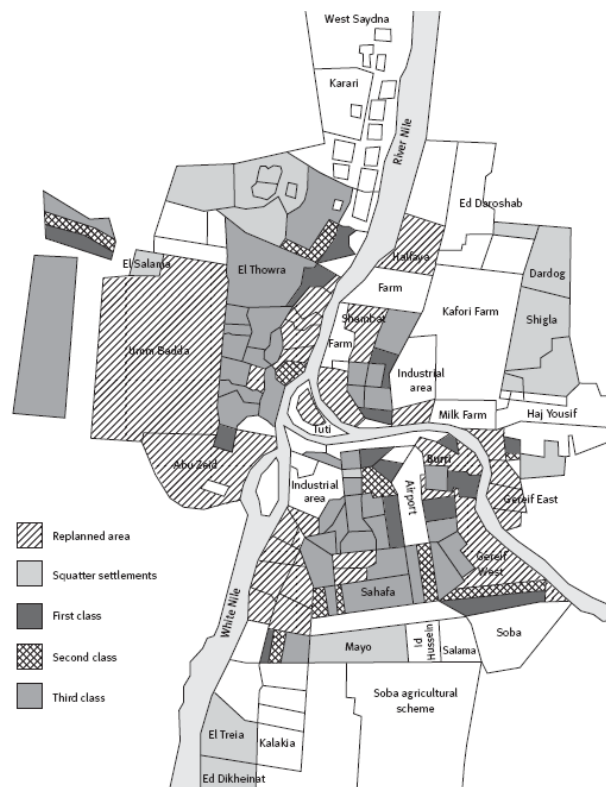
2 SYSTEMIC ANALYSIS OF THE CITY

2.1 Managing the Spatial Development of Khartoum

Khartoum’s urban morphology reveals a patchwork of planned and unplanned areas and adjacent areas of varying socio-economic status, density, and levels of service and infrastructure provision.

Settlement patterns in Khartoum have long been influenced by political, economic, and tribal factors and specific areas of the city have historically been associated with specific groups. Farming communities, for example, still inhabit land close to the Nile. The traditional zoning categories developed in the colonial period for Sudanese cities, each of which had minimum plot sizes and specific construction standards, created a clear spatial stratification associated with social status (Humanitarian Policy Group 2011). Many migrants and IDPs have traditionally settled in areas where relatives could provide social protection and employment support, further compounding the phenomenon of ethnic concentration in different areas of the city, a feature shared with other African and Middle Eastern cities with the emergence of spatial stratification by economic class.

Figure 4: Traditional Zoning Categories in Sudan



Source: Humanitarian Policy Group 2011

Sudan's wealth, generated primarily by oil revenues, has led to significant investment in Khartoum, the country's economic center. The proposed investments in the Khartoum State's agricultural and cattle-raising sectors are intended to contribute to a balanced modernization of Khartoum's economic activities and the promotion of manufacturing and exports. Recent development in the downtown is characterized by the emergence of high-rise towers and housing developments for the upper classes, often financed with investments from the Gulf region. In the peripheral neighborhoods and in areas close to industrial jobs, the population is generally lower-income and includes rural migrant laborers and IDPs.

Greater Khartoum's rapid population growth in the 1980s as a result of civil war, drought, desertification and the floods of 1989 outstripped the local authorities' capacity to manage the urbanized area's spatial development and the provision of housing and basic service. By 1984, 300,000 people, primarily from Darfur and Kordofan (where the impacts of these shocks and stresses were most acutely felt), had reached Omdurman and other Nile towns, seeking food and water. Despite efforts to return them to their place of origin, approximately one-sixth of them remained in settlements west of Omdurman. This ultimately led to the proliferation of a ring of informal settlements around Khartoum, which would become known as the "Black Belt" of displaced persons around the capital (Collins 2008).

In the 1990s, a series of attempts were made to deal with these settlements, including the relocation of settlements to planned neighborhoods with smaller plot sizes to increase residential density, sites and services approaches, and the incorporation of peripheral villages into the urban fabric. The sites and services schemes that assumed that the population would build their own dwellings led to a leapfrogging of development that segregated the poor in areas with limited development possibilities and unaffordable services. The rapid expansion of Khartoum over the last three decades overwhelmed the older planning and land allocation systems and new settlements, mostly unregulated, have sprawled in the peripheral neighborhoods of the city (Humanitarian Policy Group 2011).

Planning Background

The key drivers of urbanization have been forced displacements, including influxes of refugees and IDPs; seasonal and economic migration from all parts of the country; and the concentration of wealth and services in Khartoum.

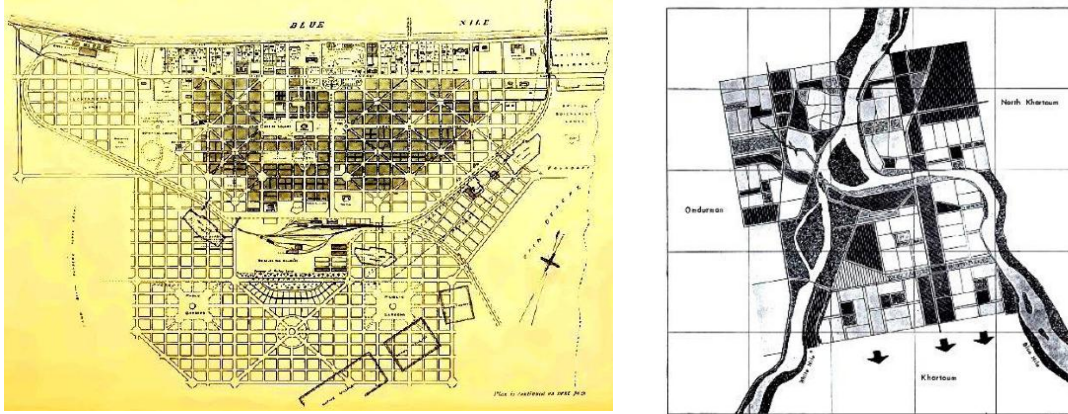
The 2007 Greater Khartoum Structure Plan is the capital region's fifth in a series that began in 1910. The 1910 plan for the reconstruction of Khartoum was prepared by a British municipal engineer, W.H. McLean, under the directives of the Governor-General of the Sudan, Lord Kitchener.² The new plan did not include Omdurman and Khartoum North and the result was a highly polarized town composed of a European-style nucleus of wide, tree-lined boulevards, mansions, government quarters, and "*native villages*" located outside the planned city beyond the railway line. Development was controlled by a zoning system, consisting of first, second, third, and fourth-class areas, with different plot sizes and housing classifications, which has been amended but not abolished.

Following independence, a Master Plan was prepared in 1958 by the Greek planning firm, Doxiadis Associates. It promoted the southward expansion of the city of Khartoum while

² The town had been destroyed.

preserving the particular character of Omdurman and curbing the growth of Omdurman and North Khartoum and creating links between them. Impediments to the realization of these proposals became apparent during the detailed design phase.

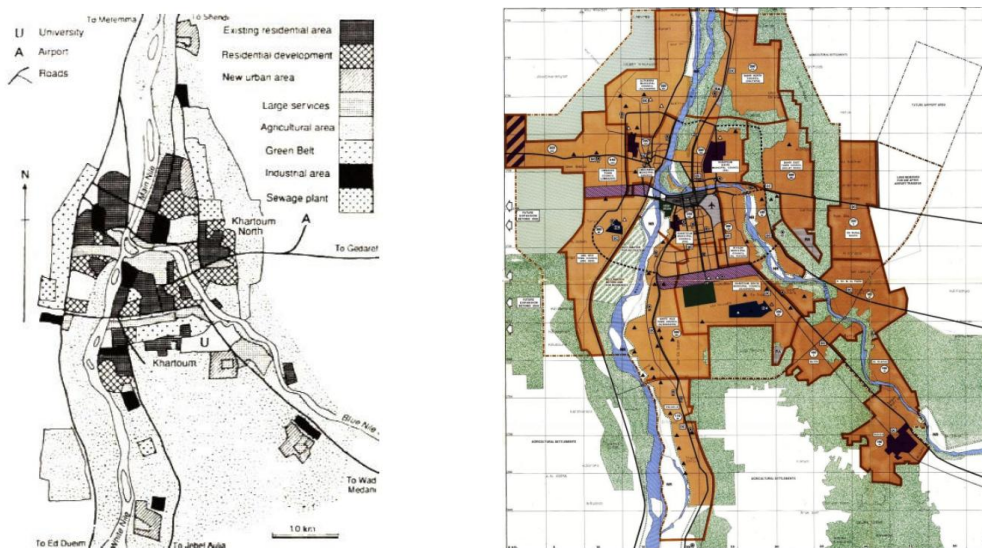
Figure 5: McLean's 1910 Plan of Khartoum (Left); Doxiadis 1958 Master Plan (Right)



Source: Khartoum State Structure Plan 2008

The accelerated growth of Greater Khartoum in the 1960s, 1970s, and 1980s, first as a result of refugees displaced by the Eritrean war of independence, the 1983 – 84 severe droughts and famines in eastern and western Sudan, the 1988 floods and the escalation of civil wars in southern Sudan prompted the preparation of a new regional growth strategy. A new Regional Plan for Khartoum and Master Plan for the Three Towns was prepared by MEFIT Ltd. in 1975. It considered each of the three cities as a self-managed entity and proposed the relocation of some ministries in order to decrease commuting. The plan was not implemented due to lack of political support and funding. However, its regional focus allowed taking into account the juxtaposition of agricultural and urban functions for the first time.

Figure 6: MEFIT 1974-77 Regional and Master Plan (Left); Doxiadis and AM Mustafa 1991 Structure Plan (Right)



Source: Khartoum State Structure Plan 2008

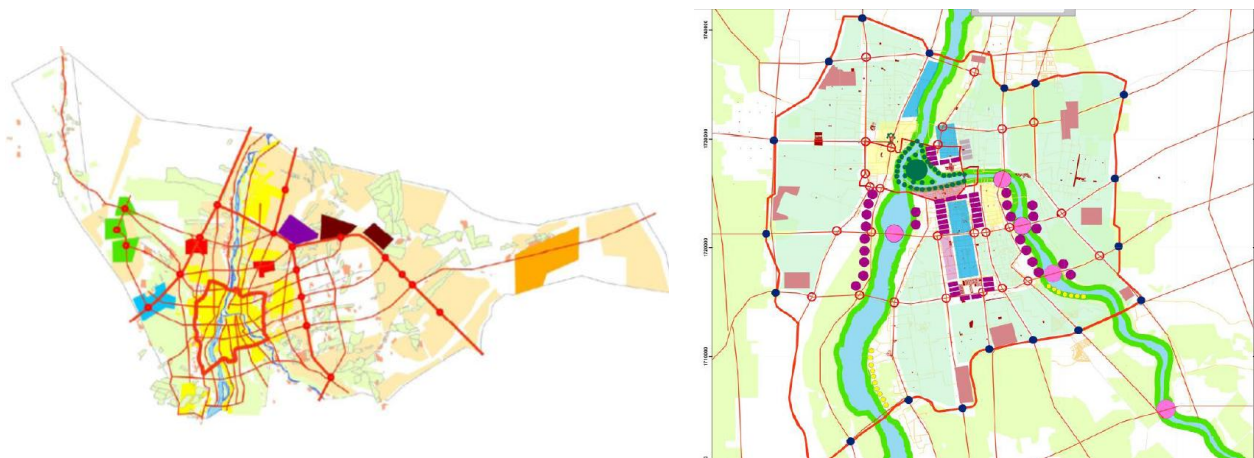
The fourth plan was prepared in 1991 by Doxiadis and Abdel Moneim Mustafa Associates. It focused on infrastructure and such structural elements as transportation axes, bridges, ring roads, the revitalization of the CBD, and some action projects and priority areas. The plan did not take into consideration climate and environmental changes that brought shifts in the distribution of population in Sudan or its impacts on the Khartoum region.

Khartoum Structure Plan (KPP5 2008-2033)

The most recent plan for Greater Khartoum, the Khartoum Structure Plan – 2008-2033 (KPP5), was prepared in 2007 by MEFIT Ltd and is the current planning document. Its objective is to create a development strategy for the State of Khartoum as well as the capital city. Spatial strategies, particularly in the capital, aim at the integration of new formal and informal settlements into the existing urban fabric. Focusing both on major redevelopment projects and strategic expansions of the urbanized area, the plan should be read more like a vision, in the sense that it suggests different scenarios and a range of potential projects, with the underlying assumption that not everything can be done and not all the proposals have the same importance.

The structure plan’s main objective is to ease congestion in the center, and relocate big industrial and civic compounds – including government agencies, military barracks and educational institutions - to more peripheral locations. For instance, it includes a proposal to decrease the amount of cargo transiting through the city by moving some industrial activities from congested areas, to new sites on the main ring road. Additionally, the plan emphasizes the importance of extending services to rural areas on the fringes of the city including investment to increase the efficiency of agricultural production, microfinance support for urban families, and to support to key industries.

Figure 7: CENTECS and MEFIT 2008 KPP5 Plan at the State (Left) and City Scale (Right)



Source: Khartoum State Structure Plan

The plan seeks a more balanced regional development pattern that lessens population pressures on the capital city by establishing nine new satellite cities around Khartoum. It also proposes to stem rural-urban migration by improving the quality of life in rural areas, and to address the

proliferation of informal settlements by creating new planned settlements to divert population growth to peri-urban locations.

To increase the compactness of the urbanized area and, therefore, the efficiency of delivering public services, it advocates for a shift from the relatively large single-family plots in current bylaws and sites-and-services projects to smaller plot sizes and the construction of multi-family, multi-story blocks to increase densities and decrease the cost of land and infrastructure per housing unit.

The conceptual framework includes five levels of action and proposed projects at each level: national, inter-state, regional, urban, and rural. The *national level* shapes economic growth, governance, and financing, as well as major transport networks and the Housing Fund. At the *regional level*, the strategic objective is coherence among the activities of sub-regional units with a view to foster integrated, sustainable development. At the *urban level*, the focus is on population growth, land uses, and settlement patterns. The proposed urban observatory will be responsible for assembling data and developing methodologies to inform the planning, expansion, and management of the urbanized area.

The State considers the environment to be a critical factor in guiding development: protecting water bodies and agricultural land and the integration of rural settlements are prime considerations. Hence, the delineation of an urban perimeter by a ring road on which new towns are to be developed to provide sites for economic activities, including industry.

Within the urbanized area, the approach combines improvements in infrastructure and the control of wasteful sprawl through densification and the infill of vacant land. As part of the restructuring, military locations within the urbanized area will be relocated along major arterials to ensure defense and security. Similarly, there is a proposal to relocate ministries from the city center to the new towns; the long-term objective is to build a new administrative center near a new airport south of Omdurman. This is an onerous proposal whose rationale is not justified in the plan.

In contrast, proposals to create regional parks in forested areas, as well as an arboretum and sports facilities on the western edge of the city and fish ponds and markets on the eastern side are useful and functional means to preserve open space and complement the effort to provide green space within the city by landscaping interstitial areas and major roads, including the Nile Corniche.

Among the proposed redevelopment areas, priority is given to Tuti Island, centrally located between the three cities, Khartoum, Omdurman and Khartoum North, proposing its transformation as a center for culture, tourism and recreation. The location of Tuti Island, traditionally viewed as the original 17th century settlement, gives it considerable potential as a catalyst for transformation.

Implementation is phased in five-year components over 25 years to parallel the National Strategic Plan. The cost of implementing the Khartoum Structure Plan is estimated to be of the order of USD \$30.5 billion with a first phase (2008-2013) costing USD \$24 billion. The first phase is the most costly as it includes major infrastructure works to provide piped water to all existing residential areas and building schools and health clinics in unserved and underserved areas.

2.2 Characteristics of Khartoum

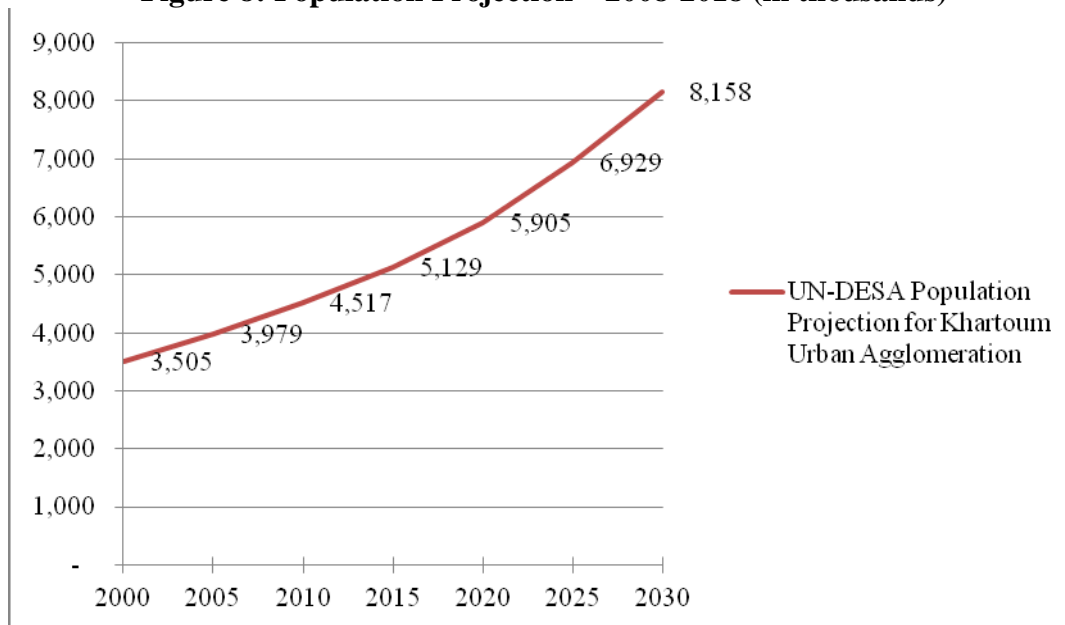
2.2.1 Human Characteristics

Sudan is an ethnically diverse country with a population composed primarily of descendants of migrants from the Arab peninsula and indigenous groups, such as the Nubian people of the Nile Valley. The country is predominantly Muslim but there is also a Sudanese Coptic Orthodox community as well as other Christian denominations, predominantly refugees and immigrants from South Sudan. Understanding the relationships among groups of people in Sudan’s tribal society is vital to understanding several of the dynamics that have shaped Khartoum’s spatial, economic, and administrative development.

Demography

Khartoum has experienced unprecedented growth since the mid-20th century with its population growing over six times and ranks today as the second largest metropolitan area in the region (UN-Population Division). As of the last census, undertaken in 2008, Khartoum State’s population was estimated at nearly 5.2 million (Republic of Sudan 2008). Sudan’s Central Bureau of Statistics has projected the population of Khartoum State at nearly 7.1 million for 2015. It is projected to increase at a slightly decreasing rate that hovers around 4% for the period of 2008 to 2018.

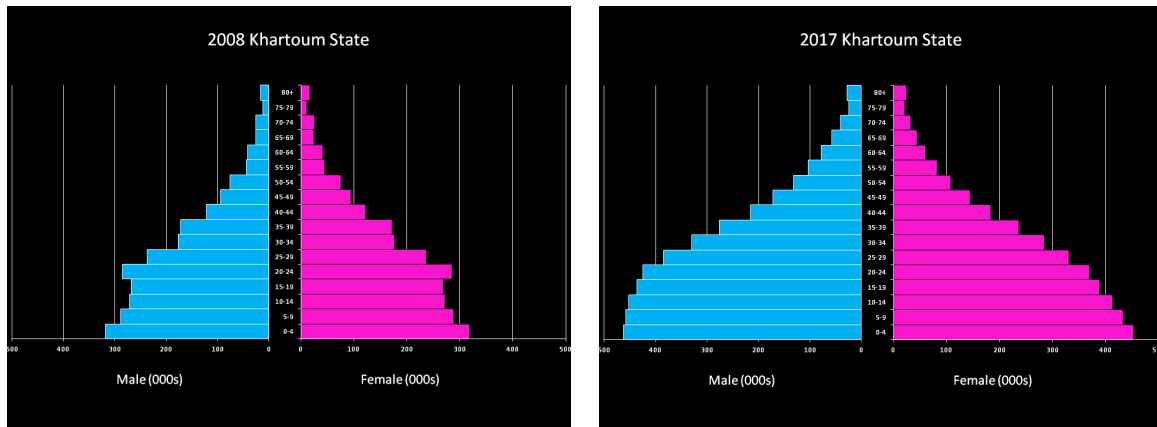
Figure 8: Population Projection – 2008-2018 (in thousands)



The youth population (ages 15-29) in 2008 accounted for nearly one-third of the state’s total population. This age bracket is projected to decrease to approximately 30% of the total population in 2018, but given the high rate of total population growth, the absolute number of residents in this age group will reach nearly 2.5 million, an increase of 42% from 2008. This age group is a critical demographic, the size and characteristics of which have significant implications on urban planning and governance policy, particularly in terms of housing demand

and employment. The next census can provide a more accurate profile of the youth population and their growth dynamics to better determine future service and infrastructure needs and to cope with a growing labor force and higher rates of household formation.

Figure 9: Population Pyramids for Khartoum State in 2008 and 2017



Source: Central Bureau of Statistics, 2008 Census

The annual rate of natural increase of Sudan's population stands at 2.5%, which, while relatively rapid, is one of the lowest figures among the Sahelian countries for 2013. Sudan boasts a relatively high total fertility rate of an average of 5.2 births/woman, decreasing slowly from 6.9 births/woman in 1970. This high total fertility rate and the more dramatic decline of the infant mortality rate will sustain a rapidly growing youth population and strong demand for maternal and child services.

Sudan's mortality rate of 8/1,000 population is equivalent to the global average (PRB 2014). Both, fertility and mortality rates are generally lower in the urban regions of Sudan, though fertility rates remain high in squatter settlements in periurban areas where rural migrants live. The average total fertility for the whole city of Khartoum as reported in a 2003 case study was 4.5 births/woman (Eltayeb 2003).

Labor Force

As of 2011, the labor force participation rate in urban Khartoum State was 46.3%, with strong disparities between men and women (64.4% participation rate for men and 27% for women). Over half of the urban population of Khartoum is not economically active, which is not surprising given the age structure of the population and the concentration of higher education institutions in the city. However, over a quarter of Sudan's unemployed population live in Khartoum, 44% of whom hold a university/tertiary degree. Nearly 75% of respondents to the Sudan Labor Force Survey in Khartoum State stated that a lack of job opportunities accounted for their unemployment (Ministry of Human Resources Development and Labor 2013). This is a serious issue that is by no means unique to Sudan; but it has to be addressed because of its economic and political implications and its impact on household incomes.

2.2.2 Health and Education

The rapidly growing youth population places pressure on provincial authorities to keep pace in terms of provision of health facilities and schools. In addition, health and education figure among the urban population's top priorities according to a 2014 Urban Dwellers Survey conducted by UN-Habitat; the top three responses were housing and the living environment, quality education, and better health care services and access. Khartoum State's health facilities face additional pressures from patients traveling from other states for treatment in the facilities concentrated in the capital city; it is estimated that the State's Health Ministry oversees 65% of all curative health care in Sudan (Homedia 2013).

The Khartoum State government oversees 634 health care centers, 227 of which are government centers, 213 are NGOs centers, 155 are clinics, and 55 are private centers. In addition, mobile clinics serve those in more rural parts of the state and in areas without adequate access to services. The planning of health centers is determined by a "Health Map" developed by the State Ministry of Health and adopted in 2012 that takes into consideration distance and density in determining the locations of facilities (Massoud 2015). One of the objectives of the map and its five-year phasing plans is that no one in Khartoum will need to travel over two kilometers to reach a health facility (Homedia 2013).

Schools (both public and private) are also planned in Khartoum State based on density and demand driven by youthful populations in different areas of the capital. Education for Khartoum's youth is critical to generating a well-educated labor force. The low average number of years of schooling for a child in Sudan (3.1 years) has contributed to the country's consistently low HDI ranking (166/187 in 2012), which measures the three components of health, education, and living standards (UNDP 2012).

The State Ministry of Education carries out the policies of the Federal Ministry of Education and oversees all public basic, secondary, and higher education institutions as well as facilities for religious education (namely *khalwas* or Quranic schools). Localities supervise educational activities and staff and are charged with school maintenance. Several of the government schools in the State suffer from overcrowding, deteriorating building conditions, and a lack of basic services (GIZ 2014).

Private schools saw a marked increase since the economic restructuring that eliminated government subsidies for the education sector. Khartoum State hosted 2,432 basic schools (pre-school and primary level) as of 2014, slightly over 35% of which are private schools. More than 59% of secondary schools in the state are also privately run (Ibid). Higher education in Sudan has grown from a single institution – the University of Khartoum – at independence, to over 70 public and private higher education institutions, several of which are concentrated in Khartoum, Bahri (North Khartoum), and Omdurman, drawing migration among youth from other states.

2.2.3 Economy

The discovery of oil in the 1990s and Sudan's transformation to an oil producing country beginning in 1998 and 1999 led to a major development boom in Khartoum, characterized by a rapidly changing skyline.

As of 2008, 75% of all manufacturing firms and 85% of all service firms in Sudan were located in Khartoum, the country's economic engine (World Bank 2009b). By 2013, the urban-based industrial and service sectors contributed 33.6% and 39% of national GDP respectively

(MEFUD & UN-Habitat 2015). The country's 2014 GDP had nearly tripled since 2005, due in large part to the discovery and development of the oil sector (World Bank Development Indicators 2014).

While oil revenues have financed significant improvements to the country's physical and social infrastructure, including the road network and electricity grid, the Sudanese economy became primarily dependent on the oil sector, whose production is said to have peaked between 2010 and 2012 (World Bank 2009a). With the secession of South Sudan, Sudan lost approximately 75% of its oil production, though it has retained some wells, has plans to explore and drill more, and is still involved in the oil transport from South Sudan to Port Sudan. In 2014, Sudan produced only 120,000 barrels per day, compared to a peak rate of nearly 500,000 barrels (Agence France Presse 2015). This has major implications for capital investments made in Khartoum and budgets allocated to Khartoum State.

Industrial activities in Sudan are limited primarily to agricultural processing and light industry, concentrated in North Khartoum (Bahri) (UNEP 2007). Other manufacturing in Khartoum centers on food and beverage, textile and garments, wood and wood products, and chemical and non-metallic products. The State counted over 4,500 manufacturing establishments in a 2003 Industrial Survey (over two-thirds of all Sudan's establishments), over 1,000 of which would qualify as large firms (World Bank 2009a).

The health and environmental costs attributable to the pollution caused by major industries in Khartoum is a major concern. In 2009, the Environmental Health Act was passed aiming to reduce the negative impacts of industrial and other developments by requiring an impact assessment of any development that could potentially harm the environment (Hamid and Bahreldin 2013). Its implementation and regulations to ensure compliance will be critical in safeguarding against heavy polluting and environmentally hazardous industries and developments in the capital.

The formal service sector in Khartoum consists primarily of telecommunications, banking services, hotels, restaurants, and other tourism activities. According to a sample survey in Khartoum in 2008, informal establishments account for approximately 45% of predominantly trade and services firms and are characterized by having a single owner and few, if any, employees, (World Bank 2009b).

Tourism generates relatively nominal national revenue but has been growing steadily. Between 2004 and 2008, for instance, the number of tourists to Sudan grew over seven times to count nearly half a million, with revenues from tourism growing over eight times (Ministry of Tourism in USAID 2012). By 2012, national tourism revenues were estimated at USD 600 million, compared to USD 68.3 million in 2004 (Sudan Tribune 2013). Khartoum's rich history and cultural attractions offer strong tourism development potential

The economic vitality of the villages around Khartoum and elsewhere in the country is critical to increase self-sufficiency and food production, as well as stem migration to Khartoum.

2.3 Governance and Administrative Structure³

Sudan has a federal system of government with elected state governors and assemblies. The institution of a Federal system of government started in 1991. A series of decrees established the Federal constitution and laws were enacted to organize the structure of local governance. The original nine provinces (*wilaya*) were increased to 26 by redistricting. Following the secession of South Sudan and the creation of two new states in 2012 and 2013, there are now 18 *wilaya* in Sudan. Since the 2005 Peace Agreement that produced the Transitional Constitution, Sudan's governance system has devolved powers and responsibilities to sub-national authorities. The current federal system is seen as an appropriate governance structure for such a vast territory that is home to several hundreds of tribes.

Each province has a constitution that structures legislative and executive functions. The legislative branch consists of elected Popular Committees at the district (*mahalla*) level. There is a Legislative Council where an "approved" member represents each district. The Judiciary remains a national function.

Khartoum Province encompasses seven districts with 116 administrative units with 1,785 popular committees. The *wali* (governor) is elected by the province's electorate. The wali appoints a Provincial cabinet of 12 ministers; in addition to the ministries there are executive agencies and organizations.

Figure 10: Table of Administrative Structure of Khartoum Province

| District | Administrative Units | Popular Committees | Population (2013) |
|-----------------------|----------------------|--------------------|-------------------|
| Khartoum | 15 | 186 | 792,451 |
| Jebel Awliya | 16 | 265 | 1,167,654 |
| Omdurman | 16 | 193 | 653,707 |
| Karri | 12 | 250 | 1,224,317 |
| Ombadda | 19 | 248 | 884,732 |
| North Khartoum | 21 | 245 | 754,314 |
| East Nile | 17 | 398 | 1,075,620 |

Source: Interviews conducted by Dr. Tarek Waly

Even though Sudan does not have a national urban growth management strategy, as is common in countries with a federal institutional structure, it has an institutional framework defining state and local governance responsibilities and a national legal spatial framework relating to land tenure. Several national strategic plans have been developed over the past six decades, of which the latest are the Comprehensive National Strategy (1992-2002); and the Sudan 25-Year Strategy: 2007-2033 (Osman 2012).

At the national level, the Ministry of Environment, Forestry, and Urban Development, its National Council for Urban Development (NCUD) and a National Habitat Committee, oversee and coordinate physical planning and development at the national level. It has enacted general physical planning policies that have the following objectives:

³ Unless noted otherwise, this section is based on interviews of public officials conducted in Khartoum by Dr. Tarek Waly, August 25 – 28, 2015.

- i. Achieve a balanced physical development and desirable population distribution among Sudan's regions and between rural and urban areas.
- ii. Encourage preparation of national and regional physical development plans and urban master plans.
- iii. Provide adequate, decent housing and effective funding mechanisms
- iv. Promote adoption of environment-friendly local building materials.
- v. Develop legislations and train technical cadres.

The states and, to a lesser extent, the national government are the key actors in the promulgation and implementation of urban development plans. Statewide structure plans, regional development plans, and city plans are prepared at the state level and submitted for approval by the National Council for Physical Planning and the Council of Ministers. At the national level the National Fund for Housing and Reconstruction, established in 2008 to build affordable housing units for low-income households, is the key player in the implementation of Sudan's housing policies. Specific national directives, such as the National Council of Minister's decree prohibiting development on flood-prone areas are implemented locally, and involve the forced relocation of households.

According to a recent report, the government has noted that there are deficiencies in the essential expertise needed to plan and manage urban areas, including a shortage of urban planners, surveyors, urban managers, infrastructure planners, traffic managers, etc. Sudanese professionals often leave the country, attracted by lucrative jobs and high salaries in the Gulf countries.⁴

Khartoum State, the primary governing institution for metropolitan Khartoum, has developed the *Khartoum Structure Plan – 2008-2033* for the capital city and its surrounding villages, the fourth since Independence.⁵ One of its goals is to achieve a more balanced development within Khartoum State, to lessen population pressures on the capital city. Its objectives include addressing the proliferation of informal settlements, increasing the attractiveness and quality of life of rural areas to stem rural-urban migration, and creating new planned settlements to absorb rapid population growth in peri-urban and outlying areas Khartoum still faces significant challenges associated with rapid urban development as urban growth has resulted in a high incidence of slum formation and lagging infrastructure; while 82% of the population of Khartoum State has access to safe drinking water and 90.6 % do not have access to proper sanitation, (UN-Habitat 2010).

National Strategic Plan

The national strategic plan creates a policy framework within which the different ministries and states develop their own plans and projects. The projects are submitted to the National Council for Strategic Planning and assessed to ensure their alignment with the orientations and policies of the national strategic plan. This task is coordinated by the General Secretariat, which also monitors implementation through the planning directorates in the ministries and the General Secretariat for Strategic Planning in the states.

⁴ Ministry of Environment, Forestry and Urban Development, National Council for Physical Development and United Nations Human Settlements Program (UN-HABITAT), *Sudan's Report for the United Nations' Third Conference On Housing and Sustainable Urban Development, (Habitat III), 2016*, January, 2015. Subsequently cited as MEFUD 2015.

⁵ Earlier plans were prepared in 1958, 1975, and 1991.

The Higher Committee on National Strategic Planning reviews the reports prepared by the Secretariat and submits its recommendations to the Council of Ministers for approval. Recommendations encompassing significant divergence from the national policy directives stated in the five-year plan are referred to the National Council for Strategic Planning. The Council is the authority responsible for the final approval of reports, plans, programs, and projects, as well as approval of the annual budget before its submission to the legislature.

Figure 11: Organizational Structure of National Strategic Planning



The Council of Ministers reviews and evaluates reports on achievements and work progress and monitors the plan implementation. The Council can recommend changes in the ministry and state plans but the requested changes have to be reviewed and approved by the Higher Committee and/or the National Council as needed.

Annual plans prepared by ministries and states must include a detailed budget that is submitted to the Ministry of Finance and National Economy (by the end of September). The Ministry and National Council on Strategic Planning jointly decide on the projects to be included in the annual budget in light of national priorities and available resources.

Khartoum State Strategic Plan

The Higher Council for Strategic Planning is responsible for the preparation and implementation of Khartoum State’s strategic plan. It oversees that performance of other line agencies, monitors progress, evaluates achievements and assesses their impacts. The Higher Council issues monthly, quarterly and annual reports on the implementation of the State’s strategic plan 2006 – 2031. Capacity building of employees of the Higher Council, of the ministries and of key State

agencies is a major concern and considerable effort has been expended on training activities for the 920 staff members.

To encourage broad citizen participation, “strategic councils” have been created in each relevant State agency: 16 in the executive ministries and organizations and 46 at the local administrative units. These entities are deemed key components in the development of the institutional framework and have a role in monitoring and evaluation.

Following on the framework set by the Strategic Plan, a Structure Plan has been prepared, presenting alternative urbanization scenarios. Relating growth policies at the national and state levels and integrating Khartoum State’s regional, urban and rural strategies in these scenarios, to generate a development framework outlining economic, social and population distribution patterns as a basis for planning infrastructure and urban services. The regional structure plan aims at preserving agricultural land, irrigation channels and rural settlements. It defines the alignment of future urbanization and development corridors as well as the transport network needed to implement this development pattern.

A Unit for monitoring the implementation of the structure plan was created at the State level. It is tasked with following up the implementation of the different plan components in close coordination with Ministries, State and District organizations, and NGOs. Its responsibilities include:

- Gathering and updating the information stored in the State database. A management information system has been set up as a first step to the institution of an e-government system
- Selecting appropriate indicators to assess the development path of the State.

The urbanization pattern presented in the Structure Plan aims to limit the horizontal extension of the capital, creating an east-west development axis north of the present urbanized area and build an outer ring road that would act as an urbanization perimeter. Population growth would be diverted to nine new towns that would house some six million people over the 25-year period covered by the strategic plan. The structure plan also identifies ten urban service centers to be sited along the ring road.

The rural development component of the plan reflects the policy of grouping villages around central settlements where service can be located and improved over time. A road network will connect these centers. The Khartoum State strategy puts a high priority on the preservation of agricultural and pasture land.

The implementation of the Plan has been complicated by the difficulties created by foreign sanctions that have affected the resources available to the nation. In 2013, the State was only able to finance 52% of its proposed development budget in spite of the sale of public land at commercial prices to raise funds, leading to a review of projects and a reshuffling of priorities for implementation. Land sales constitute the major source of funding in many states – including Khartoum.⁶

Recent developments in Khartoum State include:

- The establishment of a State Coordinating Committee to create links between state entities and the National Council for Environment and Urban Development

⁶ MEFUD 2015.

as well as Federal ministries in order to program the implementation of 16 projects identified by the 2nd Five Year Plan.

- An Urban Observatory has been created to develop a database and a networked information system. The Observatory is also tasked with preparing capacity building programs for State institutions at the three administrative levels.
- An Environmental Laboratory has been set up to assess the environmental impacts of the different activities and measure the polluting agents generated by these activities.

Land, housing, and urban services

Housing units in Khartoum State are predominantly single story concrete dwellings although mud brick is still found in Omdurman's historic core, squatter and lower-income areas and periurban settlements. Approximately three-quarters are owner occupied, one-fifth rented, and the remainder provided rent-free by an employer.⁷

Under the Unregistered Land Act, the national government owns some 75% of land, with the balance either in individual ownership or in communal property belonging to tribes or clans. The government's ability to allot land to individuals and firms under 30 to 90 year leaseholds has made it a key actor in the development of urban peripheral areas. The traditional 400 to 600 square meters minimum plot sizes for detached single-family home in Sudanese urban areas, resulting in at least 30% of an average 400 m² plot remaining vacant, has resulted in wasteful sprawl and expensive infrastructure. The leasing of plots in government developed site-and-services schemes has been a major contributor to urban sprawl and high infrastructure costs. The lack of an affordable and sustainable mechanism to finance housing has also resulted in thousands of residential plots allotted in Khartoum, Nyala, and other cities to remain undeveloped.⁸

A Higher Executive Agency was created in June 2011 to protect government land and remove encroachments. This is viewed as a necessary action to prevent the loss of public land at a time of slowdown in project implementation. The Higher Agency's board, chaired by the *Wali* is comprised of ministers concerned with land issues. In December 2012, the Khartoum legislative council enacted a law for the protection of public lands.

Approximately three quarters of housing in Khartoum is owner-occupied, one-fifth is rented, and the balance either rent-free or provided by an employer (Ministry of Human Resources Development and Labour 2013). Housing units in Khartoum State are predominantly single story concrete dwellings although mud brick is still found in Omdurman's historic core, and in squatter and lower-income areas and in periurban settlements.

A Housing and Development Fund was established in 2001 to provide housing units, some of which are multi-family units, with for high-income families to cross-subsidize low- and middle-income groups. The Housing and Urban Development Fund develops and sells housing units. The installment payment is related to the buyer's income. In 2012, the Fund built 3,900 social housing unit and 1,800 low-cost units; in 2013, it built 1,800 social housing unit and 2,050 low-cost units;

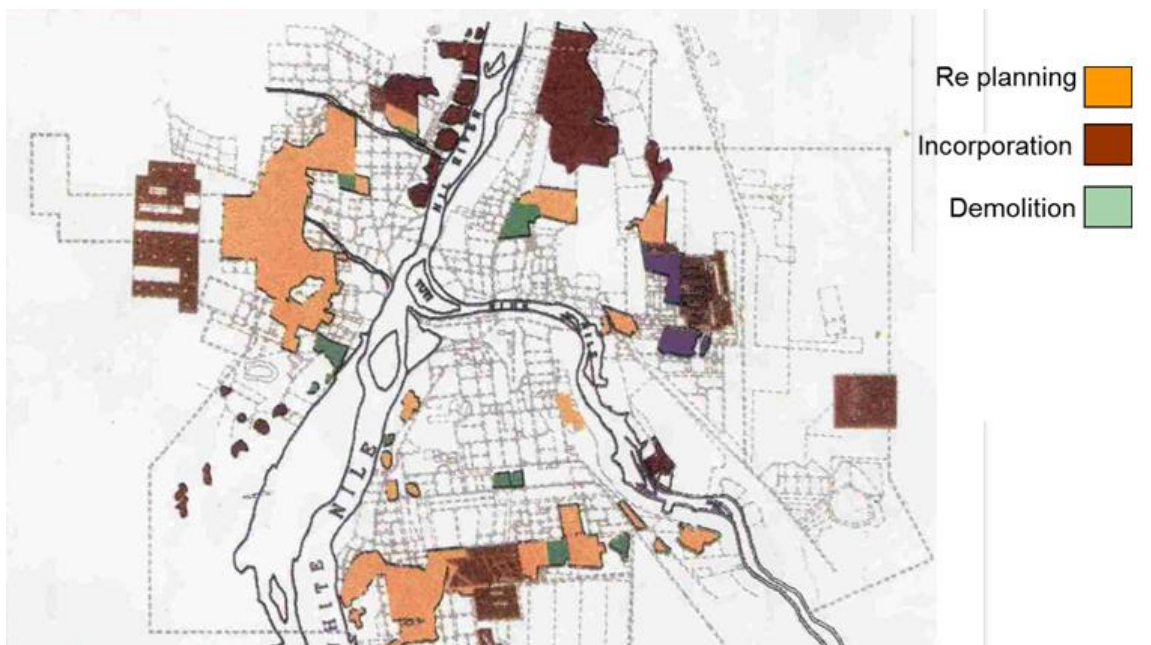
⁷ Ministry of Human Resources Development and Labor, 2013.

⁸ MEFUD 2015.

As a result of its activities, the density of six existing neighborhood was increased and two sites for social housing and one for limited income families (a broad range of middle-class families) were selected and improved. One older neighborhood was rehabilitated. A lack of funds prevented the rehabilitation of older neighborhoods in Bahri and Omdurman.

Land in Sudan is a public asset giving the state the opportunity to dispose of land according to its goals for social development. The disposal of public lands has therefore been a key component in the government's effort to restructure urban areas. The Khartoum government relies on its land holdings as the cornerstone of its urban planning strategy to demolish unsafe areas and replan, improve, and incorporate squatter areas (Humanitarian Policy Group 2011).

Figure 12: Proposed Treatment of Squatter Areas



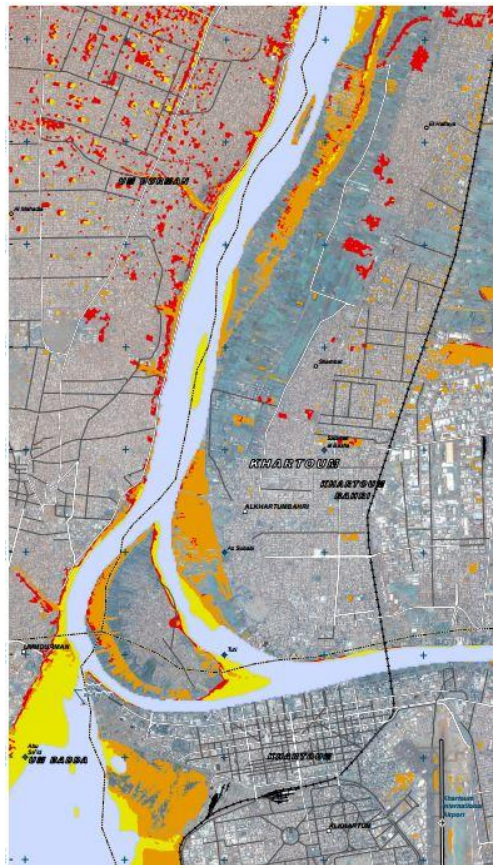
Source: Khartoum Structure Plan, 2001

2.4 Challenges facing Khartoum

2.4.1 Environmental Challenges

Sudan's geographic location exposes the country to increasingly volatile climatic conditions. The greatest environmental risks threatening Khartoum State are those caused by changes and fluctuations in temperature and precipitation, resulting in droughts and desertification, and the periodic flooding of the Nile. The eastern Sahel, in which Khartoum is located, is very likely to experience decreases in annual precipitation, which can threaten the food security of the capital. (IPCC 2014). Furthermore, temperature increases can exacerbate drought conditions and its impacts by reducing evapotranspiration (Funk et.al. 2011).

Figure 13: Flooding in Khartoum State in 2014



Source: UNITAR 2014

In recent years, Khartoum has experienced recurrent episodes of severe flooding resulting from the occurrence of severe rainfall episodes at the sources of the Blue Nile. The river's topography accelerates its flow while the flat topography of the Khartoum region allows the waters to cover large areas exposing the population to the risk of flooding during periods of heavy precipitation. The poor, living in informal settlements or who have settled in low-laying areas of the capital, are among the most vulnerable residents to climate shocks and stresses. Recent flood events that have caused significant damage, displacement, or death include the floods of August 2009, 2013, and 2014. Flooding in 2009 affected 22,291 homes in primarily urban informal settlements in Khartoum and caused damage to critical water and sanitation systems (IFRC 2013). Khartoum

was the most heavily affected state by the 2013 floods that affected nearly half a million people nationally (over 184,000 of which were in Khartoum) (OCHA 2013). In 2014, heavy rains from July to September resulted in flooding that affected over 32,000 people in Khartoum, killing seventeen.

2.4.2 Pollution

Pollution is also a serious concern and is manifested primarily by inadequate sewerage and waste management systems that pose significant public health issues. Only 28% of the urbanized area is connected to the sewerage system and another 68% to pit latrines or other rudimentary systems (UNEP 2007) and, as of 2007, 80% of all diseases were waterborne, highlighting the inadequate sanitation situation in Khartoum, particularly in densely inhabited urban settlements. The accumulation of solid waste also poses environmental hazards and health risks to the population. According to the State Ministry of Health and Environment, 4,800 tons of domestic waste is produced daily in Khartoum and only a very small percentage of residents uses designated dumping stations for transport to landfills (Elbaroudi et. al. 2015). Air pollution from the concentration of industrial activities in certain parts of the city and increasing traffic also threaten the health Khartoum's residents.

2.4.3 Poverty

Estimates of urban poverty vary widely depending on the source, geographic scale, and methodology of measurement. The 2009 National Baseline Household Survey has reported that 22% of the urban population in Khartoum State lives below the poverty line, which is the lowest proportion of any state and significantly lower than rural population levels.

The 2009 UN-Habitat Urban Sector study, on the other hand, estimated that 60% of the population of the urban area of Khartoum lived below the poverty line. While roughly one fifth were IDPs, the majority were longer-time residents living in informal housing. The housing typologies of the urban poor and their location in the metropolitan area vary. Khartoum's poorer households live in primarily informally rented and overcrowded units in the city center, low density sites and services settlements in peri-urban areas, squatter settlements, older villages in the outlying areas, and formal IDP camps in remote locations (UN-Habitat 2010).

While the incidence of poverty in Sudan is markedly higher in rural areas and states than in cities, reducing poverty in Khartoum is equally dependent structural transformations in the post-secession country, economy, and society. Some of the key strategies outlined in Sudan's Poverty Reduction Strategy include:

- Strengthening the institutional capacity of local authorities and equipping them with the necessary financial resources, particularly to resolve conflicts and land disputes, effectively deliver basic services, and increase institutional and financial transparency at all levels of government;
- Reintegration, return, or resettlement of IDPs and other displaced persons to reduce the temporary and dependent conditions that increase the incidence of poverty;
- Promotion of inclusive economic growth and employment generation;

- Development of human resources accompanied by an increase in access to education, health, and physical and financial capital to be able to benefit from renewed economic growth with a particularly focus on women and the very poor; and
- Expanded access to information and opportunities to participate in governance with a focus on women and youth (IMF 2013).

2.4.4 Population movements and Internally Displaced Persons (IDPs)

Rural migrants are attracted to Khartoum by its job opportunities, better services, and relatively better quality of life. The 2008 census showed that nearly half of all lifetime migrants in the country had migrated to Greater Khartoum and that only 52% of the population enumerated in the metropolitan area was born there.

In 2009, according to official statistics, Greater Khartoum hosted over 600,000 internally displaced persons in addition to 1.5 million locally integrated IDPs, most of whom are from the southern states and South Sudan (Humanitarian Policy Group 2011). In addition, Khartoum is estimated to host approximately 32,000 urban refugees, primarily from Eritrea (UNHCR 2015).

A 2008 study estimated that IDPs account for between 18.3% and 23.3% of the urban population of Khartoum, which does not include the IDP population living in camps (Jacobsen, 2008). Sudan's protracted conflicts, resulting in forced displacements, have had a major influence on Khartoum's urban pattern since the first camps were established in 1991. IDP camps in Khartoum State are clustered in the south and include the camps of Wad Elbashir, Mayo, Dar Alsalam, Jabal and Awyla. Squatter settlements have extended beyond these camps and are now integrated in diverse parts of the urban fabric. The majority of IDPs in Khartoum reside in these informal settlements around the periphery of the city.

Nationally, population movements intensified in the aftermath of civil war. Between the signing of the Comprehensive Peace Agreement (CPA) in 2005 and 2012, the IOM estimated that approximately 2.5 million people living in Sudan moved to South Sudan (Kimenyi 2012). Almost another half a million people in Sudan moved to South Sudan in 2013, which accounted for 35.2% of the country's total outmigration for that year. The year before the independence of South Sudan, Sudan received approximately 300,000 migrants and returnees from the south (UN-DESA 2013). Similar population movements are likely to reoccur with the outbreak of violent conflict among the tribes in the restive border areas between the two countries.

3. LOOKING TO THE FUTURE

Africa's *Agenda 2063* sets forth a series of explicit urban development goals, specifically:

- Eradicating poverty through enhanced investment in job creation and the provision of the basic necessities of life;
- Providing access to affordable and decent housing;
- Improving the living conditions of people working and living in slums and informal settlements;
- Ensuring balanced spatial development as a rural-urban continuum; and
- Ensuring effective territorial planning in the use and management of land.

The implementation of these goals in the Greater Khartoum region is complicated by the enduring consequences of a combination of decades of internal conflict, the impact of the secession, and the international sanctions imposed in 2007, resulting in severe economic constraints, lack of foreign investment, and relative isolation.

Sudan is a predominantly rural country and national policies emphasize the importance of the agricultural sector, giving a high priority to rural development. In 2006, wheat production covered only 25% of domestic requirements. A major national policy objective is to ensure food security and substantially increase the export of agricultural products and cattle, meat, and leather to improve the balance of trade. Sudan's current national development strategy therefore focuses on agriculture, which is the largest sector in the economy, employing 58% of the labor force and contributing 29.2% of values added to the GDP in 2014 (UNEP 2009). In Khartoum State, 22% of the land area (about 498,000 hectares) is under cultivation.

However, as the country reintegrates into the global economy, urban activities in Khartoum will increasingly be the driver of national development, as was evident during the oil boom. Sudan's first Five-Year Plan (2007–2011) defined ambitious Millennium Development Goal targets. However, the strategies for achieving them were not clearly stated and the resources needed exceeded the funds available to the government. In addition, the economic sanctions placed constraints on the country's development, including its ability to import the ICT technology needed to modernize management and performance in both the public and private sectors. In addition to the MDG targets, current development objectives embodied in Sudan's *National Development Strategy 2007-2031* have been influenced by the joint agreements between Sudan and South Sudan and the negotiated list of projects approved under the Joint Mission on Needs Assessments (JAM). The national development strategy is to be implemented in five-year phases for which plans and projects are prioritized in accordance with the availability of resources. Major orientations are as follows:

1. Security and defense are a prime concern, as is usually the case in post-conflict countries. Rehabilitating and improving the infrastructure is a priority to reinforce safety, security, and stability and ensure a sustainable food supply.
2. Completion of the constitutional, legal, and institutional frameworks for governance are a priority since Sudan is a federal government; the powers and responsibilities of each level of governance have to be clearly defined and the relationships between them structured to avoid overlapping or conflicting mandates.
3. Participation in African and international organizations is viewed as an important venue to increase foreign investments and enter into strategic partnerships.

4. Opening up the communications and media sectors to private sector participation is considered a prerequisite to establish linkages to the global economy, an objective currently constrained by the sanctions.
5. A particular concern in the modernization effort is the need to avoid disrupting traditional cultural values. However, the spread of mobile technologies is helping smooth out potential frictions.
6. Post-conflict reconstruction of areas affected by warfare and facilitating the return of IDPs and refugees to their prior home settlements is a major objective. This will entail a serious effort at poverty reduction through widening access to social assistance, increasing employment opportunities, and supporting income-generating opportunities.
7. Revitalizing the role of civil society in the reconstruction and development effort is seen as fundamental.

The major orientation of the industrial sector's development policy is an emphasis on labor-intensive manufacturing. The primary objectives are to provide employment, promote production for the domestic market, and reduce reliance on imported goods. It is assumed that any surplus could be exported.

In addition to these national objectives, the following issues will have to be addressed in the preparation of new realistic development scenarios for the Khartoum region:

- Traditional tribal and ethnic territorial rivalries that generate constraints on development and that have to be alleviated through sustained policies promoting cultural diversity and citizenship;
- Natural hazards (mainly floods) and periodic epidemics;
- Inadequate capacity of government institutions stemming from limited human resources and lack of financial means;
- Weaknesses of the educational and training system to meet the requirements of the labor market;
- Outmigration of skilled workers;
- Significant numbers of IDPs and refugees who will have to be integrated in the economic and social fabric of the city; and
- A limited penetration of ICT in the public and private sectors.

The Supreme Council for Strategic Planning is aware of the need to strengthen human resources to be able to realize its preferred development scenario. In 2013, the Council, together with various institutions of the state of Khartoum set up a total of 12 training courses attended by 650 trainees. Eighteen mobile workshops were also organized and attended by 270 trainees. In addition to increasing local capacity in planning and associated technical fields, strengthening of local authority financing and own revenue sources is essential. The ability to raise resources and fund capital investments, coupled with building local financial management capacity would increase the feasibility of implementation of any proposed development scenario.

Densification versus Expansion – The Khartoum Structure Plan 2013 – 2033

Over half of Sudan’s urban population lives in Khartoum; the current *Khartoum Structure Plan* (KPP5), prepared by the Ministry of Planning and Physical Development, provides the first comprehensive vision for the national capital since the end of the civil war. A companion study, *Towards Sustainable Urban Transport Planning in Khartoum City*⁹ outlines major improvements in public transportation.

The so-called “scenarios” outlined in KPP5 are in fact urban development proposals that seek to maintain links between the three-cities metropolitan area and their rural hinterland. The plan’s weaknesses stem from the fact that they are presented without assessing their capacity to address the current challenges facing Sudan and the impediments constraining Khartoum’s functional efficiency.

The loss of national revenue due to internal conflict and the secession of South Sudan have severely curtailed public expenditures on projects that could have shaped urban growth had they been implemented in the last two decades. In the absence of timely action by local authorities the expansion of the Khartoum metropolitan area has been driven by the dynamics of the informal sector by which people solve their needs for livelihood, shelter, and services to the best of their ability in the immediate term and with limited resources. As a result, Khartoum, with 140 inhabitants/hectare, has a relatively low density compared to other capitals and large African cities. Its growth has been as an expanding mosaic of government sponsored sites-and-services projects and spontaneous peri-urban developments. As a result, fallow land and derelict areas are interspersed among well-developed neighborhoods. These vacant lands can either act as barriers to social interaction, fragmenting future development, or constitute a strategic asset for the future. Their development provides a unique opportunity to reorient the dynamics of Khartoum’s growth and encourage new links between existing and future built-up areas.

The Structure Plan outlines in broad strokes alternative strategies for the development of the capital region for 13 million people and identifies some 1,200 projects to achieve this vision. The starting point is the relocations of key urban functions (ministries, industrial areas, military facilities, etc.) to the periphery to alleviate congestion in the city center. The vacated land would be allocated to new uses that would redefine and increase the urban quality of the city center.

At the regional level, this broad framework presents three broad spatial development scenarios, all of which include a regional environmental protection component to maintain agricultural and grazing lands and forest cover:

1. The development of a continuous urbanized area;
2. The construction of nine new integrated urban clusters for six million people;
3. Urban development corridors along public transportation axes;

While the ambitious KPP5 plan provides an interesting vision of the future development of the Khartoum urban region, including the redevelopment of the downtown Nile front, it does not address the complementary roles of the various participants – government, private sector, large and small commercial investor communities – nor how the estimated public investment of US\$3.2 billion in infrastructure, roads and transportation, and basic services are to be financed. Even after the lifting of the current sanctions, the anticipation of a continued weak oil market and limited oil resources will have a negative impact on the Sudanese economy. Where to find the

⁹ Asgad Faisal Abdalla, Ministry of Infrastructure and Transportation, n.d.

funds necessary to implement the plan and outlining the expected participation of all the shareholders and the recovery of public investments must be an integral part of the planning process.

Some of the plan's recommendations merit further study. As previously stated, existing planning regulations and the dynamics of migration in Khartoum have resulted in an unprecedented horizontal sprawl. The development of a *continuous urbanized area* is essentially a controlled continuation of current trends; it does propose the integration of informal neighborhoods in the planned spatial expansion of the city and should increase economic sustainability and resilience by achieving a more efficient spatial organization.

Well-planned new developments can foster social inclusion by generating new connections and absorbing some of the isolated squatter areas into the city to prevent their marginalization. Given the State's role as the preeminent landowner, a responsible land disposal scenario can prevent mere speculative private developments and can help reconnect the current patchwork of neighborhoods and communities. The major disadvantage of this strategy is the cost of extending the utilities network and the provision of public transportation alternatives.

The second scenario, the construction of new integrated urban clusters of development, linked to the city center by an efficient public transportation system, can help conserve productive agricultural land and offer residents in the surrounding villages services that cannot be extended to each village separately. The investment in infrastructure and services will be significant. Assuming that the villages can be protected from small scale developers of informal housing, which was not the case in other metropolitan areas in Africa, providing better services to agricultural villages can be an effective disincentive to outmigration and is therefore compatible with the National Strategic Plan prioritization of rural development.

Finally the Axis / Corridor Urban Development scenario requires a high level of management since a series of privately financed projects can easily lead to linear leapfrogging of development between the city center and other nodal anchors and foster land speculation in areas designated as locations for the new towns to be developed in future. It will also require major public investments to develop the new towns whose regional structuring role is critical. No funding has been allocated to the new towns in the 2012 – 2016 National plan.

One of the weaknesses of the Khartoum Structure Plan is that it does not assess or take into account the densification and/or redevelopment potential of the existing urbanized area prior to allocating natural areas for future growth; nor does it mention specific growth management strategies, public investments, or legal amendments necessary for the implementation of the alternative scenarios.

All of the Plan's scenarios and associated strategic projects have the common prerequisite of retrofitting and expanding Khartoum's primary and secondary infrastructure to enable it to carry the load generated by the densification of the urban fabric and the taller buildings that have increasingly defined the modern CBD. These major infrastructure improvements will be necessary in addition to the infrastructure needed to develop the new towns. Roads, water filtration plants, and sewage treatment plants will have to be built before expanding distribution and collection networks. Ease of access and pedestrian circulation deserve special attention since a large proportion of daily trips are made on foot.

The implementation of any of the KPP5 scenarios provides an opportunity to better manage growth, contain urban sprawl and effectively regulate land uses, tasks that previous plans have not managed to achieve. The ability to pursue redevelopment opportunities within the city while promoting the development of ways to manage expansion will establish the necessary economic and spatial connections between these major public investments in urban restructuring.

* * * * *

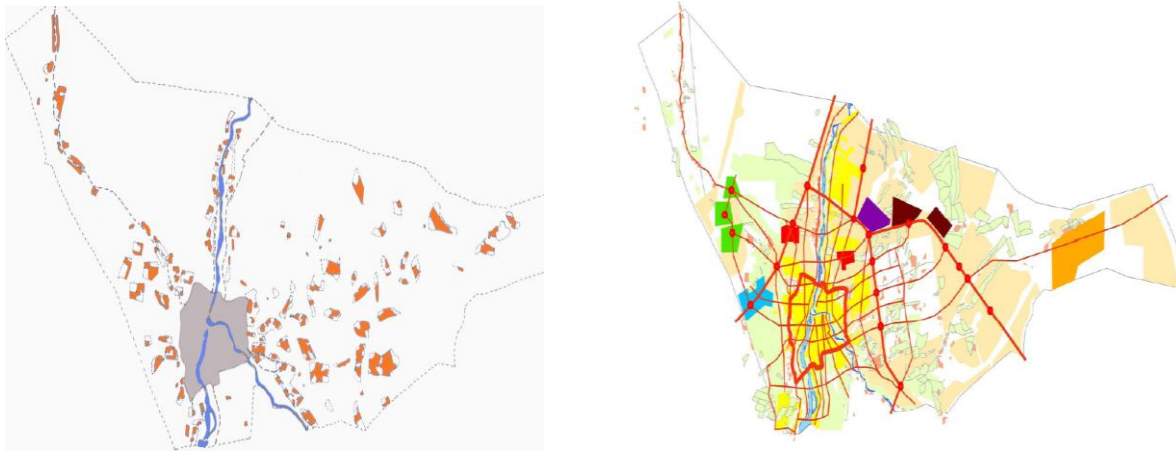
For several years, Sudan has had to cope simultaneously with decreasing oil revenue, the economic implications of the secession of South Sudan and the impact of international sanctions. The stalling GDP entails a lower capacity of the national government to finance the local authorities and the states that, in turn, will have to find ways to increasingly self-finance operating expenditures before undertaking large capital investments.

The Local Government Act of 2003 that worked to consolidate political authority in the states (wilayas) gave them the powers to plan and implement projects. However, both the states and the sub-state districts now have to rely on unpredictable levels of financial transfers depending on national revenue. Khartoum State has a privileged position over other states in receiving transfers of resources from the central government as Khartoum is the political capital of Sudan and seat of the federal government. Greater Khartoum is already home to 70% of Sudan's tax payers; 81% of taxes collected in Sudan are collected in the urban area of the capital (Abdalla 2008). Given the demographic concentration of tax payers, strategies to increase the financial resources of the state and the localities within it should seek to expand their own-source revenue base through the organization of databases and more efficient mechanisms for tax collection. As in other cities in the developing world, citizens' willingness and ability to pay taxes is linked to visible improvement in the services most urgently needed by the population. Public, private, and community service providers should ensure access to poor populations and neighborhoods in order to achieve positive outcomes in hygiene and sanitation, educational achievement and economic development, and ultimately a reduction of urban poverty.

In the current budget cycle, however, only half of Khartoum State's funding requests have been granted by the central government. The city is compensating for this shortfall through land sales. Although, given the large stock of land in public ownership, this is a logical response to temporary budget constraints it is not a sustainable solution in the longer term. The sale of public assets to fund operating expenditures has both long-term planning and financial implications and can only be a short-term expedient. For example, the resulting unplanned spot development can become a major long-term challenge to the implementation of a coherent development strategy.

In this context, the implementation of the KPP5 Plan (to the horizon of 2038) with its US\$30 billion of public investments is clearly unrealistic. The Khartoum State senior officials interviewed acknowledge that the structure plan is a strategy for the future when funding becomes available. However, the plan was completed in 2008 and the scenarios presented for shaping urban growth have to be reassessed in light of the city's future needs and opportunities and realigned to a regional and global context that has changed. Figure 14, below, proposes a scaled down version of the key elements of the 2038 KPP5 plan as a near term development scenario for a Structure Plan for the Khartoum region.

Figure 14: Existing built-up area (Left) and KPP5 Plan (Right)



This post-sanctions scenario's strategic objectives are to create a basis for future development by realistically addressing pressing development challenges and severe budget constraints while laying the foundations for future growth. Its key components are structuring projects.

1. **Infrastructure.** The KPP5 plan estimates that a US\$6.5 billion investment in infrastructure will be needed. It is clear that such a level of funding will not be available in the foreseeable future, even in a post-sanctions context.

The scenario retains only key elements of the infrastructure system that needs to be constructed:

- A new airport that is badly needed to enable the development of Khartoum as a gateway;
 - A ring road around the downtown;
 - A limited number of radial accesses to channel growth, including to the proposed airport in Omdurman;
 - Water filtration plants and sewage treatment plants;
 - Improvements to the downtown opens space system and pedestrian network.
2. **Housing.** Sudan is home to a very young population, with 61.5 % of the total population under 25 years of age. This has significant implications on planning as this age cohort begins to enter the labor force and looks for employment and housing. One of the main challenges at present and in the future is the housing shortage.

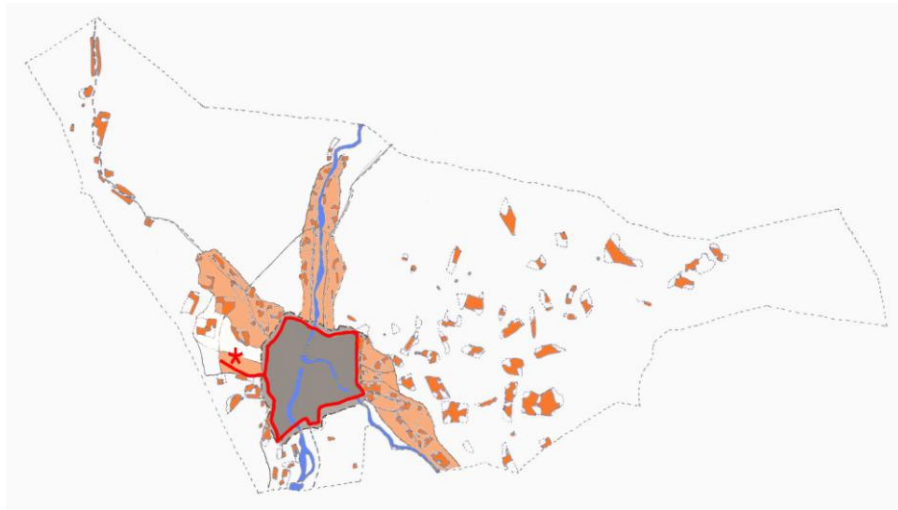
Greater clarity is needed in the planning and land allocation process for housing areas in order to manage the unplanned and chaotic growth of squatter settlements. Addressing the legal and economic obstacles to land

ownership for the urban poor and the careful phasing of such urban services as water, sanitation, roads, and electricity networks is essential to prevent the continued expansion of underserviced unplanned settlements. The proposed scenario will entail a commitment to minimize the negative impact of demolitions and re-planning of squatter settlement and IDP areas in Khartoum.

3. ***Environmental issues.*** The insufficient attention paid to environmental issues in past plans has allowed development on floodable and other hazardous areas, compromising the environmental sustainability of Greater Khartoum growth and development. The scenario and associated structure plan prioritizes the protection of these vulnerable areas. While the combination of densification strategies and the creation of new satellite towns, as proposed in the KPP5 Plan can be an effective long-term strategy to prevent the conversion of agricultural land, managing the development activities of the private sector, including informal development, is a critical issue in and around new settlement areas and along transportation axes.

This proposed scenario shown in Figure 15 is a logical response to the economic and environmental shocks to which Khartoum has been subjected since 2011. As Sudan recovers from the current downturn, this scenario provides national and local authorities with perspectives built on a re-examination and prioritization of the massive investments required for a megacity in the next 25 years.

Figure 15: Near-term Development Scenario¹⁰



Source: Oriol Monfort, I2UD, 2015

¹⁰ The asterisk represents the location of the new airport.

One of the major weaknesses of the KPP5 Plan is the lack of an analysis of the new economic activities that will be generated by the proposed improvements. Given the importance of cities, and large cities in particular, to the national economy, most countries assess the returns of urban improvements in terms of the new activities they will generate. This is particularly the case in situations where local governments, as is the case in Sudan, are unable to recover the increased land values resulting from development through the property tax.

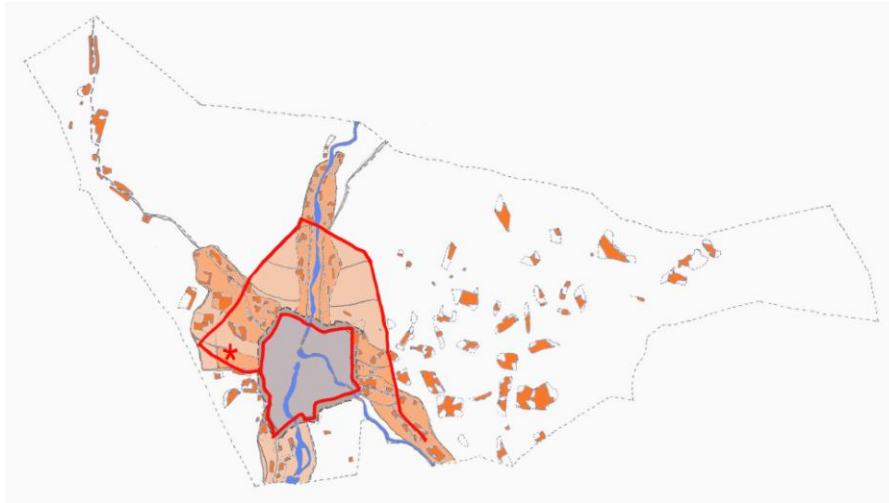
The loss of public revenue and foreign direct investment has resulted in a retrenchment of public expenditures, which is rightly viewed as a temporary setback, and public resources are expected to increase when sanctions are lifted. However, the cumulative probability of oil prices recovering from their present slump and of new wells being discovered and brought into production is remote under current world-wide trends and projections. Funding for the Khartoum metropolitan area will not reach pre-secession levels even under the most optimistic prognostic of the evolution of the Sudanese economy and it is unlikely that the government will be able to invest the US\$30.6 billion called for by the Khartoum plan over the next 20 years.

Scenarios should look to the future but must also be grounded in reality that, in Khartoum's case, implies tight funding for project implementation in the foreseeable future. The duality of a restricted ability to provide infrastructure and services and the dynamics of the informal sector has created imbalanced development patterns that present a major challenge to the city. Despite their powers to shape urban development, local authorities are constrained in their ability to implement their action plans. Recognizing this constraint must underpin the selection of a future development scenario. The different scenarios presented in the Khartoum State Structure Plan are not conceptually mutually exclusive; they should be viewed as strategic components of a longer-term scenario that can be achieved through the progressive implementation of concrete actions over a 25-year time frame. They offer one sequence of interventions to achieve this goal; other alternatives are possible and may be preferable.

The first phase's approved projects foster rural development while laying the infrastructure needed to support urban improvements. This is a first step that reflects more current constraints than changes in the vision of the desired future. The development scenario advocates the use of public land currently vacant, or that could be vacated by the transfer of current uses to the urban perimeter ring road, in order to attract private investment in commercial real estate. As mentioned earlier, the economic feasibility of this strategy is doubtful, its political acceptability uncertain, and its social desirability questionable.

The lifting of the sanctions will give Sudan and Khartoum access to the technology that underpins urban development today and almost certainly in the future. Given the current situation, a more realistic scenario would consist of strategically located development corridors anchored by the city and drawing urbanization outwards along transportation axes as shown on the proposed scenario. Connectedness to the informal settlements in the peri-urban areas and the villages in the rural hinterland is necessary to ensure adequate services to a mix of uses and social groups in the planned urban expansion areas.

Figure 16: Longer-term Development Scenario¹¹



Source: Oriol Monfort, I2UD 2015

The Khartoum corridors strategy will benefit from the presence of existing settlements along their alignments by managing the dynamics of the informal growth within its impact zones. Further development of urban policies and implementation strategies should offer modalities that engage the energies and resources of people eager to improve their livelihoods and living conditions. The infill of interstitial spaces in the urbanized area is a strategic component of the scenario. It should open up opportunities to densify the urban fabric to achieve the desired efficiency in land consumption and infrastructure use. It should strengthen the functions of the CBD as a national and metropolitan anchor. It should stitch together the spatially fragmented metropolitan area, blurring the edges between the economically stratified residential zones in the different districts. In this scenario, all six districts of Khartoum State will be implicated in the governance of Khartoum's continuous urban area. As the city expands and new administrative districts begin to urbanize with Khartoum's growth, the question of governance will be increasingly critical to ensure that districts and their communities pursue aligned development objectives and implement a strategy that is spatially balanced, economically prosperous, and environmentally sustainable and fiscally sound.

¹¹ The asterisk represents the location of the new airport.

Bibliography

- Abdalla, Muna A. 2008. "Poverty and inequality in urban Sudan: policies, institutions, and governance." African Studies Centre, Universiteit Leiden. African Studies Collection Vol. 13. << <https://openaccess.leidenuniv.nl/bitstream/handle/1887/13106/ASC-075287668-1015-01.pdf?sequence=2>>>.
- Agence France Presse. 2015. "Sudan to boost oil output with new wells." *Arab News*. Thursday, March 19, 2015. << <http://www.arabnews.com/news/720586>>>.
- Common Humanitarian Fund. 2013. Sudan Annual Report 2013. OCHA. Retrieved from http://reliefweb.int/sites/reliefweb.int/files/resources/Sudan_CHF_Annual_Report_2013.pdf.
- Elbaroudi, Nagat Osman Mansour, S.E. M. Ahmed, and E. E.A. Adam. 2015. "Solid Wastes Management In Urban Areas: The Case of Khartoum State, Sudan." *Pinnacle Engineering and Technology*. Vol. 3 (2). <http://pjpeg.org/pet/pet_188.pdf>>
- Eltayeb, Dr. Galal Eldin. 2003. "Urban Slums Report: The case of Khartoum, Sudan." << http://www.ucl.ac.uk/dpu-projects/Global_Report/pdfs/khartoum_bw.pdf>>.
- Funk, C., Eilerts, G., Verdin, J., Rowland, J., Marshall, M., 2011, A climate trend analysis of Sudan, U.S. Geological Survey Fact Sheet 2011-3072, 6 p. << <http://pubs.usgs.gov/fs/2011/3072/pdf/FS2011-3072.pdf>>>.
- GIZ. 2014. "The Education Sector in Khartoum State, Sudan: A Study on Frameworks and Actors." November 2014. <<<http://www.civil-society-sudan.org/GIZ%20Study%20on%20the%20Education%20Sector%20in%20Khartoum%20State%20CL.pdf>>>.
- Hamid, Gamal M. & Ibrahim Z. Bahreldin. 2013. "Khartoum 2030: An Alternative, Environmentally Sensitive Vision for the Development of Greater Khartoum, Sudan." Study sponsored by the Sudanese Environment Conservation Society. Presentation made on February 17th, 2013.
- Homeida, Mamoun. 2013. "Towards an Effective Health System in Khartoum State." *Sudan Vision: An Independent Daily*. September 3, 2015. << <http://news.sudanvisiondaily.com/details.html?rsnpid=222213>>>.
- Humanitarian Policy Group. 2011. "City Limits: Urbanisation and Vulnerability in Sudan: Khartoum Case Study." Overseas Development Institute. Funded by UK Department for International Development. January 2011.
- IFRC. 2009. "Sudan: Khartoum State Floods." Emergency Appeal. September 17, 2009. << <https://www.ifrc.org/docs/appeals/09/MDRSD007EA.pdf>>>.
- IMF. 2013. "Sudan: Interim Poverty Reduction Strategy Paper." IMF Country Report No. 13/318. << <http://www.imf.org/external/pubs/ft/scr/2013/cr13318.pdf>>>.
- IPCC. 2014. "Climate Change 2014: Synthesis Report." Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
- Jacobsen, Karen. 2008. "Internal Displacement to Urban Areas: the Tufts-IDMC Profiling Study. Khartoum, Sudan: Case 1." August 2008. Feinstein International Center, Tufts University in

collaboration with Internal Displacement Monitoring Centre, Geneva.

<<<http://fic.tufts.edu/assets/Tufts-IDMC-Profiling-2008-Khartoum.pdf>>>.

Kimenyi, Mwangi S. 2012. "One Year After Independence: Opportunities and Obstacles for Africa's Newest Country." Africa Growth Initiative at the Brookings Institute. June 2012.

<<<http://www.brookings.edu/~media/research/files/reports/2012/6/south%20sudan/06%20south%20sudan.pdf>>>.

Massoud, Khader. 2015. "الصحة" تدعو لزيارات ميدانية للمراكز الصحية في "الخرطوم". Alyoum Al Tali.

August 12, 2015. <<<http://www.alyoumaltali.com/news/43389->

<http://www.alyoumaltali.com/news/43389-%26amp%3Bquot%3B26%الصحةamp%3Bquot%3B-26%-الصحة-للمراكز-ميدانية-للزيارات-تدعو-لزيارات-ميدانية-لللمراكز-الصحية--%26amp%3Bquot%3B26%الخرطومamp%3Bquot%3B.html>>>

Ministry of Cabinet. 2015. Sudan: Multiple Indicator Cluster Survey. Key Findings. April 2015. Central Bureau of Statistics. Republic of Sudan.

Ministry of Environment, Forestry, and Urban Development & UN-Habitat. 2015. Sudan's Report for United Nations' Third Conference on Housing and Sustainable Urban Development, (Habitat III), 2016.

Ministry of Human Resources Development and Labour. 2013. Sudan Labour Force Survey. 2011. Directorate General of Planning and Monitoring. International Labour Office. November 15, 2013.

NASA Earth Observatory. 2005. Astronaut photograph ISS010-E-23451 was acquired April 7, 2005, with a Kodak 760C digital camera with a 400 mm lens, and is provided by the ISS Crew Earth Observations experiment and the Image Science & Analysis Group, Johnson Space Center. <http://earthobservatory.nasa.gov/IOTD/view.php?id=5514&eocn=image&eoci=related_image>

National Council for Strategic Planning. 2007. "The Five-Year Plan (2007-2011)." <<http://planipolis.iiep.unesco.org/upload/Sudan/Sudan_five_year_plan.pdf>>.

OCHA. 2013. "Sudan: NFI / ES Flood Response (as of 19 September 2013)." <<http://reliefweb.int/sites/reliefweb.int/files/resources/NFI_ES_flood_response_19_Sep_2013.pdf>>.

Osman, Salah Eldin Mahmoud. 2012. Sudan Arab City Consultancy Report Background Paper for the State of Arab Cities 2012.

Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2012 Revision.

<<<http://esa.un.org/unpd/wpp/index.htm>>>.

Population Reference Bureau. 2014. "2014 World Population Sheet." <<

http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>>.

Republic of Sudan Central Bureau of Statistics. 2013. "The total population expected to States for the period 2009-2018." October 10, 2013. <<

<http://www.cbs.gov.sd/en/files.php?id=7#&panel1-4>>>.

Republic of Sudan. Central Bureau of Statistics. 2009. "Sudan National Baseline Household Survey 2009: North Sudan - Tabulation Report." CBS/NBHS 2009 Statistical Report No. 3/2010.

- Republic of Sudan Central Bureau of Statistics. 2008. Khartoum State Census. <<
<http://www.cbs.gov.sd/en/files.php?id=7#&panel1-5>>>.
- Sergeldin, et.al. Forthcoming. “National Urban Policies in Arab States.” UN-Habitat. 2015.
- Sudan Central Bureau of Statistics. 2010. “Sudan National Baseline Household Survey 2009. North Sudan - Tabulation Report.” CBS/NBHS 2009 Statistical Report No. 3/2010.
- Sudan Tribune. 2013. “Khartoum State Tourism Minister Defends Lack of Revenues in his Ministry.” September 11, 2013. Khartoum. <<
<http://www.sudantribune.com/spip.php?article48018>>>.
- UN-DESA. 2013. Population Division. “International Migration.” <<
<http://www.un.org/en/development/desa/population/migration/data/index.shtml>>>.
- UNDP. 2014. “Human Development Report 2014. Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience.”
- UNEP. 2007. “Sudan: Post-conflict Environmental Assessment.”
- UNFPA. 2013. “Giving Young People a Priority.” Retrieved from
<http://countryoffice.unfpa.org/filemanager/files/sudan/facts/youth.pdf>
- UN-Habitat. 2010. “Khartoum Pro-Poor: From Policy Design to Pilot Implementation Projects.” Regional Office for Africa and the Arab States.
- UNHCR 2015. “2015 UNHCR country operations profile – Sudan.” December 2014. <<
<http://www.unhcr.org/pages/49e483b76.html>>>.
- USAID. 2012. “Sudan Environmental Threats and Opportunities Assessment with Special Focus On Biological Diversity and Tropical Forest.” Prepared by Suad Badri, Management Systems International.
<<<http://www.encapafrika.org/documents/biofor/SUDAN%20ETOA%202012%20wg.pdf>>>.
- World Bank. 2012. Urban Development Indicators. Data.
<<<http://data.worldbank.org/topic/urban-development>>>.
- World Bank. 2009a. “Sudan: The Road Toward Sustainable, Broad-Based Growth.” Poverty Reduction and Economic Management Unit. Africa Region. December 2009.
- World Bank. 2009b. “Sudan Investment Climate Assessment. Finance and Private Sector Development. Africa Region. Report No. 71431. December 2009.