



**Ministry of Environment, Forestry and Urban Development
National Council for Physical Development**

and

United Nations Human Settlements Program (UN-HABITAT)

SUDAN'S REPORT

**For United Nations' Third Conference
On Housing and Sustainable Urban
Development, (Habitat III), 2016**

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Photo No 1: New urban development in the western part of Khartoum
Photo by Hisham Karouri www.facebook.com/hishamkarouri/photos_stream?ref=page_internal

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EXECUTIVE SUMMARY

The population of Sudan reached 30.9 million people in the last population census (2008), and is projected to reach 39.7 people by 2016, growing at a 2.8% growth rate per annum. With this rate of increase the population could double up in in about 16 years.

The urban population constituted about 29.8% of the total 2008 population, which indicates that Sudan is predominantly rural. This high rate of population increase, and the tendency towards population concentration in large urban centers, constitutes one of the biggest challenges facing Sudan because it requires heavy investments in infrastructure, housing and social services in urban areas that are beyond the ability of public authorities, and popular initiatives, to satisfy. This inability affects relatively the quality of life in urban and rural areas.

Children and adolescents below 18 years of age constitute 48.5% of Sudan's population. This necessitates provision of a range of essential services for this group, which constitutes a strong asset for Sudan if it is well catered for. On the other hand, youth in the 15-35 years age range constitute about 35% of Sudan's population. They are also a strange asset for Sudan's future provided that their economic and socio-cultural needs are satisfied. The central government and state governments have launched youth and graduates employment programs, and provided funds for youth micro-enterprises.

The Sudanese Urban Dwellers Survey we conducted in September and October 2014 revealed that the priorities they would like to see in their cities come in the following order of importance (Annex 3):(1) better housing and good living environments, (2) good education; (3) better health care; (4) affordable and nutritious food; (5) access to adequate and safe water and sanitation; (6) honest government and local authority; (7) better streets, public transport and mobility; and (8) better job opportunities. In addition to those, urban dwellers in Greater Khartoum, the national capital, identified a well-planned city and town and access to land and security of tenure among their top priorities.

Sudan has taken great strides towards achieving the Habitat Agenda (that resulted from Istanbul 1996 international conference) goal of reducing the number of urban dwellers living in slums substantially. In Greater Khartoum, for example, their percentage dropped from about 60% in 1990 to less than 20% in 2014. A similar drop happened in other Sudanese towns. Similarly, Sudan has made great progress in achieving the second goal of the Agenda by increasing the number of urban dwellers with sustainable access to a source of safe drinking water. According to the 2008 population census, they constituted 55% and 82% of the populations of Sudan and Khartoum State, respectively. A similar progress in the third goal of increasing the number of urban dwellers with access to proper sanitation and toilet facilities has been achieved. According to the 2008 population census, the percentage of households with access to proper means of sanitation. They constituted 54.3% and 90.6% of Sudan and Khartoum State households, respectively.

As for as provision of adequate housing is concerned, hundreds of thousands of housing plots have been allocated to urban dwellers in several Sudanese towns. This has increased the percentage of households who own their houses from 76% of the total 1996 households to about 87% in 2008 (Annex 1). This does not necessarily mean that all those households have adequate housing. It may mean owning just a plot of land or a humble house. Access to adequate housing constitutes a big challenge to individuals, households and government agencies, and it figured as the top priority in the Urban Dwellers' Survey.

Absence of housing finance is one of the biggest obstacles that hamper provision of adequate housing for Sudanese households. Consequently, a high percentage of them resort to sending some of their members to work in one of the rich countries and use their remittances in home construction. In 2008, the National Fund for Housing and Reconstruction was established to build housing units on behalf of needy households against easy installments. However, lack of adequate funding is the biggest hurdle that faces the Fund.

Sudan has also made good progress in linking urban and rural areas together by building national and local highways and domestic airports. Similarly, good progress has been made in sustainable urban planning. Many state capitals have prepared long-term master/structure plans. However, lack of sufficient budgets and trained cadres impedes full implementation of those plans.

Many Sudanese towns face the dangers of natural disasters – namely, droughts, desertification and floods. As a result of climate change, desertification is the major obstacle that hampers sustainable development and urbanization in Sudan because it leads to failure of rain-fed crops and drying-up of pastures upon which millions of rural households depend. This has forced millions of people to migrate from rural areas to the fringes of towns and cities where they live as squatters. Sudanese urban areas require substantial resources in order to consolidate their coping mechanisms to address the ramifications of climate and its concomitant natural disasters.

On the other hand, civil strife and armed struggles that proliferate in some states in Sudan constitute a big challenge through the destruction of infrastructure, services and livelihood means, and the human displacement resulting from that. Sudan has made good progress in resolving those conflicts and grievances that breed instability through negotiations and peaceful resolution of those conflicts; however, it appeals to the international and regional communities to assist in funding the resulting reconstruction and development.

Lastly, the above-mentioned strides and achievements are often impeded with sanctions and embargoes imposed on Sudan by the international community since 1994. Those sanctions prohibit importation of new equipment and technologies for water purification, sanitation, clean and sustainable energy sources – such as solar and wind powers – transportation means, safety and security means. Unless those sanctions and embargoes are lifted, the suffering of Sudanese urban dwellers – especially the urban poor – will continue unabated.

INTRODUCTION

The United Nations General Assembly, through its Resolution 66/207, decided to convene in 2016, the Third United Nations Conference on Housing and Urban Development (Habitat III). This conference will be a follow up to the first one that was held in Vancouver in 1976, and the second one that was held in Istanbul in 1996. Leaders of the world will convene to assess the progress achieved in implementing the commitments of Habitat II Conference (known as the Habitat Agenda), and to renew their commitments to achieve sustainable urban development, and to address the challenges that will face cities and their dwellers during the coming 20 years through a “new urban agenda”.

The **objectives** of this Report are to review Sudan’s progress in implementing the Habitat Agenda, utilizing guidelines prepared by UN-Habitat; with a focus on policies, strategies, projects and actual achievements. The Report also reviews the challenges that faced Sudan during the past 20 years, and the challenges expected during the upcoming 20 years that could be addressed through a “new urban agenda”. The Report has been prepared with wider consultation and participation of Habitat partners, including National Governments, Local Authorities, NGOs and CBOs, Trade Unions, Professionals and Researchers, Academia, Human Solidarity Groups, Indigenous Peoples, Parliamentarians, Private Sector, Foundations, Financial Institutions, Youth and Women’s Groups. It has been validated and endorsed by the National Council for Urban development and the National Habitat Committee.

The **methodology** adopted in preparing this Report includes:

1. Desk review of the reports and studies prepared by relevant government agencies, non-governmental organization and private sector institutions at the national and subnational levels.
2. Five consultative workshops at the national and sub-national levels that brought together all Habitat partners to review and agree on progress achieved, challenges faced and future priorities.
3. Administering an Urban Dwellers Survey prepared by UN-Habitat (Annex 2) to 300 dwellers in the national capital and in two representative states (Gedaref and South Darfur). The results obtained are used as key inputs in the Report.
4. Conduction interviews of some experts and pertinent urban actors who are knowledgeable about urban affairs in Sudan.
5. Organizing a national consultative workshop that included 70 members of the Habitat National Committee and the National Council for Physical Development – including representatives of all Habitat partners – to review evaluate and endorse the Report.

Sudan is **located** in north-east Africa fronting on the Red Sea and bordering Egypt from the north; Eritrea and Ethiopia from the east; South Sudan from the south, Central African Republic, Chad and Libya from the west (Figure 1). Its current **area**, after the secession of South Sudan in July 2011, amounts to about 760,000 square miles making it number three in Africa and number 16 in the world. Sudan is endowed with a wealth of **resources** including fertile lands, abundant water resources, livestock, diverse forests, minerals such as gold and copper, and oil production amounting to about 120,000 barrels per day.

The total number of **population** of Sudan according to the 2008 census was 30.9 million people; its 2016 population is projected to reach 39.6 million growing at an annual rate of increase of 2.8% per annum. The Sudan has a young population with some 42% of its population below 15 years of age, 35% in the 15 – 35 years of age, and only 10% are above 50 years of age. The

Republic of Sudan adopts a federal system of **government** whereby the country is divided into 18 states each having an elected governor and an assembly. Each state includes a number of localities. Khartoum State accommodates 17.1% of Sudan's population although it is the smallest one in area. It is followed by South Darfur that has 13.3% of the total population.

Sudan's agricultural sector contributed about 27.4% of GDP in 2013. The industrial sector, on the other hand, contributed about 33.6% of GDP, while the service sector contributed about 39% of GDP. Using the official rate of exchange, the total GDP based on the purchasing power parity (PPP) amounted to US\$ 89.9 billion and grew at a rate of 3.9% during 2013. The per capita GDP based on the PPP amounted to \$2600 which ranked number 182 worldwide. The rate of inflation recorded by the Central Bank of Sudan in December 2013 was 41.9%. Based on the Central Bureau of Statistics estimates, 46.5% of the total population falls below the official poverty line.

Attainment of the **Millennium Development Goals (MDGS)** in Sudan has been hampered by recurrent armed conflicts, the longest of which was the south Sudan conflict that raged from 1983 to 2005, and led eventually to the secession of South Sudan in 2011; and the current one raging in Darfur, south Kordofan and south Blue Nile since 2004. Consequently, the overall performance of Sudan in achieving the MDGs is lower than expectations.

In addition to an Executive Summary, the Report includes six chapters: (1) Urban demographic issues, (2) Land and urban planning, (3) Environment and urbanization, (4) Urban governance and legislation, (5) Urban economy, and (6) Housing and basic services. These six issues constitute the kernel pillars of the "Habitat Agenda". Each chapter is divided into a number of sections.

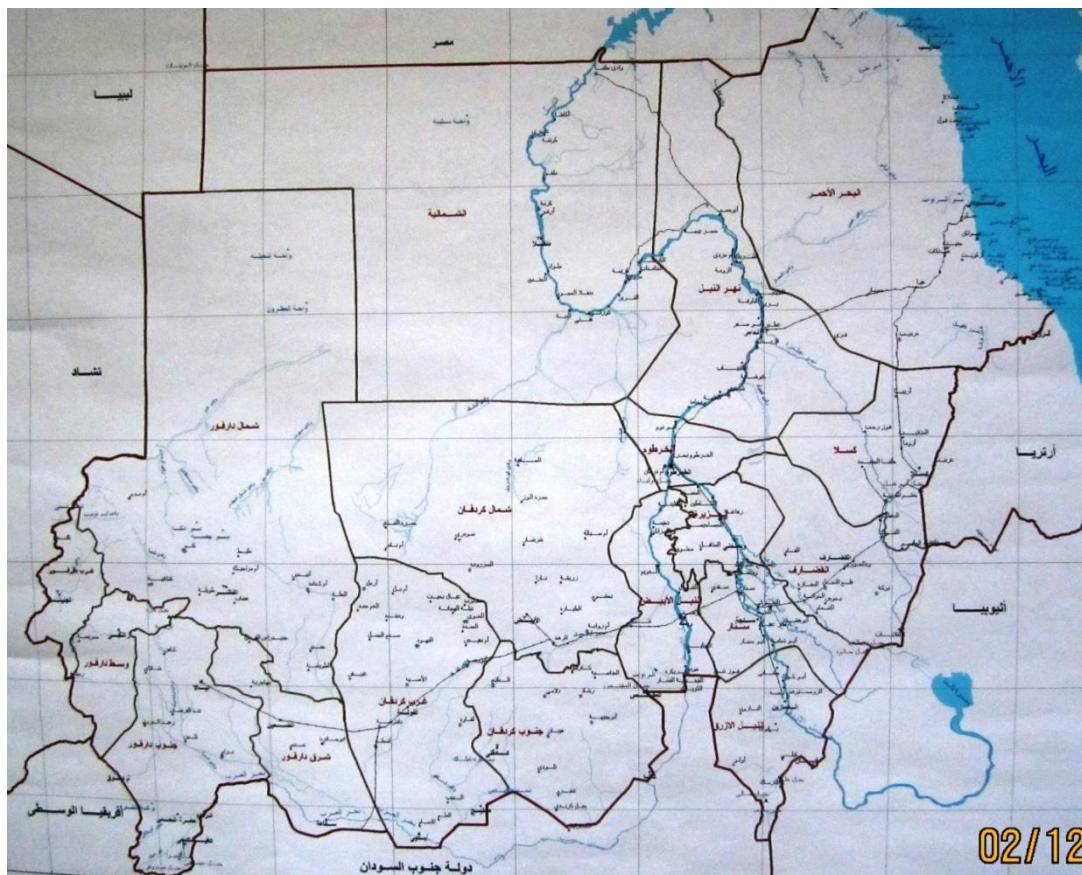


Figure 1: Administrative Map of Sudan
Source: National Survey Corporation

CHAPTER I. URBAN DEMOGRAPHIC ISSUES

1. Managing rapid urbanization¹

Although the population of Sudan has been growing at high rates (about 2.8% per annum on average during the past 20 years), its urban population has been growing at much higher rates (about double the natural population growth rate). Therefore, the proportion of urban population of the total population has always been on the rise as can be seen in Table 1. While that proportion amounted to 8.8% at the dawn of independence in 1955-1956 (i.e., the time of the first population census), it reached 29.8% in 2008 (the last population census), i.e. a more than three times increase.

	1956/55	1973	1983	1993	² 2008
Total Population (000s)	10,300	14,800	21,590	24,900	30,894
Urban Population (000s)	854	2,606	4,154	6,275	9,206
% Urban	8.8	18.5	20.5	25.2	29.8

Table 1: Total and urban population in Sudan as recorded in the five population censuses
Source: Population census reports

The number of settlements that were classified as urban in the first census was 68. That number increased to 115 in 1983 (i.e., the third population census), and to 122 in 1993 (i.e., the fourth census)³. This also illustrates the high urbanization tendency in Sudan.

The national capital, Greater Khartoum that includes the three cities of Omdurman, Khartoum and Khartoum North, is by far the primate city in Sudan. Its 2008 population was about 4.27 million, i.e., more than nine times that of the second largest city, Nyala, whose population amounted to about 443,000 in 2008. Figure 2 illustrates the growth of Greater Khartoum during the five decades between the first and the last censuses. It indicates clearly that its population has been doubling-up almost every ten years.

Because of its relatively better services, large markets more employment opportunities and relatively higher standards of living, Greater Khartoum has always been the first choice for life-time migrants. The 2008 census has shown that 49% of all life-time migrants have migrated to it. (M. A. Yousif et al. n.d. p31). It also showed that only 52% of those enumerated in Greater Khartoum were born in it (Central Bureau of Statistics). In addition to life-time migrants, Greater Khartoum and other large cities in Sudan host seasonal migrants who seek employment in urban

¹ Urbanization implies a change in the characteristics of certain area from rural to urban. It usually takes place at the expense of rural areas, whereas urban growth connotes an absolute increase in the number of urban population even if it was not coupled with a change of boundaries.

² The figures for the 2008 population census are those for Sudan with its new boundaries after the secession of South Sudan in 2011, while the other censuses' figures were for Sudan with its old boundaries.

³ In the first and second population censuses any settlement with at least 5,000 inhabitants was classified as urban. Since 1983 that benchmark was increased to 20,000. Some settlements that had less than those figures but play urban functions (e.g. locality capitals) were also classified as urban.

areas during dry seasons and return to their rural areas just before the rainy season to prepare their lands for cultivation. The number of seasonal migrants in Sudan is estimated to be about four million people.

A similar phenomenon is observed in Nyala whose population has also been doubling-up every ten years (Figure 3). Its growth can be attributed primarily to natural and man-made disasters. Between the first and the second censuses (1955/56 and 1973) it experienced a five-fold increase in population (from 12,000 to 60,000) due to a severe drought that hit the Sahel region of Africa in the late 1960s forcing people to relocate to water-rich areas. Another infamous drought happened in 1983 which resulted in a doubling-up of its population from 60,000 to 144,000. During the past decade, with the escalation of conflicts and civil strife in Darfur, Nyala emerged as a safe abode for internally-displaced persons (IDPs) and a hub for national and international NGOs serving them, in addition to its traditional role as the largest market in western Sudan. The largest IDP camps within the vicinity of Nyala are Kalma, 78,000 IDPs; Otash, 14,000 IDPs, and Dereig, 13,000 IDPs (UN-Habitat, 2009:3).

Town/City	% Growth Rates		Population (000s)				
	93-83	-73 83	2008	1993	1983	1973	56-55
G. Khartoum	6.6	4.6	4,271	2,918	1,343	784	245
Nyala	7.4	6.1	493	230	144	60	12
Port Sudan	3.8	4.6	399	308	213	135	48
Al-Obeid	5.0	4.2	345	229	140	92	52
Kassala	5.1	3.6	298	235	143	101	41
Wadmedani	1.9	5.8	289	211	207	118	48
Gedaref	4.8	6.0	269	191	119	66	18
Elfashir	5.4	4.9	218	142	84	52	28
Kosti	6.6	4.3	213	174	92	66	23

Table 2: Population Growth in the Largest Cities in Sudan
Source: Population Census Reports

Table 2 presents the population of the nine largest cities in Sudan and their population growth rates. It indicates clearly the urban primacy of Greater Khartoum whose 2008 population amounted to 43% of the total urban population in Sudan (Table 1), and to about three times the population of the four cities that followed it on the urban hierarchy (i.e., Nyala, Port Sudan, Al-Obeid and Kassala). The table also shows a strong tendency towards urban agglomeration. Whereas the percentage of Sudanese people that lived in the nine largest urban centers in Sudan in 1955/56 amounted to 5%, it reached 22% in 2008. Moreover, about 78% of the total 2008 urban population was living in those nine urban centers.

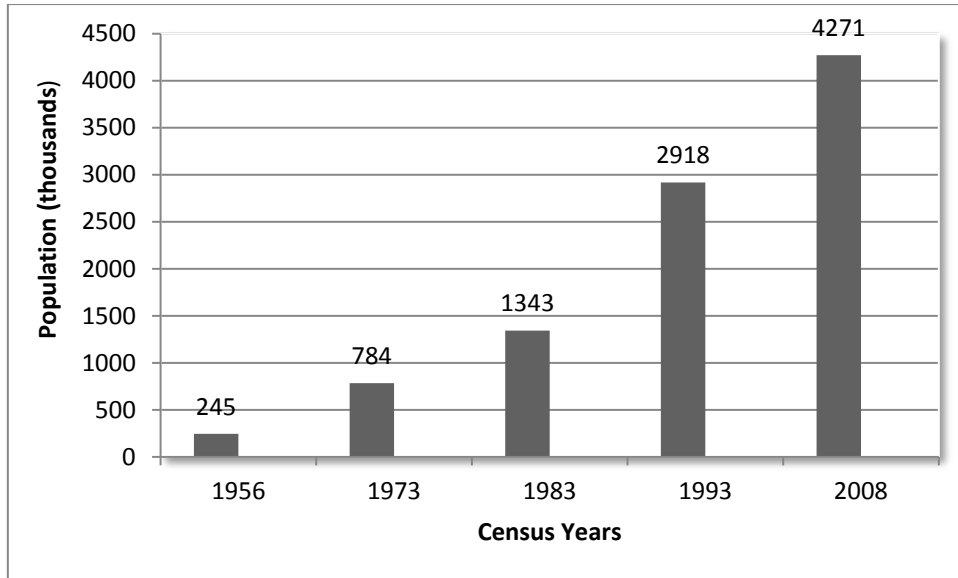


Figure 2: Population growth in Greater Khartoum, 1956 – 2008
Source: Based on population census reports

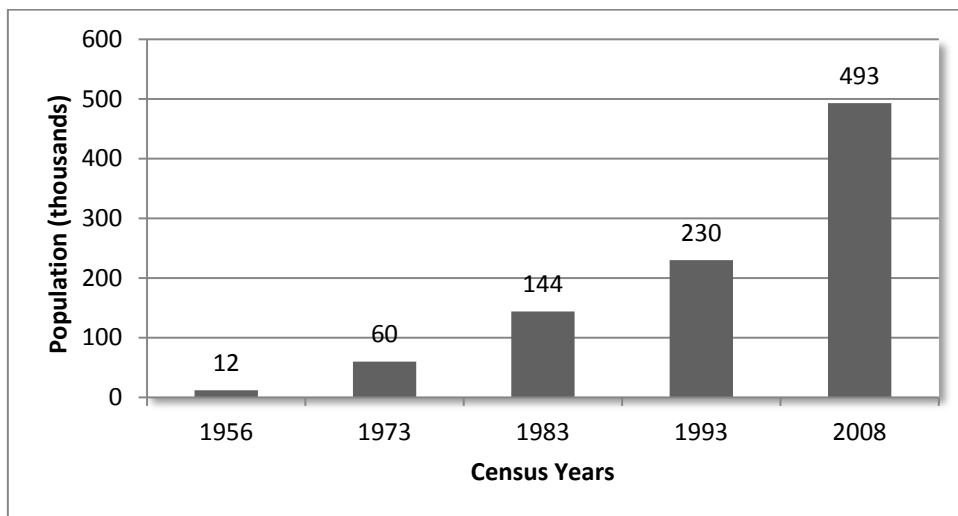


Figure 3: Population growth in Nyala, 1956 – 2008
Source: Based on population census reports

The uncontested urban primacy and agglomeration illustrate the imbalanced urban growth in Sudan, and the tendency of rural areas and small towns to lose their population, specially the youth, the educated and the entrepreneurial to large cities.

Managing the rapid pace of urbanization in Sudan illustrated above rests on the following six pillars:

- i. Negotiating a peaceful resolution of the armed conflicts that force IDPs to leave their homelands and to seek refuge in urban areas. Federal and state governments have been active in liaising with militias and rebel groups in Darfur, Kordofan and Blue Nile states in order to reach agreeable resolutions. Often those peace treaties involve reconstruction of damaged rural economies and construction of new 'peace' villages – such as those built recently in various Darfur states – so that IDPs could return to them.
- ii. Establishing new towns and satellite cities to absorb new migrants and additional urban growth in large urban centers. For instance, the recent Khartoum Structure Plan (KPP5) (2008-2033), which has been approved by the federal Council of Ministers, recommended establishment of nine such satellite cities, and set forth planning guidelines and estimated budgets for that purpose.
- iii. Planning new housing areas, as extensions to existing towns and cities, and providing them with the necessary infrastructure and services to accommodate new urban growth.
- iv. Addressing the negative ramifications of rapid urbanization, such as the growth of squatter settlements, proliferation of slum areas as a result of over-crowding, through urban upgrading programs.
- v. Maximizing governmental efforts, supported by multi-lateral, Arab and Islamic donors, geared towards improving housing and life in rural areas through provision of water sources, and development of building materials, that rural areas become attractive to their residents and offer them decent living conditions.
- vi. Forging a balanced regional development so that each state provides its residents with all the services they need; and rejuvenating rural economies so as to reduce the attraction of large urban centers. All long-term strategies and short-to-medium term economic development plans that were formulated during the past years – at federal and state levels – have the objectives of achieving a balanced regional development in all parts of Sudan.

2. Managing rural–urban linkages

Maintaining efficient linkages between rural and urban areas is vital for ensuring that primary goods produced primarily in rural areas, e.g., agricultural products, livestock, etc., reach urban markets easily and at low costs. Thus, rural producers will reap the benefits of their production promptly and fully. This will ensure that rural economies will continue to thrive and that rural dwellers will continue to prosper and don't feel obliged to migrate to urban areas.

At the same time, efficient linkages between rural and urban areas will ensure that manufactured and processed goods produced in urban areas will reach rural consumers promptly and at low costs. Thus, urban economies will continue to thrive creating a need for new jobs and new products. Thus, efficient rural–urban linkages create a win–win situation, which is beneficial to everybody at the local, national and sub-national levels.

Sudanese federal and state governments have been active in building and new roads that link urban and rural areas together. At the national level the following inter-state highways have been completed during the past twenty years:

1. Altahaddi (challenge) Highway that links Khartoum with important northern cities like Shendi, Addamar, Atbara, then proceeds to meet the prominent Khartoum – Port Sudan highway at Haya Junction.
2. Completed in 2008 with a total length of 276 kilometers, the Atbara – Haya highway shortened the distance between Khartoum and Port Sudan to about 400 kilometers, i.e. less

than half the length of the old Khartoum – Port Sudan highway that passes through Gezira, Gedaref and Kassala states.

3. Shiryan Al-Shamal, (the Northern Arterial Highway), i.e., Khartoum – Al Multaka – Al Deba, which was completed in 2007 for a total length of 300 kilometers. This highway passes through Baioda Desert and shortens substantially the distance between Khartoum, Karima, Marawi and eventually Dongola.
4. Atbara – Marawi highway, which was completed in 2008 with a total length of 262 kilometers.
5. Karima – Dongla highway, with a total length of 180 kilometers, was completed in 2010.
6. Dongla – Wadi Halfa, highway with a total length of 400 kilometers. Construction began in 2007 and has been recently completed. This new highway, which is the final part in the Shiryan Al-Shamal highway, facilitates a direct link between Khartoum and Wadi Halfa passing through important production and consumption areas, eventually linking Sudan and Egypt through the recently inaugurated highway between the two countries.
7. .Al Inghaz Al-Gharbi (the Western Salvation Highway) with a total length of 1200 kilometers, which is perhaps the longest and one of the most important highways because it links Khartoum with Kordofan, Darfur and eventually with neighboring African countries. Thus, it links important regions that have high population concentrations and economic importance with the capital region and through it to international markets. The highway was started in the 1990s but faced several difficulties. Recently, it reached close to Al-Fashir, the capital of North Darfur State. Progress has also been made in several parts of the highway that will eventually reach Al-Gineina and Nyala, the capitals of West and South Darfur respectively.
8. At the sub-national level, states have also been busy helping federal highway and bridges' agencies to construct paved roads that link their urban centers with rural hinterlands in order to facilitate efficient flows of goods and people, hence better management of urban–rural linkages.

Recently several domestic and international airports were inaugurated or refurbished in some cities and state capitals such as Dongola, Al-Gineina, Al-Fashir, Marawi and Kassala, in order to facilitate the flow of goods and people nationally and internationally.

3. Addressing urban youth needs

With about 48.5% of its population below 18 years, and 35% of its population in the 15-35 age groups, Sudan is considered a nation with a young population. At present, this poses many challenges for Sudan to cater for this large number of young people so that they can become a strong asset for its progress in the future.

A National Youth Strategy (2007-2031) has been recently prepared and endorsed. It is a positive indicator that Sudan pays attention to this important sector of its society. A National Youth and Sports ministry leads the efforts at the national level to ensure that the Strategy is implemented fully. At the state level, most states have youth and sports ministries, or sometimes youth affairs are delegated to the social welfare ministry. Collectively, they have accomplished the following:

1. Youth centers were established in urban areas to provide venues for sports, capacity building, awareness-raising, entertainment and other services to youth. For example, Khartoum State

has established 137 youth centers during the period 2007 – 2011, that coincided with the first five years of the Quarter Century Strategy (Khartoum State Higher Council for Strategic Planning, 2014, p. 117). 12 new centers were planned for 2012 but were not completed due to budgetary constraints.

2. Sports facilities – particularly open football fields – are included in every neighborhood as part of its communal facilities. These fields are managed by sports councils that are part of the local government structure. In recent years, private football fields provided with lighting and the necessary infrastructure proliferated in major urban areas as a form of investment. Investors usually approach localities or the state ministry of physical planning to rent a piece of land to establish football fields. Although involving a financial burden for youth groups, those private football fields provide them with clean, well- maintained venues for their sport activities.
3. A national competition is organized annually in one of the states to show case outstanding achievement in sports, cultural and artistic talents of primary and high school students selected by their state to compete in the national competition.

Furthermore, the National Youth Strategy advocates and supports involving youth in urban (and rural) affairs through their National Youth Parliament and participation in voluntary organizations that provide communal services and emergency assistance during natural disasters such as floods and heavy rains.

4. Responding to the needs of the aged

The 2008 census showed that the percentage of people who are above 60 years of age (i.e. the age of retirement in Sudan) constitute about 5.2% of the total population of Sudan. This confirms our previous assertion that the population of Sudan is generally young. The life expectancy at birth for both sexes is about 54 years, which indicates that a significant proportion of Sudanese people die at a rather young age. With the standards of health care improving systematically, the overall life expectancy is projected to increase in the future.

In spite of their small percentage, the aged are important and well respected people in the Sudanese society whose values are based on Islam and African values which advocate respecting old people. Consequently, the federal Ministry of Welfare and Social Security developed in 2009 a national strategy for the aged aimed at provision of better social welfare and medical services to them. Furthermore, the social security system has been improved to provide insurance to old people against incapacity, handicaps, death, etc. This is covered through the Pensions Fund and the National Social Insurance Fund. Unfortunately, Sudanese urban areas do not pay enough attention to the needs of the aged in public transportation, in street furniture, zebra crossings, etc. No sports facilities are dedicated exclusively for them.

Therefore, they generally stay within their neighborhoods, meet with friends at their door steps, at corner shops and go to the neighborhood mosque for daily prayers where they can also meet their friends. Neighborhood open spaces, those multi-function spaces provided in every Sudanese town and city, are also favorable places for male elderly people to sit during afternoons and early evenings with their friends to watch children and young people play football, watch passers-by, play cards, dominos or chess.

Some well-off male elders may prefer to go to social clubs outside their neighborhoods where they can meet other elders related to them by profession, regional background or sports affiliation.

To go that distance, they may be driven by one of their friends or children.

Female elders generally stay within their homes, visit their neighbors, or go shopping in neighborhood corner shops where they can meet other female shoppers to chat and gossip.

5. Integrating gender in urban development

Although gender is a general term that refers to both men and women, and to the relationships and differences between them, many writers and scholars use it in reference to women only. It is almost a universal phenomenon that the status of men is better off than that of women and that most public policies benefit men more than women. During the past two decades, and as a result of research conducted by scholars, and the efforts of several international agencies, and global conferences, such as the 1995 Beijing International Conference on Women, there have been greater efforts to reverse that trend and to bridge the gap between men and women and to treat women equally with men. Henceforth, special attention is given to integrate gender (i.e. women's issues and concerns) in public strategies and program – including urban ones.

Overall, according to the 2008 Sudan population census, women fare better than men in a few indicators but lag behind them in many others as follows:

Indicator	men	women
Percentage to the total population (%)	51	49
Life expectancy (years)	52.5	55.5
Overall illiteracy rate (%)	42.7	54.6
Head of the household	71.4	28.6

Table 3: Gender-based indicators, 2008
Source: Central Bureau of Statistics

Although the Sudanese society can be considered a male-dominated one, the 2005 Sudanese Constitution calls for equality between men and women. In 2007 a National Strategy for Women Empowerment was enacted in line with the National Quarter-century Strategy (2007-2031) and the 1995 Beijing's International Conference on Women. Total and sectorial development policies in Sudan also pay special attention to women. Furthermore, the National Population Strategy was updated in 2012 to include, among others, and special section on women empowerment and their full integration in sustainable development. 30% of seats in the national parliament have been reserved for women; however, their share in federal ministries stood at 6.8% in 2012. Obviously more efforts are needed to bridge the gender gap.

Women's access to housing plots through the official housing plans is ensured through a special decree that gives state ministers of physical planning the authority to consider the cases of single women, widows or female heads of households separately; thus, giving them more chances to gain access to plots irrespective of their low points or small families. The same special consideration is given to them in the allocation of housing units built by the National Fund for Housing and Reconstruction.

In large cities, like Greater Khartoum, special segments in the central and local markets are reserved for women traders. They are also given access to stalls in malls, parks, at major

intersections or in new schools, universities or hospitals to sell tea, refreshments and food. Thus, women's small enterprises are incorporated in urban development to provide goods and services needed by urban dwellers, while at the same time supporting those needy women.

Although not provided exclusively for women, urban green areas and parks are used primarily by women and their children during weekends, religious festivals and special occasions. In the case of Greater Khartoum, for example, green areas and parks provided by the state have increased substantially in recent years as shown in Table 4:

Year	Area of new parks and green areas (sq.km.)
2009	50
2010	145.25
2011	1287.38

Table 4: Additional green areas in Khartoum State
 Source: Higher Council for Strategic Planning, Khartoum State, 2012.
 Table 6-100, page 80

6. Challenges experienced and lessons learnt in these areas (i.e. 1-5)

6.a. The main *challenges* experienced in the areas of managing rapid urbanization, increasing rural-urban linkages, addressing urban youth needs, responding to the needs of the aged and integrating gender in urban development include the following:

- i. High rates of population growth during the past 20 years (about 2.8% per annum) mean that the population doubles in less than 20 years. Coupled with high rates of urbanization (4%-6% overall, reaching 7% - 8% in some urban areas) during the past 20 years, which means that the urban population doubles up every 10 – 15 years, has meant that substantial investments are needed to provide services, infrastructure and housing for those new additions.
- ii. Absence of national urban development strategies precluded coordination of state urban development plans, and resulted in a lack of a comprehensive vision for land use and natural resource utilization.
- iii. Natural and man-made disasters, such as droughts and civil strifes, continue to disrupt life in Sudanese rural and urban areas forcing people to migrate to large urban centers. This is more pronounced in Kordofan and Darfur states where desertification has led to depletion of natural pastures and agricultural lands on which large numbers of people depend.
- iv. Urbanization in Sudan is characterized by urban primacy and the hegemony of Greater Khartoum over the whole urban system in Sudan. This results in skewed urbanization, and the need for substantial investments in Greater Khartoum to finance expensive infrastructure like bridges, trams, sewerage networks, etc.
- v. Insufficient resources preclude investing in stronger rural-urban linkages, which have proven to be beneficial to both areas, and hampers investments in rural areas that could result in a balanced regional development.

- vi. The high population growth in Sudan is coupled with a high percentage of people below 35 years of age. This means substantial investments are needed to provide this youthful population with their needed educational, health, sports, and recreational services.
- vii. Insufficient resources also mean that the urban needs of women and the aged are not fully satisfied.
- viii. The increasing number of women in higher education and their excellent performance in it, mean that they will assume more important roles in society; hence, provision should be made to accommodate their special needs in urban areas to provide sufficient jobs that meet their requirements.

6.b. On the other hand, the *lessons* learnt in these areas (i.e. 1-5) include:

- i. The federal system of governance has unleashed regional energies to implement local development programs financed through local resources. Although, progressing at a slow pace, this local development is expected to slow down the pace of rural-to-urban migration.
- ii. The high rate of population growth is also an asset for Sudan which has a large area (about 760,000 square miles) and a wealth of natural resources. In the short run, substantial resources are needed to provide health, educational services for this youthful population.
- iii. Although being rather expensive, investing in inter-state highways is indispensable in a vast country like Sudan in order to link its diverse regions and communities together, and to effect greater linkages between its urban areas and rural hinterlands, which is beneficial for everybody. At the same time, investment in railways is essential because of their cheap cost of transporting goods people
- iv. Provision of open spaces in the midst of residential blocks is highly beneficial because they represent multi-purpose spaces that can be used by young people, and old people alike at virtually no cost. They are also useful as safe heavens during disasters such as floods, fires, etc. These spaces could be paved, planted, and developed through local community initiatives gradually and incrementally.

7. Future challenges and issues in these areas (i.-e. 1-5) that can be addressed through a New Urban Agenda

The following challenges and issues will continue to be relevant and urgent in Sudan during the coming 20 years:

- i. High rates of population growth and high rates of urbanization. The absence of sufficient resources to accommodate this growth, and to provide the necessary services in a timely manner, will continue pose serious problems. Islamic principles that most Sudanese people adhere to do not support limiting population growth through birth control, etc. but rather through careful family planning, such as breast feeding, that is advocated by Islam.
- ii. Addressing the negative impacts of droughts and desertification that result from climate change, especially their disastrous effects of rural farmlands and pastures upon which millions of people depend is inevitable since they are the prime push factors in Sudan.
- iii. Efficient and strong linkages are needed between rural and urban areas; these linkages nurture a win-win situation that should be strongly supported.

- iv. Addressing the needs of old people and women in urban areas will continue to increase with better health services, and women will strive to play pivotal roles in society and public life given their high educational attainment.
- v. The high cost of building highways at high standards that will reduce their maintenance costs will continue to challenge planners and policy makers. Investing more in railways will also be indispensable.

CHAPTER II. LAND AND URBAN PLANNING

8. Ensuring Sustainable Urban Planning and design:

Sudan has made great strides in ensuring sustainable urban planning and design. The Comprehensive National Strategy (1992 - 2002) dedicated a special section for it through an Urban Planning and Housing Strategy that called for the establishment of human settlements that provide decent living environments, healthy and suitable housing for all citizens. Subsequently, the National Quarter-Century Strategy (2007-2031) also included a special section for urban development geared towards achieving balanced urban development, provision of decent housing, reducing housing cost, and revision of policies and by-laws that govern human settlements.

In accordance with the Quarter-Century Strategy, the National Council for Physical Development (NCPD), which was established in 1996 as the body that coordinates and oversees physical planning and development at the national level, enacted general physical planning policies that have the following objectives:

- i. To strive to achieve a balanced physical development between Sudan's regions and between rural and urban areas.
- ii. To utilize physical development policies to achieve a desirable population distribution.
- iii. To encourage preparation of national and regional physical development plans and urban master plans.
- iv. Provision of adequate, decent housing and effective funding mechanisms.
- v. To promote adoption of environment-friendly local building materials.
- vi. To develop legislations and train technical cadres.
- vii. To cater for the physical environment at all levels – i.e., the neighborhood, city, region, nation and the world.

Within this framework and guiding policies, the following projects were prepared:

- i. A project for preparation of regional development plans.
- ii. A project for preparation of a national sustainable urban development strategy.
- iii. A project for establishment of a national and several regional urban observatories.
- iv. A project for preparation of structure plans for state capitals.

While the first three projects are still on-hold pending availability of funding, the last one has seen serious efforts as follows:

1. Khartoum State has prepared a structure plan covering the period 2008-2033. The plan has been approved by its legislative council, by the NCPD and the national Council of Ministers; thus become an enforceable law. This plan is the fifth in a series of master and structure plans for Greater Khartoum that were prepared in 1910, 1958, 1975, 1991 and 2008.
2. Gedaref State also prepared a structure plan for its capital covering the period 1995-2015 (later on modified to cover the period 2000-2020). The plan was also approved by the state's legislative council, the NCPD and the Council of Ministers.
3. Gedaref State has started preparation of a regional development plan but has not yet been completed.
4. South Darfur State has prepared a structure plan for its capital, Nyala, covering the period 1996–2013, that has been approved by the state legislative council.
5. The Northern State has prepared a structure plan for its capital, Dongola, in the wake of a destructive flood in 1998.
6. The Blue Nile State, assisted by UN-Habitat has prepared a regional development plan and will start preparation of urban development plans for its major cities.
7. Kassala State started a project in 1995 for preparation of a structure plan for Kassala city that has been approved by the state legislative council and the NCPD in 2006.
8. There are initial efforts to prepare regional and urban development plans in Northern, North Kordofan, White Nile, South Kordofan and West Kordofan states. Darfur Regional Authority has also taken initial steps for preparation of similar plans for the six Darfur states. All those efforts, however, as still in their early stages.

These efforts at systematic regional and urban planning, which have built-in mechanisms for updating and revision, aspire to achieve sustainable and balanced physical development.

9. Improving Urban Land Management:

Since 1970, the national government enacted the Unregistered Land Act that considered any hitherto unregistered land as government land subject to the 1925 Land Registration and Disposal Act. In some parts of Sudan, especially rural areas, land is considered as a communal property belonging to a certain tribe or clan. National and state governments usually respect that form of ownership and don't change it without the consent of its communal owners.

Government ownership of some 75% of land has made it easy for it to allot it for residential, investment and for other purposes according to land leases that extend to 30-90 years depending on location and land use.

Site-and-services schemes, in which the government leases serviced plots, primarily for residential uses, had been the prime mechanism for land disposal and allocation in almost all cities in Sudan. Although millions of citizens have gained access to land through this mechanism, it has received a lot of criticism because:

- a. It resulted in substantial horizontal expansion and sprawl in all towns, thus leading to high costs of services and infrastructure;

- b. Access to land didn't ensure that they will be turned into housing units due to high building costs. In Gedaref, for example, about 8,000 plots that were allotted to deserving citizens remained undeveloped as of September 2014. Similarly, thousands of residential plots allotted in Nyala, Khartoum, etc. remain undeveloped.

This state of affairs prompted national and state authorities to stop land allocation through site-and-services (in what was called "housing plans" then) and to substitute it with allocation of serviced housing units built in three standards: (a) popular, built for low-income groups; (b) economic, built for middle-income groups; and (c) Investment, built for high-income groups.

Finished housing units, some of which are multi-family, multi-story units, are perceived to be the right mechanism for land management and for curbing urban sprawl. Khartoum State, for instance, has established a special agency for this purpose called the Housing and Development Fund. Since its establishment in 2001, it managed to build 61,929 popular and economic housing units and 3,881 luxury housing units (viz. villas and apartments). Other states didn't achieve the same results because building finished units is an expensive task. Thus, they continue to allocate land through the site-and-services mechanism. The National Fund for Housing and Reconstruction was launched in 2008 to shoulder this mammoth responsibility. The NFHR established seven funding portfolios to construct 10,000 economic housing units in 12 towns spread over nine states. More units will be built in other states in the near future.

10. Enhancing urban and peri-urban food production:

Most Sudanese urban areas – including the largest cities of Khartoum, Omdurman and Khartoum North – expand horizontally on agricultural lands. The high population growth rate (2.8% per year on average), and the high rates of urbanization (about 4.6% per year in Greater Khartoum on average) take their toll on prime lands suitable for food production. This is a problem that needs to be seriously addressed by Sudanese policy makers and planners.

However, cultivation – including food production – is practiced in peri-urban areas often within walking distances from many towns and cities in Sudan. This is noticeable in Gedaref and Nyala, for instance. Khartoum State, which includes Greater Khartoum, the largest urban conurbation in Sudan, is still vastly an agricultural state and boasts hundreds of schemes that produce food products for local consumption and for export (Table 5). Most of these lie within a few kilometers from the town center. It is notable that the area of vegetables production in Khartoum State keeps expanding in spite of the concurrent high rates of urbanization. Federal and state sources estimate that the areas used for vegetables production in Khartoum State amounts to 30% of that in the whole of Sudan.

Year	2007	2008	2009	2010	2011	2012
Areas (in Hectares)	63,756	64,050	65,184	67,116	68,880	69,720

Table 5: Areas used for vegetables production in Khartoum State, 2007-2012
 Source: Khartoum State Ministry of Agriculture: State Agricultural Sector Indicators, November 2013.

The total areas of cultivated lands in Khartoum State (according to its Ministry of Agriculture reports for 2013) amounted to about 498,000 hectares, including rain-fed, river- and ground water irrigated areas. The produce includes fodder, fruits, vegetables, milk and milk products and sorghum.

11. Addressing urban mobility challenges

The main mobility challenges facing Sudanese towns and cities include:

- i. Moving large numbers of people and goods across town.
- ii. Managing the ensuing large volumes of traffic.
- iii. Inadequate infrastructure, such as roads for surface transport; harbors and vessels for river transport.

Mini-vans have become the dominant form of transportation in most cities – including the capital city, Greater Khartoum, Gedaref, Nyala, etc. Rickshaws come second as people-movers. The reason for this predominance of small-capacity vehicles is that ownership of transportation means has become one of the key forms of youth and household income generators and employment creation due to their relatively low cost of ownership and operation. Many banks and government lending programs have encouraged them as forms of micro-enterprises. Another advantage is the flexibility they provide in moving in various directions of towns including on unpaved roads.

On the other, mini-vans and rickshaws contribute to traffic jams and air pollution, especially in large cities like Greater Khartoum. The latter are banned from operation on major streets and the former are subjected increasingly to greater modality restrictions.

Recently, policy makers in large Sudanese cities have come to the realization that mass transit means are indispensable in spite of their high costs. Greater Khartoum, for instance, has imported large buses and is now ready to launch a tram on a long-distance, north-south direction. Gradually, mini-vans will be relegated to local routes.

In order to deal effectively with urban mobility problems, Greater Khartoum has prepared in 2013 a traffic management plan. Prepared by international consultants, the Plan analyzed the situation systematically and proposed several short-term and long-term measures to deal with it, such as use of mass transit, construction of new bridges and fly-overs, river transport, etc. However, the prohibitive cost of the plan, estimated at two billion U.S. dollars, has precluded its implementation so far.

State-of-the-art technologies that deal with urban mobility challenges have been introduced in Greater Khartoum in the form of electronic traffic management and surveillance since 2009. So far, they are limited to their second function (surveillance) on major routes, intersections and terminals. Hopefully, they will be expanded to play the major role of traffic management on all streets and nodes, and to be introduced in other Sudanese urban areas as well.

12. Improving technical capacity to plan and manage cities

The technical expertise required to plan and manage cities effectively includes manpower and technology. As far as manpower is concerned, Sudanese urban areas are deficient in the essential expertise needed to plan and manage them. This includes urban planners, surveyors, urban managers, infrastructure planners, traffic managers, etc. While land surveying is an old profession in Sudan, the others are fairly new and there are no sufficient professionals in those fields to shoulder the responsibilities of urban planning and management. Even worse, the handful of professionals who receive specialized training in Sudan or abroad are attracted by lucrative jobs and high salaries in the Gulf countries.

The manpower working in Sudanese urban areas receive specialized training in the form of master

and even doctoral degrees, as well as short continuous professional development (CPD) courses in Sudan and abroad. A certain proportion of states' training budgets is allocated for this purpose each year.

As far as the second aspect –i.e. technology – is concerned, Sudanese cities and towns strive to introduce new hardware and software and to set-up new systems to assist in their planning and management. To take the example of Khartoum State, all urban maps have been digitized and new versions of Geographic Information Systems (GIS) are being used together with new GPS and total station equipment. Furthermore, a new center has been established for infrastructure and service networks information equipped with the latest technology.

Finally, some urban areas, including Greater Khartoum, have established an urban observatory to assist in urban planning and management, data collection, analysis and dissemination. A national urban observatory is being contemplated to be the apex in the hierarchy of urban observatories in Sudan.

13. Challenges experienced and lessons learnt in these areas (i.e. 8-12)

13.a. Some of the key *challenges* faced in the areas of land and urban planning are:

- i. The high rates of urbanization in Sudanese urban areas generate high demands for land, infrastructure, services and systematic planning.
- ii. Coupled with high rates of inflation (reaching about 46% on average in 2014), land has been turned into a commodity and a buffer against inflation. Consequently, average land prices became very high and beyond the reach of most urban dwellers.
- iii. The prevailing model of planning which advocates single-family housing, and a plot of land for each family, has resulted in massive urban sprawl that made the cost of infrastructure prohibitive and beyond the reach of concerned public agencies (viz. urban water and electricity corporations, roads and bridges agencies, etc.). In most towns and cities, new housing areas remain without basic infrastructure for several decades; thus their development is slowed down, and they remain vacant. In Gadaref, for instance, some 8,000 plots remain undeveloped; similarly in Nyala and Greater Khartoum thousands of plots await the provision of infrastructure.⁴
- iv. The prohibitive costs associated with urban development have forced planning ministries, public agencies and localities to resort to the sale of land at commercial prices in order to raise sufficient funds, in some cases even to pay for salaries and running costs. This has contributed to hiking land prices and making them unaffordable. Land sales constitute the major source of funding in many states – including Khartoum.
- v. Economic and technological sanctions and embargoes imposed on Sudan by the International Community since 1994 prevent benefitting from funding for housing provided by donor and international organizations. It also precludes importation of the latest technologies, hardware and software needed for urban planning and management, as well as for traffic and urban mobility management. Without those technologies, Sudanese urban areas will continue

⁴ Source: consultative workshops organized in these three cities in September and October 2014

to suffer, and urban dwellers – including the urban poor – will bear the brunt of the inefficiencies in urban planning and management.

13.b. On the other hand, the key *lessons* learnt include:

- i. Site-and-services mode of housing provision that lead to urban sprawl and high demands for infrastructure has been abandoned officially since 2002, although in some towns and cities exceptions are made for various reasons. The alternative has been promotion of multi-family housing in multi-story housing compounds that are built by public agencies created specifically for this purpose (viz. The NFHR), and by private developers who receive concessions in the form of reduced land prices so as to pass them on to prospective homeowners in the form of affordable housing units.

So far, this change of housing policy is still in its infancy and is challenged by periodic escalations in building materials prices caused by the low productivity of factories, continuous drop in the exchange rate of the Sudanese pound against hard currencies, and the taxes and fees imposed on them by states and localities. Furthermore, its proponents (viz. the NFHR and private developers) have not yet been able to reduce housing costs through building large numbers of housing units.

- ii. Adoption of long-term, large-scale forms of predictive planning (e.g. master or structural planning) is key for achieving sustainable urban development. Thus, states were instructed by the national Council of Ministers to prepare master or structure plans for their capitals and large cities. However, taking the examples of Khartoum, Gedaref and Nyala, this has proven to be a cumbersome and expensive exercise. Often they take long time to prepare and to get the necessary approvals, such that they become outdated before they are fully adopted.

14. Future challenges and issues in these areas (i.e. 8-12) that could be addressed by a New Urban Agenda

- i. As mentioned above, long-term, comprehensive planning of cities has proven to be cumbersome, expensive and inflexible. Sudanese urban areas need to experiment with less expensive and quick forms of urban planning such as skeletal planning, micro-planning, etc.
- ii. It is still a challenge how to include greater stakeholder and community participation in urban planning without slowing down the process of plan-making or raising its cost.
- iii. Sudanese urban areas are characterized by massive horizontal sprawl that results in wasteful land uses and long and expensive infrastructure. There is an urgent need to reverse this trend through densification of urban areas and instigating a cultural change that encourages the adoption of smaller housing plots (e.g., 150 – 300 square meters) instead of large ones (400 – 600 square meters). Furthermore, multi-family housing units should be encouraged and propagated at the expense of single-family housing.
- iv. Building regulations stipulate that each house should be built away from its neighbor if the plot is larger than 299m². In a north-south direction it should be moved by one-third the building height, while on the east and west directions it should be moved by at least 1.50 meters. This results in leaving at least 30% of an average 400 square meters plot vacant. The logic used for these wasteful regulations is facilitating air movement and natural ventilation. On the contrary, this contributes to urban sprawl and need to be carefully reconsidered.

- v. Food production should be encouraged within urban areas. Firstly inside houses on the vacant areas stipulated by the building regulations; and secondly on the numerous open spaces that characterize Sudanese urban areas. Instead of leaving them vacant and unattended to – thus becoming garbage dumps and heat islands – they could be assigned to the local communities surrounding them to plant them with fruits, vegetables & large trees (e.g. fruit trees such as mangoes, dates, etc.).
- vi. The idea of edible landscapes could be experimented with on major and local streets, as well as on local open spaces.
- vii. Greater efforts should be exerted in cross-country exchange of experiences in urban planning, land and urban mobility management, etc. At the regional level (in both MENA and Africa regions) more CPD courses and exchange of best practices in those important areas are badly needed.

CHAPTER III. ENVIRONMENT AND URBANIZATION

15. Addressing climate change

The climate change resulting from global warming has led to a proliferation of droughts and desertification in the African Sahel that includes Sudan's central regions – namely Kordofan and Darfur – this has disastrous effects on rain-fed cultivation, livestock and forest sources on which the vast majority of people in those regions depend. Massive displacements to urban areas have been taking place in those regions since the late 1960s contributing to urbanization in Sudan.

It is a well-known phenomenon that urbanization usually results in above-average air temperatures – i.e., the air temperature in urban areas is generally two to three degrees higher than that in adjacent and remote rural areas. This is due to replacement of green areas and natural ground covers in rural areas with concrete and metal roofs, paved side-walks, asphalt roads, etc. that store heat during the day and emit it during evenings.

Urbanization that grows at the expense of forests and farm land – which is the case in most Sudanese urban areas- leads to deforestation, hence contributes to the phenomenon of global warming. Furthermore, urban agglomeration leads to greater use of energy for domestic, industrial, transportation, cooling and air conditioning purposes. This leads to greater heat emissions, hence to higher temperatures.

Sudan has set-up the Higher Council for Environment and Natural Resources as the federal agency in charge of addressing and coordinating climate change issues. Some states, for example Khartoum, have set-up a Council for Environment to deal with those issues at the state level. The Higher Council conducted several studies to assess the extent of emissions from urban centers that contribute to climate change, but those have not yet been reflected in specific urban policies pending in-depth investigation and assessment.

On the other hand, the Higher Council prepared several strategies to deal with the effects of climate change at federal and state levels; as well as some projects based on those strategies that

are currently being implemented in some states that will have some bearing on urban development in Sudan.

The Public Meteorological Corporation monitors carefully climatic changes and issues regular climate prediction reports at the national and the sub-national levels. Some states – such as Kassala - have upgraded their climate monitoring capabilities by providing new digital equipment to their meteorological stations, by increasing their numbers and by linking them more strongly with the Public Meteorological Corporation at the national level.

16. Disaster risk reduction

Fortunately, Sudanese urban areas are not prone to disasters such as earth quakes, landslides, hurricanes, tornados, etc. However cities and towns that lie near rivers and seasonal water courses are subjected to flooding almost on an annual basis. The prime examples of these are parts of Greater Khartoum, Dongola, Kassala, Toker, etc. The increasing rate of urbanization in those cities, and others, obliged people to live on river banks and on the flooding zones of annual water courses that carry rain water from the hinterlands to the major rivers, such as the Nile and its tributaries. Most of those settlements are informal ones resulting from subdivision of agricultural lands or illegal occupation of what seems to be vacant lands. In some towns, planners have subdivided those vacant lands as housing areas – especially when a water course remains dry for several consecutive years. When those seemingly dry water courses fill up with water in an above-average rainy season and flow gushing towards the rivers, they cause havoc on any houses that stand on their paths.

Climate change that has been observed in the savannah region of north Africa in recent years is manifested in above-average rain fall and longer durations of rainy seasons. Strong rains, such as those experienced in Greater Khartoum in 1988 and 2013, caused massive destruction of houses of low-income groups and informal settlements where houses are usually built with mud and little attention is paid to surface water drainage. The same story is repeated in almost all Sudanese urban areas where heavy rains usually destroy houses of low- income households that cannot afford to build with durable building materials such as concrete or masonry.

Strong rainy seasons are usually accompanied with river flooding which multiplies the amount of destruction by many folds. Infamous ones in the Greater Khartoum area were the 1946 destructive flood and the 1988 flood-cum-rains that destroyed thousands of houses in the three cities. Last year, i. e. 2013, heavy rains combined with flooding of seasonal water courses (*wadis* and *khors*) destroyed thousands houses in Greater Khartoum. The localities that were most seriously affected were East Nile, Karrari, and Umbadda, which are inhabited mainly by middle- and low-income households. In addition, accumulation of rain waters usually lead to destruction of paved roads and to breeding of mosquitoes and flies.

In most urban areas in Sudan intervention is reduced to post-disaster assistance of affected people. Most states, e. g. Khartoum, Red Sea, Kassala, etc., have set-up higher committees for this purpose. They are usually composed of government agencies (such as the civil defense and the police force), communal groups and non-governmental organizations (NGOs). They usually mobilize funds, food and medical supplies, tents, etc., and distribute them to affected households. For example Khartoum State has taken the following measures following the destructive rains and floods of 2013:

- i. Strengthening river banks and water courses (*khors*) with sand bags, stone and cement

retaining walls, and repairing deficient ones before the rainy season starts. In 2014 dozens of kilometers of such embankments and repairs were implemented in the flood-prone localities.

- ii. Relocating formal and informal housing areas that lie on flood-prone areas to safer locations.
- iii. Encouraging the use of permanent building materials, such as cement blocks for building – especially in flood-prone areas. In the localities most affected by floods in 2013, such as Karrari and East Nile, affected households were granted cement blocks and cement bags to reconstruct their houses as shown in Table 6.
- iv. Draining off and pumping away any accumulated rain water that could lead to the collapse of walls or pit latrines.
- v. Spraying accumulated rain waters so as to prevent the breeding of mosquitos, flies, and other harmful insects.

Level of destruction	Cement blocks	50-kilos cement bags
Total	2000	24
Partial (level 1)	1000	12
Partial (level 2)	750	9
Partial (level 3)	500	6

Table 6: Assistance distributed by Khartoum State to its flood-affected residents in 2014
Source: Ministry of Physical Planning

17. Reducing traffic congestion

Heavy volumes of vehicular traffic in urban areas cause traffic jams and pollute the air that people breathe. The heavier the congestion caused by vehicles, the higher the amount of pollution and environmental degradation it cause. Hence, it is essential to reduce traffic congestion and to maintain a steady and smooth flow of traffic.

The level of car ownership has been increasing steadily in Sudanese urban areas because it has become a status symbol that each person aspires to own. For most people, private transportation is more convenient, reliable and clean when compared to public transportation. Lending programs launched by Sudanese banks during the past ten years have encouraged private car ownership; thus contributed inadvertently to traffic congestion in urban areas. These lending programs have been stopped recently because they have diverted scarce banking resources away from productive economic sectors.

Although the most congested city in Sudan, Greater Khartoum, is still far from reaching the disasters pollution and congestion levels reached in cities such as Bombay, India, it is advisable to adopt measures to curb traffic congestion. To do so, Sudanese urban areas, led by their state and local authorities, implemented a number of policies and projects. Key among those are:

- i. Relocation of traffic-generating urban functions – such as central markets – from town centers to the peripheries. For example in Greater Khartoum, two central (*markazi*) markets were established at the southern edge of Khartoum and the northern edge of Khartoum North.
- ii. Relocation of transport terminals from downtown areas (e.g. Abuginzeer Square in central

- Khartoum) to outer locations, such as Sharwani, Jackson Square, etc. (Photos 1 and 2).
- iii. Relocation of inter-state transportation terminals to the outskirts of cities. This is the case in Gedaref, Nyala, Khartoum, Khartoum North, etc.
 - iv. Whenever possible, to construct new roads and to widen existing ones so as to accommodate high volumes of traffic.
 - v. Installation of traffic signals on the main intersections of major streets. Whereas in Greater Khartoum, Port Sudan and Wadmedani traffic signals are not new, in other towns, such as Nyala and Gedaref, they are fairly new. Their numbers have been increasing in those cities.
 - vi. The Gedaref Master Plan (1995-2015) recommended relocation of the railway line that passes through the town to its outskirts so that new streets could be paved for vehicular traffic. Similarly, all master plans prepared for Greater Khartoum in 1958, 1975, 1991 and 2008 recommend relocation of large urban functions – namely the airport, central hospitals, university campuses, railway stations, army headquarters, etc. to the outskirts so that new streets could be extended through them to ease traffic congestion. Since the early 1990s, Khartoum Railway Station has been relocated and the main boulevard, Alqasr Avenue, has been extended southwards to ease traffic congestion.
 - vii. In Greater Khartoum two new bridges, Almak Nimir and Tuti, were constructed and inaugurated in 2008 and 2009, respectively, to ease traffic congestion between Khartoum and Khartoum North, and between Khartoum and Tuti Island respectively. These are big achievements whose positive effects were immediately felt; although the real effect of Tuti Bridge will not be fully realized before the proposed second bridge that links the Island to Khartoum North is built. Two new bridges at Soba and Addubasin are near completion.
 - viii. The national capital, Greater Khartoum, has recently invested in fly-overs and tunnels to ease its traffic congestion. So far two fly-overs in Kober and Al-Markazi Market have been inaugurated and new ones are being built at Wad Al Bashir and Al-Saggana busy junctions. On the other hand, only one tunnel (near Afra'a Mall) has so far been completed. These expensive infrastructure projects were deemed inevitable and badly needed in order to reduce traffic congestion.
 - ix. The fifth Khartoum Physical Plan, KPP5 (2008-2033), recommended also relocation of traffic-generating land uses, such as ministries, university campuses, government department, etc. from the Nile front in order to reduce traffic in this unique zone.
 - x. KPPS also recommended establishment of ring roads that could carry traffic at the periphery of the conurbation – especially traffic heading to neighboring towns and states – without having to pass through the city.

18. Air Pollution

Urbanization is usually accompanied with air pollution in almost all parts of the world, and Sudan is not an exception. This usually results from industrial establishments that emit harmful gases to the atmosphere; from vehicles that emit carbon monoxide and carbon dioxide as by-products of their internal combustion; and from using charcoal and wood as forms of domestic energy. Furthermore, open burning of solid waste produced by the domestic and industrial sectors emits toxic gases such as dioxin and fluorine.



Photo 2: An old shot showing a transportation terminal near Abuginzeer Square in down-town Khartoum
Source: Worldwide Web



Photo 3: Aerial photo showing new transport terminals near Khartoum Stadium and Jackson Square
Source: Worldwide Web

With the exception of Greater Khartoum where air pollution has reached high levels due to its large population concentration, and its large number of industrial establishments and workshops that surpass any other urban area in Sudan, air pollution has not yet reached alarming levels in most Sudanese urban areas.

At the national level, the Higher Council for Environment and Natural Resources has conducted a study to assess the extent of dioxin and fluorine in the atmospheres. This fulfills Sudan's international commitment vis-à-vis the 2001 Stockholm Convention. Furthermore, the Council has prepared a plan of action to mitigate the harmful effects of those emissions and releases. The national action plan includes several projects to address this serious problem. Several workshops and training programs were conducted by the Council to raise awareness about the threat of toxic gases and air pollution.

The Khartoum State Environment Council is a good example of a state agency that deals with environmental issues – including air pollution – at the sub-national level. Among other things, it monitors closely the final disposal of solid waste to make sure that it is disposed off in a proper way that does not release harmful gases into the atmosphere. Recently, Khartoum State has enacted a by-law that makes getting an environmental impact assessment certificate from the Environment Council a condition for receiving final approvals and building permits for industrial establishments and any other establishment whose activity may harm the environment.

Khartoum State, and several other states, has banned traditional brick-kilns that bake mud bricks in simple kilns, established usually on river banks where water and mud are found in large, cheap quantities. The energy sources used for baking are firewood, thatch and animal dung that release harmful gases, such as carbon monoxide and dioxide, to the atmosphere.

To issue such a decree the state stood firmly against pressure groups who consider baked bricks (also known as red bricks) as the *main* building material in almost all urban areas nationwide.

19. Challenges experienced and lessons learnt in these areas (i.e. 15-18)

19.a. The main *challenges* experienced in the areas of climate change, urban disasters, traffic congestion and air pollution are:

- i. With the rate of urbanization constantly on the rise in Sudan, more traffic congestion and air pollution, accompanied by more urban disasters and climate change, are expected to happen.
- ii. In an urban area like Greater Khartoum that has hundreds of kilometers of Nile fronts; floods will continue to be a source of recurrent urban disasters. Controlling them is not an easy task and is an expensive one.
- iii. Urban areas through which seasonal rivers, like the Gash River in Kassala, or seasonal water courses, like Nyala Khor in Nyala, Abu Anga Khor in Omdurman, etc., flow fiercely each year will continue to face the danger of massive destruction. Hence, they need to develop strategies to control those annual episodes and to relocate housing areas away from their paths.
- iv. Sudanese urban areas, especially large ones like Greater Khartoum, where the rate of private car ownership has increased in recent decades, face a big challenge to encourage car-pooling, use of public transportation, etc. in order to reduce traffic congestion during the morning and afternoon peak hours.
- v. Those urban areas also face the challenge of having to invest heavily on costly infrastructure such as bridges, fly-over, tunnels, grade separation, etc.

- vi. Sudanese urban areas also need to invest in the tools and technologies that measure air pollution, the amount of harmful emissions released by certain manufacturers, etc.
- vii. Sanctions and embargoes imposed by the international community on Sudan make it very difficult and extremely costly for Sudanese towns to acquire the latest technology needed to measure air pollution or to monitor climate change.

19.b. On the other hand, the main *lessons* learnt in those areas (i.e. 15-18) include the following:

- a. Permitting informal or formal land subdivisions on dry river courses or on the path of seasonal *khors* could lead to disastrous results such as the loss of life and property.
- b. Living on water fonts is desirable and a status symbol but may lead also to disastrous results and the loss of life and property.
- c. After thousands of years of baking bricks on river banks the traditional way, it has been accepted that the process is harmful to the environment and is a major source of air pollution in urban areas.

20. Future Challenges and issues in these areas (15-18) that could be addressed by a New Urban Agenda

No doubt, urbanization will continue to occur at a rapid pace in Sudan in the coming 20 years. The push factors in rural areas (mainly a shrinking rural economy due to droughts and desertification, and pressure on meager resources) will most likely continue. At the same time, the attraction of urban areas (mainly their higher employment opportunities and better services) will most likely continue even at higher intensity – if not at the same strength it has today. This will pose several challenges in the areas of climate change, urban disasters, traffic congestion and air pollution. The main future challenges and issues in Sudan could be as follows:

- i. In-depth, empirical studies are needed on the effects of urbanization on climate change to demonstrate their close association. These have not yet been conducted in Sudan.
- ii. More research and experimentation is needed in the area of water harvesting. The quantities of rain that fall in Sudan annually are estimated at 400 billion cubic meters, while the Nile tributaries combined yield about 93 billion cubic meters (Sudan Report on Sustainable Development, 2012, page 22-23). Obviously, precipitation provides more than four times the amount contributed by the five tributaries of the Nile River, the longest in the world. Yet, many urban areas in Sudan – including Gadaref, Nayala and even Greater Khartoum – suffer from water shortages during summer. Evidently, if more attention is paid to water harvesting, the situation will be much better in those urban areas.
- iii. Another dilemma is the recurrent havoc and destruction caused by seasonal streams and dry water courses (*khors*) in urban areas during rainy seasons. More empirical studies are needed to determine the best ways for harnessing those water courses, through dams, etc., and for utilizing their large amounts of wasted water to replenish ground water or to create surface water reservoirs.
- iv. More research and empirical studies are needed in the area of brick making using renewable and clean sources of energy – such as solar energy, wind power, natural gas, etc. Energy

efficient ways of baking bricks are needed in order to reduce energy consumption. Brick making facilities obviously need to be relocated away from river banks so that they could be used for recreation and other urban functions. All of those measures should be taken while still keeping the cost of bricks within reach of low-income households.

- v. Use of private automobiles will continue to be the prime source of traffic congestion; hence, air pollution. Sudan, through its Standards and Measurement Organization (SSMO), should ensure that any new vehicle, whether imported or locally assembled, should be fuel efficient and doesn't release harmful gases.
- vi. Furthermore, Sudanese towns that lie on river fronts, notably Greater Khartoum, should introduce river transport as a form of non-polluting transport that doesn't clog city streets.
- vii. Sudanese urban areas, especially those on the edge of the Sahara Desert, like Greater Khartoum, should adopt aggressive programs to reverse the desertification trend affecting them. This could be done through plantation of drought-resistant trees, small plants and ground cover. Water-saving modes of irrigation, such as drip irrigation and spraying, could be utilized in lieu of large-scale flood irrigation.

CHAPTER IV: URBAN GOVERNANCE AND LEGISLATION

21. Improving Urban Legislation

The federal system of governance adopted in Sudan since 1991 delegated numerous powers to the local levels (i.e. the states and the localities) to govern and to enact laws that guide and regulate their affairs. In fact, this had been the objectives of the 1980 Regional Government Act and all the decentralization acts and laws that came after that (see number 22 below). The 1991 federal system of governance was a culmination of those earlier attempts.

At the state level, the elected governor (*wali*) appoints a cabinet that meets frequently to discuss and follow-up its activities, and to issue directives, decrees and laws which are then passed on to the state's legislative council to deliberate on, approve, amend or disapprove. The legislative council, on the other hand, which is composed of elected members also meets regularly to assess the performance of the cabinet and to enact laws, decrees and by-laws that govern and regulate the affairs of the state.

To take the example of Khartoum State, Table 7 presents the legislative council's output during 2007-2012. Of the 74 laws enacted by the legislative council during that period, 23 dealt with government and administration issues, 32 dealt with social development issues and 49 dealt with economic development issues. Concurrently, the Khartoum State Council of Ministers also held regular meetings and issued a number of laws, decisions and by-laws. Table 8 illustrates those outputs.

In the physical development field, Khartoum state's legislative council deliberated for several sessions on the Khartoum structure plan (KPP5), until it was finally approved in 2008, then passed it on to the National Council for Physical Development who approved, and passed it on to the National Council of Ministers for endorsement.

	2007	2008	2009	2010	2011	2012	Total
Decisions	99	82	72	41	83	88	465
Laws	16	23	20	20	8	17	74
By-laws	2	4	-	-	-	5	11

Table 7: Khartoum state's legislative council's output, 2007-2012
Source: Khartoum State Higher Council for Strategic Planning, 2012, p.13;
and 2014, p.18

	2007	2008	2009	2010	2011	2012	Total
Decisions	109	126	162	166	175	137	875
Laws	15	17	13	4	7	12	68
By-laws	1	-	3	-	3	-	7

Table 8: Khartoum State cabinet outputs, 2007-2012
Source: Khartoum State Higher Council for Strategic Planning, 2012, p.14;
and 2014 p.19

Similarly, new building by-laws were prepared by the Khartoum State Ministry of Physical Planning, presented to the legislative council which in turn modified it and finally approved it in 2008. This recent building by-laws supersedes the 2004 building by-laws and is a revised and updated one.

22. Decentralization and strengthening of local authorities

Since 1980, Sudan has embarked on a path of devolution of power from the center to the local level. The 1980 Regional Government Act, which was followed by the 1981 Local Government Act, created five regions in northern Sudan with wide political powers, while southern Sudan remained as one region. The 1991 Fourth Constitutional Decree established a federal system of government whereby Sudan was divided into nine states, 69 provinces and 219 local councils. In 1994, the federal system was consolidated and Sudan was divided into 26 states, 188 provinces and 531 localities. The states were given legislative powers and more control over land under their jurisdictions. The central Ministry of Works was dissolved and its functions transferred to the states.

Those decentralization initiatives were consolidated in the 1998 Constitution of the Sudan that stipulated the names, boundaries and capitals of the 26 states. The 2003 Local Government Act provided for three distinct levels of government: national, state and local. The large number of localities created in 1994 was consolidated into 134 larger ones that replaced the provinces, with clear administrative responsibilities and legislative powers. The localities were entrusted with powers to mobilize local financial resources, and to formulate and implement local development plans and projects. Each locality was further divided into administrative units. After the signature of the Comprehensive Peace Agreement (CPA) in January 2005 that ended the long civil war that was raging in southern Sudan, the Transitional Constitution was endorsed in 2005. It gave more powers to the states to form their own governments, to enact legislations and acts that suit their local conditions, social compositions and beliefs; thus, power was firmly transferred to local levels.

The 2005 Constitution stipulated the financial sources at the federal and state levels. Special funds, such as the States' Support Fund, and commissions, like the Financial Resources Allocation and Monitoring Commission, were created to deal with financial resources and to allocate them

between the federal entities, and to support those states that don't have sufficient local resources.

23. Improving participation and human rights in urban development

As mentioned above, the federal system that was deeply rooted in the 2005 Transitional Constitution, devolved a lot of powers to the local levels – namely, the states, the localities and administrative units – to plan, mobilize local resources and implement local development projects. When the local resource base is not large enough, resources are transferred from the state or even from the federal level through agencies like the States' Support Fund.

Sudan has a deeply entrenched tradition of communal participation in urban development and service delivery that dates back hundreds of years. This is rooted in Islam, other religions and local beliefs and teachings that value and breach standing together, helping people in need and sharing. It is also based on Sudanese traditions like *faza'a* and *nafeer* that value helping each other during times of crises and to improve conditions at the personal and communal levels.

The earlier manifestation of this trend took place in the first decades of the 1900s, i.e. during colonial time, when Sudanese traders established and administered a whole system of popular (*ahli*) education parallel to the government system, which they perceived as elitist and alien to Islamic and Sudanese cultures. Thus, *ahli* intermediate and high schools were established in the large Sudanese towns at that time – such as Omdurman, Wadmedani, etc.

In later years, some wealthy Sudanese merchants like Abdel Moneim Mohamed, Jaber Abueliz, Haj Alsafi, Ahmed Gasim etc., donated health centers for the benefit of their fellow citizens. Others like Al-Dareer, Sharwani, Haja Alneya and many others donated mosques for people to pray in.

During the 1970s, the government endorsed and encouraged such initiatives, in what was officially known then as "self-help" programs. In later years many private companies extended their support to public schools and health centers as part of their social responsibility obligations that were based on the United Nations' pact on private sector social responsibility.

The federal government system capitalized on those tendencies and initiatives by assigning important roles to people's initiatives and communal participation in local urban development. For example, in the Red Sea State several committees were formed recently for this purpose such as: (a) a committee for maintenance and renovation of schools; (b) a committee for greening the state; (c) a committee in charge of mosques; (d) a committee to supervise children and youth; (e) a committee to care for people with special needs; etc. Almost all states have similar committees and rely on community participation to finance a wide range of infrastructure and services, such as water lines, paved roads, schools, mosques, health centers, etc. As far as human rights are concerned, the Sudan 2005 Constitution and the various local government acts preceding it made it clear that all Sudanese citizens are equal vis-à-vis laws and obligations. They forbid any discrimination against any citizen based on his/her religious beliefs, ethnic background, gender, disability, etc. Each person or household is entitled to receive the same package of services provided in a certain geographical location, and is expected to partake in and contribute to community-based urban development initiatives.

24. Enhancing urban safety and security

Urban safety and security include a multitude of services such as civil defense, firefighting, policing and crime prevention.

The constitutional and administrative developments recorded in Sudan during the past 20 years have been accompanied by similar developments in safety and security. A national Civil Defense law was enacted in 2005 and a National Council for Civil Defense was established accordingly (Report by Ministry of Interior, Executive Office, 19.5.2014). Both were rooted in the 2005 Transitional Constitution. The Council oversees the following objectives: (i) protecting civilians; (ii) ensuring transportation safety; (iii) protecting buildings and establishments; (iv) protecting public and private properties especially during emergencies and crises; (v) ensuring risk reduction and prevention; (iv) preventing the spread of calamities and crises and mitigating their adverse impacts.

To achieve the above-mentioned objectives, a number of by-laws and acts were issued and regularly updated, special guides are formulated and widely circulated detailing safety requirements and standards, trained cadres are assigned to public institutions to assess and analyze potential risks and to ensure that safety measures are applied and adhered to.

In this regard, they coordinate fully with parallel state authorities. At each state a Higher Emergency Council, headed by the state Governor, is established to ensure that urban safety and security are given due attention. Central command chambers are established at the Civil Defense administration to liaise with the state Emergency Councils and to exchange information and early warning messages especially those pertaining to crises, flood warnings and the like.

The Administration also coordinates with the state councils to ensure that the national Council of Minister's decree preventing building on flood-prone areas, such as river fronts and on the path of dry river courses is implemented. This could involve relocation of those houses and buildings that don't abide by that decree.

To cope with increasing urbanization and the flourishing urban development taking place in most Sudanese urban areas, particularly the national capital, special attention is given to firefighting by increasing the number of fire-fighting stations, and to ensure that they are well distributed all over the city, and equipped with sufficient cadres and equipment.

In recent years, private security companies have come to play a greater role in enhancing urban security by providing trained cadres and advanced equipment. Increasingly, public agencies and private institutions have contracted them to provide those specialized services.

Furthermore, some urban areas in Sudan, notably in Khartoum State and Kassala have installed security devices – such as cameras – at major intersections, at transportation terminals, parks, banks, stadiums, etc., in order to monitor them and to enhance security in them.

Community and religious leaders and NGOs are playing an increasing role in raising the awareness of ordinary citizens regarding potential safety and security hazards, and to form the first line of defense to guard against those hazards.

25. Improving social inclusion and equity

Sudan has made great strides to ensure inclusion of previously marginalized social groups, such as IDPs, the poor, people with disabilities, homeless people and children without known parents, etc. Several programs have been implemented to include them within society and in any urban development schemes, and to treat them on an equal basis with other social groups.

IDPs, who have been uprooted from their homelands because of civil strife and insecurity, are concentrated in the states most affected by that conflict – mainly the four Darfur states, Southern

Kordofan and Blue Nile. Pending a peaceful resolution of the conflicts and tensions that forced them to move away from their homelands, and applying their constitutional rights, IDPs are free to choose where they want to relocate to. Most of them initially construct humble shelters to stay in using jute sacks, plastic sheets, sticks, tree logs, etc. Many IDP households choose to integrate in the urban area where they have settled or move on to another area where they expect their chances to be better off. Thousands of households have reached as far as Greater Khartoum and settled there.

The official policy vis-à-vis IDPs is to provide them with any assistance they need at their first abode, e.g., to provide them with basic services, such as education and health care, free of charge; provision of training and capacity building such that they can gain new skills that would facilitate their voluntary integration with the urban community.

In some cities, e.g. Nyala, new neighborhoods – such as Al-Zaytona – have been planned and allocated to IDPs so that they can settle permanently in decent neighborhoods. UNHCR, assisted by UN-Habitat, provided during 2010-2012 US\$ 1.5m for the Slum Upgrading and Sustainable Housing project in Sakali settlement in Nyala devoted exclusively for IDPs – including many female-headed households, widows and disabled persons – to assist them settle and integrate with the larger Nyala community (UN-Habitat Report, 2012).

Low-income households are treated fairly in the allocation of housing plots through state housing plans, or housing units through the Housing and Development/Reconstruction Funds. Depending on their family size and previous land ownerships, they can be considered for land or housing units' allocation at subsidized fees that can be paid in installments. The same consideration is offered to them in the provision of basic services such as water supply and electricity.

Female-headed households are also given special consideration. Their names are listed separately and once their needs have been verified, they can be allocated housing plots or units depending on their specific conditions. In households composed of a husband, a wife and their children, the sale of a piece of land that has been allocated to them through a "housing plan" cannot be completed without the wife's consent.

Homeless people and children with unknown parents are cared for through the states' social welfare ministries, which receive them, give them any medical care they need then lodge them in special houses under the attention of trained social workers and alternative mothers. Several NGOs and benevolent organizations are also active in caring for these disadvantaged groups and provide them with accommodation, food, education, medical care and vocational training when they are ready for it. Thus these two groups of disadvantaged people are encouraged to integrate into society and to re-establish their lives by gaining education, employment and starting their own families.

One of the successful examples for children from unknown parents is that provided by the S. O. S. international NGO which has built a children's village in Khartoum in the early 1970s. Each five to seven of those children live in a family-like set-up with an alternative mother that live with them 24 hours a day, seven days a week, and help them with their education and growing-up as normal children. When those children grow-up they are assisted by the organization to gain employment and to get married and live independent lives.

26. Challenges experienced and lessons learnt in these areas (i.e. 21-25)

26.a. The main *challenges* experienced in the areas of urban legislation, decentralization, participation, urban safety and security, human rights, social inclusion and equity include the following:

- i. Governing a vast country like Sudan, which had one million square miles before the succession of South Sudan in 2011, has not been an easy task. Even after the break-up, it is still a vast country, with about 760,000 square miles and hundreds of tribal groups that speak hundreds of language and local dialects.
- ii. In spite of its many positive results, federalism has raised the expectations of local communities and created some tensions and frictions. This was most evident in southern Sudan which led to its eventual succession; and in eastern Sudan and Darfur states that led to civil strife and mutinies.
- iii. Those tensions and civil strife – including the prolonged civil war in southern Sudan that raged for 21 years – have hampered regional development in Sudan, and forced the diversion of dear resources away from development initiatives.
- iv. The trade and technological embargoes that have been imposed on Sudan by the international community since 1997, prevented importation of the latest civil defense equipment (e.g. surveillance cameras; communication equipment, firefighting equipment, etc.), and software needed to monitor and manage safety and security.
- v. The civil strives that took place during the past twenty years in various parts of Sudan resulted in millions of IDPs who need food, housing, medical and educational services, etc. They also rendered most of those people idle and living on the margins of society.

26.b. On the other hand, the main *lessons* learnt in those areas (i.e., 21-25) include:

- i. Community participation in urban development projects ensures greater transparency hence more success of those projects. It also nurtures a sense of ownership that results in greater attachment of those communities to ‘their’ projects. Community participation is one of the corner stones of good governance that should be actively advocated.
- ii. There is now a firm belief among Sudanese scholars, policy makers and citizens that federation, in spite of its high financial costs, and the high expectations it has unleashed, is the perfect system for governing a vast and diverse country like Sudan.
- iii. Ensuring safety and security is a joint responsibility of public, private and communal actors and stakeholders. The greater their involvement and commitment, the higher are the levels of safety and security achieved.
- iv. Although IDPs affected by civil strives are in a transitional period of their lives awaiting resolution of the conflicts that led to their displacement, it is advisable to provide them with education and health services, and to help them build their capacities through training programs, so they can build-up their human capital and be ready to integrate into society.

27. Future challenges and issues in these areas (i.e. 21-25) that could be addressed through a New Urban Agenda.

The challenges and issues that are relevant and important in the areas of urban legislation, decentralization, participation, urban safety and security, human rights, social inclusion and equity during the coming 20 years include:

- i. Tensions and regional conflicts may continue to be a thorny issue in Sudan at least in the coming few years until a comprehensive and peaceful resolution is achieved. This will continue to produce IDPs, orphans, female-headed households, physically handicapped people, etc.
- ii. In a vast and socially diverse country like Sudan, innovative and flexible urban legislations are needed to address the divergent issues and concerns in each state.
- iii. Greater levels of coordination are needed between national, sub-national and local entities in the areas of legislation, safety and security, human rights and social inclusion. Such coordination is essential for an efficient utilization of meager resources, and to ensure that no disadvantaged person or household falls between the cracks or is missed out in the bureaucratic transactions of the three levels of governance.
- iv. Increasing urbanization and urban agglomeration create a need for independent and dedicated urban authorities capable of addressing urban problems efficiently and effectively. This could be achieved through administrative restructuring rather than creation of a new layer of government that may complicate things and raise administrative costs.

CHAPTER V: URBAN ECONOMY

28. Improving municipal/local finance

As mentioned in 22 above, the objective of the federal system in Sudan is to enable citizens participate in governing their affairs, and to assist the states to depend on themselves by creating new sources of local finance and by mobilizing their own resources.

The 2005 Sudan's Constitution specified four levels of government: federal, state, local and a special entity for southern Sudan. However, it only specified three levels of finance: federal, state and southern Sudan. The local level was not assigned any resources in the Constitution in spite of the multitude of functions and responsibilities assigned to it. Its finance was left to the states which decide how much to transfer to each locality.

According to the 1999 Subdivision of Financial Resources Act, which was based on the 1998 Constitution, 10% of the profits reaped by national projects were assigned to the states in which these projects are based. Out of that 10%, 10% was assigned to the localities in which the projects lie, i.e. only 1% of the total profits accrue to the localities. Furthermore, the 1999 Act stipulated that 40% of the business profit taxes collected by a state should be passed on to the locality in which the business is based. Similarly, 40% of the agricultural and livestock production tax collected by a locality should be transferred to the state in which the locality and the production are based.

After signing the 2005 Comprehensive Peace Agreement (CPA) the share of the federal government in national revenues decreased from 85% in 2004 to 54% in 2008, while that of the northern states increased from 15% to 27% during the same period (Table 9). With the exception of Khartoum State that has a diversified economy and rather rich resources, most states rely heavily on federal transfers and on land sales for financing their current and capital expenditures.

Governance level	Years				
	2004	2005	2006	2007	2008
Central government	85%	65%	56%	55%	54%
Northern states	15%	22.5%	28%	28.6%	26.9%
Southern Sudan	-	12.5%	16%	16.4%	19.1%

Table 9: Allocation of national financial revenues between the three levels of government after the CPA as a percentage of total current public expenditures,
 Source: Suliman, I.M., n.d. (www.oaji.net/articles/433-1402683962.pdf)
 based on Council of Ministers' National Strategic Report, 2008, p. 379.

29. Strengthening and improving access to housing finance

Provision of adequate housing and living environment figured as the top priority in the Urban Dweller's Survey conducted in September – October 2014, (Annex 2). The Estates Bank, which was established in 1966, has been the leading financial institution that provides housing finance to government employees and those who have regular incomes to repay their housing loans. It has also been active in building low-cost housing nationwide and selling it to deserving households against easy installments. Since 2009 the Bank has been transformed into a limited company with Arab investors owning 39% of its shares. The resulting Real Estate Commercial Bank expanded its activities to other conventional banking operations while also financing industrial and educational establishments.

In May 2014 the Central Bank of Sudan (CBoS) issued a circular ordering all banks to refrain from real estate financing, particularly buying land and housing units, and land development for investment purposes. Although this circular was a significant set-back for housing finance, it was justified because banks diverted their financing of productive sectors (e.g. industrial, agricultural, etc.) in favor of real estate finance that has quick and higher returns. However, the CBoS exempted financing of housing schemes initiated by the National Fund for Housing and Reconstruction (NFHR) and parallel state housing funds that target primarily low-income groups.

Since its establishment in 2008 and inauguration in 2009, the NFHR has been busy trying to mobilize funds for housing construction but so far it has not been very successful (see also number 36 below). It managed to convince eight banks to contribute to a housing finance portfolio totaling 736 million Sudanese pounds. It also managed to convince participating states to provide land for housing projects for a minimum cost, and is trying to convince the customs authority to reduce fees and customs on building materials and systems. The NFHR is also trying to activate workplace cooperatives and to encourage insurance companies, pension funds, social security funds, the Zakat Fund to get involved in housing finance. All this should result in reducing housing costs, thus making it more accessible to low-income households.

The Khartoum State Housing and Development Fund has been successful in cross-subsidizing low-income housing finance through building and selling luxury housing units to high-income

households. Since its establishment in 2001, it managed to build 3,881 such luxury units, which constitute 34% of all the units it has built.

International investors have been encouraged to invest in housing constructions and finance. The NFHR, for example, has made an agreement with the Jordanian Housing Corporation to enter the Sudanese market. Sokatra is an example of a joint Sudanese-Saudi-Yemeni real estate company that has been established since 2003. It develops the land shares contributed by the Sudanese side into new neighborhoods composed of serviced plots connected to roads, water and electricity lines and provided with schools, open spaces, mosques, etc. These housing schemes are then sold to households against a 10% advance payment and 30 monthly installments. So far it managed to develop some neighborhoods in Omdurman, Khartoum, Khartoum North and Gezira.

30. Supporting local economic development

One of the key roles of the state in the federal system adopted in Sudan since 1994 is supporting local social, economic, physical and political development initiatives. The localities, being the lower government level which is in direct contact with local initiatives, play even a more direct role in such support.

Using its control over land within its boundaries, the states often develop small industrial zones for small-scale producers and craftsmen and sell them or rent them out at reduced prices as a form of support and subsidy. This is a form of acknowledgement of the role those producers and craftsmen play in reviving the local economy and in providing jobs to local people.

Since the early 1990s, there has been a wide recognition of the role played by "productive families" – i.e., those who own and operate a home-based enterprise in fighting poverty and in providing a decent source of livelihood to needy households. Those families receive wide support from the localities – through the zakat fund – as well as the state, through banks participating in the micro-finance initiative, and specialized banks, such as the Family Bank and the Savings and Social Development Bank both of which provide micro-credit to "productive families" and micro-enterprises. An appreciable amount of micro-finance has been devoted to fund housing services, such as in Um Kraidim and Gadaref where it has been used to finance infrastructure, and in the Red Sea State where it has been used to connect housing units with electricity utilizing micro-finance funds.

At the national level, the federal government, through its Welfare and Social Support ministry, has established an annual national award for the best output produced by a "productive family" and ordered the states to allocate land for permanent exhibitions through which the "productive families" could display and market their products.

National and state governments also seek the support of international donors and multi-lateral agencies to support local economic development. For instance UNDP, with various international donors, has created the Local Development Fund that supports local projects in the areas of poverty reduction, governance, environmental protection, and conflict prevention. All of those are coordinated with national priorities, and are co-financed by state governments that provide land, infrastructure and services for the local enterprises at minimum cost. During 2012, the total cost of projects in those four areas amounted to US\$ 600 million. US\$ 480 million is pledged for 2013-2016 (UNDP Report, 17.9.2014).

Another example of multi-lateral support to Sudan that has indirect positive bearing on local

economic development is the Local Communities Development Fund, which was established after the 2005 CPA with support from various donor countries (namely, Netherlands, Norway, United Kingdom, Canada, Sweden, Spain, Italy, Island, Greece and the World Bank which also managed the Fund). Jointly those donors contributed US\$ 52.8 million while the government of Sudan contributed US\$ 42.2 million. During 2006-2012 the Fund managed to finance basic services (water, health, education and solar energy) to more than two million people in about 1000 projects located in Blue Nile and South Kordofan states, as well as in Abei area.

31. Creating decent jobs and livelihoods

Traditionally, public sector jobs are sought after by men and women alike because they provide employment security and sustainability of income, benefits and pensions. The British Administration created the Gordon Memorial College in 1902 to provide secondary and later on post-secondary school education suitable for potential civil servants that were required to administer the Sudan. Since then, civil service jobs became attractive and competitive. In 1974 the National Civil Service Board (NCSB) was established to list and advertise vacant jobs, and to assess and select suitable recruits. According to NCSB records, the number of registered job seekers (including university and high school graduates) and recruits from both sexes is usually far greater than the number of recruits; i.e., vacant jobs.

With the number of unemployed young people constantly on the rise, the national government started in 2010 a national project for youth employment. Following a Presidential decree, the federal government, aided by international organizations led by UNIDO, started a US\$ 9 million project to train 5,000 youth from both sexes so that they can access decent jobs or start their own businesses. In 2011, the Higher Council for Graduates Employment was created to orchestrate efforts to fight unemployment amongst university graduates. Concurrently, the National Fund for Graduates Employment was established whereby graduates could take up to 10,000 Sudanese pounds each as a loan from participating banks to start their own enterprises. Since 2008, the Central Bank of Sudan created a Micro-Finance Unit, and jointly with the federal Ministry of Finance established the Sudanese Company for Developing Micro Finance (SCDMF) to which the Multi-Donor Trust Fund contributed, thus raising its capital to US\$ 20 million. The SCDMF funds and supports banks and financial institutions participating in the micro-finance lending program targeting small entrepreneurs and micro-enterprises.

The national Five-year Strategic Plan (2012-2016) included a target to employ two million youth in small-scale agricultural, animal husbandry and technical enterprises so as to encourage self-employment and to increase production in those vital sectors,

Recently, the federal government received a US\$ 1.4 million grant from the IBSA Countries Fund (i.e., India, Brazil and South Africa) to create 2000 jobs in Khartoum State as a contribution to poverty alleviation among urban dwellers.

The states play an active role in employment creation and livelihood support. For example, in May 2012 Khartoum State announced 5133 jobs to be handled and processed through its NCSB branch, 3000 of those were state jobs in education, health and engineering sectors while the rest were national ones based in Khartoum state. As far as micro-finance is concerned, 2,793 households were supported through the state during 2007. That number increased to 194,012 households during 2011 (Khartoum State Higher Council for Strategic Planning, 2012, p.112).

32. Integration of the urban economy into national developments policy

The first major attempt to prepare a comprehensive strategic development plan in Sudan was the National Comprehensive Strategy (NCS), 1992– 2001. The Strategy sought to achieve high economic growth levels through privatization of the economy and support to individual initiatives. A development budget was prepared in which federal and state governments were assigned key roles to guide national and local developments through their spending programs. The NCS was succeeded by the National Quarter-century Strategy (2007-2031). The gist of these strategies, in the economic sector, is to achieve a sustained economic growth in spite of international sanctions, and to ensure a balanced development.

The urban economy in Sudan is deeply interwoven into national development policy. Economic sectors based in urban areas had the lion's share in GDP in 2013. While the agricultural sector contributed only about 27.4% of GDP, the industrial sector contributed 33.6% and the service sector contributed about 39% of GDP. Both are urban-based sectors.

The industrial sector is primarily urban based. Industrial statistics for 2011 revealed that there were about 248,000 industrial establishments in all of Sudan, 64% of those were based in Khartoum State. Similarly, the service sector that includes telecommunications, banking and insurance, hotel and tourism, etc. is also primarily based in urban areas.

Any attempt to maintain a steady economic growth will have to focus – at least in the short run – on the leading economic sectors – i.e., industry and services. Thus, greater attention has to be paid to urban areas in which they are based; e.g., to improve their infrastructure, markets, increase land allotted to those sectors, etc. Hence, national policies included in the Quarter– century Strategy advocate paying special attention to urban and physical planning and to achieving a balanced growth in urban and rural areas.

33. Challenges experienced and lessons learnt in these areas (i.e., 28-32)

33.a. The main *challenges* experienced in the areas of municipal finance, housing finance, local economic development, job creation and integration of the urban economy are:

- i. The system of allocation of national resources provides few shares to the local level. This reduces the effectiveness of the localities in initiating and financing local development, and gives the state a hegemonic authority over the localities.
- ii. Both the state and the localities are faced with insufficient funds due to inadequate transfers from the federal government which is also facing serious financial difficulties. Unfortunately, the states resort to land sales in order to raise funds to finance their current and capital expenditures. For example, Khartoum state Ministry of planning and Infrastructure sold during 2012 land parcels for a total amount of SDG 698 million (about US\$ 132 million), at a 30% increase from the total revenues of the Ministry, which is the largest source of revenue for the State as a whole.
- iii. The CBoS circular that prohibited housing finance through banks dealt a heavy blow to the housing and real estate sectors. The National Fund for Housing and Reconstruction, which has been exempted from this restriction, has started to play a pivotal role in housing provision. Households have no alternative but to send some of their members to work in one of the rich Arab countries in order to be able to build, buy or expand a house. Although the NFHR managed to attract many financiers willing to finance housing projects throughout Sudan, the

provision of sufficient collateral deters them from venturing into the Sudanese housing market.

- iv. There is an incompatibility between educational output (evaluated by the number of graduates) and the job market. This results in large numbers of unemployed youth.
- v. Most graduates and youth who intend to apply for the youth or the graduates' employment programs face the challenge of providing assets as a form of collateral. This impedes their chances of benefitting from those programs.

33.b. On the other hand, the main *lessons* learnt in the areas listed above, (i.e. 28-32) include the following:

- i. The multitude of youth and graduates' employment programs target almost the same groups. This led to duplication of efforts and to spreading out dear resources thinly and in a wasteful manner. Efforts are being exerted currently to rectify this situation.
- ii. Micro-finance programs and support to "productive families" projects have made a good impact in convincing job seekers and graduates that there are feasible and profitable alternative's to public sector employment. They have also enabled hundreds of thousands of households to live decent lives outside the confines of poverty.
- iii. State housing funds, especially the Khartoum State one, have utilized cross-subsidization of low-income housing through building luxury housing units and selling them to wealthy households for a decent profit margin that is used to subsidize low-income housing.
- iv. Khartoum State has also experimented successfully with housing finance provided through local private sector and international real estate investors. The model adopted, i.e. development of new townships and selling housing plots in them for easy installments has so far been successful.

34. Future challenges and issues in these areas (i.e. 28-32) that could be addressed by a New Urban agenda

The following challenges and issues are likely to be relevant during the coming 20 years:

- i. Provision of adequate funds – especially those mobilized locally – to finance local economic and urban developments in a vast country like Sudan is the key challenge that needs to be addressed seriously and creatively in the future.
- ii. The population pyramid of Sudan has a broad base which indicates that large numbers of youth will be joining the labor market every year. Innovative employment schemes, and support programs that benefit micro- enterprises and youth employment programs are needed earnestly in the coming 20 years.
- iii. In spite of the few successful cases of housing finance listed above, provision of adequate housing finance – especially for the urban poor – will be a thorny issue in the future. It is enough to mention that the cost of building a modest room (estimated at SDG 20,000) equals more than 44 times the official minimum wage (about SDG 450).
- iv. Micro-enterprises and self-employment, which are locally based, have great potentials in

reinvigorating the national economy, which is passing through a recession after oil revenues were assigned to South Sudan in the 2005 CPA. Great attention, innovation and creativity are needed in order to develop those key sectors to their full potential.

CHAPTER VI: HOUSING AND BASIC SERVICES

35. Slum upgrading and prevention

Sudan has made substantial progress in achieving the Habitat Agenda's goal of improving the lives of 100 million slum dwellers by 2020. High rates of urbanization in Sudan (4.5% per annum on average) and high rates of rural-to-urban migration have resulted in the growth of squatter settlements to accommodate the new migrants. Those usually take the form of squatting on vacant lands at the peripheries of towns, often undesirable lands such as garbage dumps, and flood-prone areas, or renting out unplanned and unregistered simple houses in extant villages that lie on the periphery of towns.

According to some estimates, Greater Khartoum included about 83 squatter settlements which accommodated as high as 60% of its population in 1990 (Hamid and Elhassan, 2013). Since then, state authorities have taken strong measures to upgrade squatter settlements by: (i) identifying slum dwellers who have families and don't have alternative housing; (ii) re-planning slum areas by carving out roads, areas for schools, health centers, open public spaces, etc., (iii) subdividing the remaining areas into housing plots to be allotted to deserving households at low subsidized prices; (iv) water supply and electricity lines can be extended and communal services built in collaboration with local communities. (v) Squatters who were living in areas deemed to be hazardous (e.g. near garbage dumps) were relocated to new areas clear from any dangers.

By 2001, re-planning and slum upgrading offices within Khartoum State were closed down because their mission had been accomplished. The same stage was reached in most other states. As mentioned above, forward planning and allocation of housing plots was widely practiced in almost all states, thus giving access to needy households and reducing the need for squatting and growth of slums. Henceforth, the police force has been instructed to prevent the growth of any new slums and to monitor closely peri-urban areas where they are likely to grow.

The proliferation of informal mining in recent years, which has proven to be profitable and attractive to thousands of miners and service providers, new squatter settlements have mushroomed on the fringe of the desert in the Northern, North Kordofan and North Darfur States. These squatter settlements could easily develop into full-fledged towns in the future. In the absence of concerned authorities, informal mining causes harmful environmental pollution.

36. Improving access to adequate housing

Access to adequate housing and living environment figured as the top priority for urban dwellers who were surveyed in September and October 2014. Adequate housing could be understood as that form of housing which provides security of tenure, and a modicum of essential services and infrastructure. In the past, allocations of housing plots through site-and-services schemes served this purpose well in most Sudanese urban areas because the cost of building houses and of extending infrastructure and services was affordable to households and to concerned authorities. However, as inflation became rampant in recent years, they were no longer affordable resulting in

large numbers of undeveloped plots in many towns and cities. To take the example of Greater Khartoum, out of 311,792 plots that had been distributed through site-and-services mechanism, about 56.5% of them remained undeveloped as of 2010 (Osman, A., 2010:9).

Since the late 1990s, some cities – notably Greater Khartoum – have established housing funds to construct affordable, popular housing units provided with infrastructure, and to sell them to eligible households against easy installments. At the same time, it also builds 'luxury' villas and sells them for profit to cross-subsidize the popular housing units. Since its establishment in 2001, Khartoum State Housing and Development Fund managed to construct 61,929 popular and economic units throughout the state, amounting to 66% of the units it has built. It also built 3,881 apartments and villas as a form of "investment" housing, constituting 34% of its units.

The National Fund for Housing and Reconstruction (NFHR) was launched in 2008 in order to achieve comprehensive and sustainable urban development through building and selling decent housing that is affordable to households of various income levels. The Fund also aims to disseminate building materials, technologies and systems that are affordable and eco-friendly. Working under the guidance of the Presidency, the Fund had the target of building 150,000 'economic' housing units in 15 states over a period of five years, i.e. 30,000 units annually (Adam, 2010, pp 47-49). However, inadequate budgets slowed it down. The units it has built so far are as follows:

State	No. of Units			
	1 st stage	2 nd Stage	Under Construction	Total
Red Sea	500	1,500	0	2,000
South Darfur	804	0	1,000	1,804
White Nile	900	0	0	900
Gezira	1,300	0	0	1,300
Gedaref	424	0	0	424
Northern	600	0	0	600
River Nile	0	500	1,328	1,828
Kassala	350	300	0	650
West Darfur	0	0	200	200
Total	4,878	2,300	2,528	9,706

Table 10: Housing Units Built by the NFHR

Source: NFHR website (www.iskan.sd , viewed on 9/9/2014 at 14:40) and General Secretary letter dated 15/12/2014

It is fair to say that the contribution of public agencies in satisfying the demand for adequate housing is limited and doesn't compare with the high demand for housing estimated at hundreds of thousands housing units every year all over Sudan. Millions of Sudanese citizens satisfy their need for housing with great difficulty with limited official support and bank loans by utilizing their own savings and transfers from other family members working abroad.

37. Ensuring sustainable access to safe drinking water

Water is the most important housing service on which the very existence of man, his animals and plants rests. Access to adequate supply of drinking water figured as one of the top priorities for urban dwellers we surveyed in September and October 2014. The ideal situation sought after by

state water corporations is to supply each household or housing unit with a sustainable, round the clock connection to purified water that is safe for drinking and cooking. Some Sudanese states have made substantial progress in this regard while others lag far behind.

To take the example of Khartoum state, two sources of water supply are used:



Photo No. 4: A Street in a typical popular housing area built by the Khartoum State Housing Fund
Photo by Gamal M. Hamid



Photo No. 5: Example of newly-built multi-family, multi-story housing in Khartoum
Photo by Gamal M. Hamid

- i. Purified water drawn from the Blue, White and Nile rivers and pumped in pipes to end users.
- ii. Ground water, which is either distributed at the source or added directly to purified and piped river waters without the need for purification. Between 1996 and 2014 about 1,486 wells have been excavated in Greater Khartoum to supplement river waters. Combining both water sources, the total volume of water produced by Khartoum State Water Corporation reached about 266 million cubic meters in 2014 (Khartoum State Water Corporation Report, September 2014). The total length of pipes supplying water to urban and peri-urban areas in the State during 2002-2013 reached about five million meter length of various diameters.

In spite of the abundance of potable water from rivers and ground water sources, some of its neighborhoods are still without water services, and others face serious shortages during summer.

Taking the city of Nyala, the capital of South Darfur State, as an example, ground water is the only source of potable water. About 25 out of 34 wells supplying water from Nyala seasonal stream (*chor*) were operational in June 2013. The total production of all wells during the rainy season reaches 20,000 cubic meters per day which drops sharply to 10,000 cubic meters during the dry season. The total demand for water was estimated by Nyala Water Corporation in June 2013 at 100,000 cubic meters per day (South Darfur State Water Corporation Report, August 2014), which means there is a serious water deficit in Nyala throughout the year.

The last example of access to potable water on a sustainable basis is Gedaref city, the capital of Gedaref State. Potable water is pumped from Atbara seasonal river, purified and distributed to the city. This is augmented by ground water drawn from about 261 wells. Gedaref Water Corporation estimates the demand for potable water in urban and peri-urban areas to be about 80,000 cubic meters per day, whereas the total available water as of August 2014 was about 56,000 cubic meters per day (Gedaref State Water Corporation Report, August 2014). Only about 56% of the urban population of Gedaref city has access to clean potable water. The network of pipes that supply the city is estimated to cover less than 50% of it and in most neighborhoods water is available for a few hours per day only.

These three cases epitomize the efforts exerted in ensuring sustainable access to safe drinking water in Sudanese urban areas. Some cities, like Port Sudan, the capital of the Red Sea State and the main sea port in Sudan, is very deficient in potable water because no water stream passes close to it and its ground water is limited. Desalination of sea water has not been tried because of its high cost. During summer it faces severe shortages in potable water. A project to supply it with water from the Nile River has been prepared awaiting availability of funding.

38. Ensuring sustainable access to basic sanitation and drainage

Disposing of sewage is another basic human need that nobody can live without. Since open defecation and incomplete disposal can lead to the spread of diseases and foul odors, it is highly important to ensure that each household has sustainable access to basic sanitation. The use of adequate means of sanitation was one of the top priorities for the Sudanese urban dwellers we surveyed during September and October 2014.

Most urban areas in Sudan rely on dry pit latrines as the most common form of sanitation. Almost every house in Sudan – except in some IDP camps where people resort to open defecation – used to have a pit latrine. When it fills up, it is sealed off with earth and a new one is excavated. In a dry country like Sudan, pit latrines have proven to be the most economical form of sewage

disposal in spite of their disadvantages such as being a source of foul odors, flies and other harmful insects. Improved forms of pit latrines have been successfully experimented with in some large urban centers but have not yet been adapted on a wide scale locally or nationally.

Since the 1960s, septic tanks connected to percolation wells have been used in houses of well-off households in the capital, and then gradually spread to houses of their counterparts in some other urban areas. Due to its rather high cost, this system has not been widely used throughout Sudan in spite of its high sanitary standards when compared to pit latrines.

As far as sewerage networks are concerned, a *limited* one covering the center of the city of Khartoum and its new extensions Khartoum 1 and Khartoum 2 neighborhoods that are inhabited mainly by expatriates and well-off households was established in the late 1950s. Since then, it has been expanded at different times southwards but still it serves only a limited percentage of the inhabitants of the capital city. Since the 1990s and early 2000s new housing schemes that were developed by private developers and sold as fully serviced plots or housing units, such as Al-Ruwad, Al Yasmine, Al-Awda, and Al-Markazi Market etc., were connected to new networks that were ultimately connected to the treatment plant located south of Khartoum.

In Khartoum North, a new network is being built with a total length of 30 kilometers and a total cost of about 26 million euros. A few years before that, a project was launched to rehabilitate Al-haj Yusuf treatment plant and to build a new sewer line to serve Khartoum North city. No sewer network has been established yet in Omdurman, the largest of the three cities forming the national capital.

All in all, we estimate that about 20% of houses in Greater Khartoum have septic tanks, 5% are connected to a public sewerage network and about 70% use dry pit latrines and about 5% resort to open defecation.

Drainage of rain and run-off water is another challenge facing Sudanese cities, especially those built close to or on natural drainage courses. The horizontal expansion that characterizes Sudanese urban areas made surface drainage a mammoth and costly task. Hence, most urban areas rely on open un-built drainage ditches as the main means of drainage. Only the major drains are lined with stone or built with bricks and cement. Those passing through town centers may be covered with reinforced concrete blanks.

The national capital, Greater Khartoum, has been actively engaged in excavating, building and covering drainage lines. In 2013, for instance, a total of 50 kilometers of new drains were completed out of a total of 96 kilometers that were planned for 2013. Those included drains cast in concrete, piped drains and those built with masonry.

39. Improving access to clean domestic energy

Individual connections to electricity networks have been an urban service in Sudan since 1962 when the first hydro-electric dam was built at Sennar and was followed with Rosier Dam in 1971. Urban areas – at least their centers and wealthy housing quarters – were connected to the national grid that, until recently, was concentrated in the central riverine states because electric generation was not sufficient to supply all states. Alternatively, other states rely on electricity generated by diesel generators which is expensive and unsustainable. Thus, their networks are rather small covering usually government offices, houses of civil servants and administrators and some downtown areas for a few hours per day. In all those states eclectic power is used primarily for

lighting and for domestic appliances such as fans, air coolers, TVs and radios, etc. But very rarely for air conditioning which consumes large quantities of energy.

Electricity generation increased substantially in Sudan during the post 20 years with the establishment of new hydro-generated and diesel-operated electricity stations. The inauguration of Marawi Dam power stations in 2010 and increasing the height of Rosier Dam, electric generation and number of users increased as shown in Table 11.

Indicator	2008	2012
Electricity generated in Sudan (giga watt/hour)	5510	9490
Electricity sales in all sectors (000 giga watt/hour)	4290	7260
Number of beneficiary households (millions)	1.19	1.98

Table 11: Electric power generated, sold and number of users in Sudan, 2008-2012

Source: Sudanese Electric Distribution Company,
as in *Sudan in Figures*, Table 25 p. 36

In Khartoum State the electricity corporation aspires to connect all parts of the city to its grid but the demand has always been higher than its limited resources. For example, in 2013 only 66.7 kilometers of electric network were connected out of 229.5 kilometers that were planned (i.e. only 28%). There was a clear disparity in project implementation in 2013 between the different parts of the State. While 88% of the network length planned for Khartoum Locality was implemented, only 17%, 14% and 0% were completed in the localities of Khartoum North, Omdurman and Jebel Aulia respectively.

Traditional forms of domestic energy, such as firewood and charcoal, are still being used in Khartoum state and in other urban areas, which leads to more deforestation and desertification, but they are gradually being replaced by more sustainable and less environmentally damaging energy sources such as kerosene and butane gas. The latter has gained more popularity and is strongly advocated and subsidized by the national and state governments because it is also cheaper than charcoal and kerosene. It is expected to become more popular as the petrol industry in Sudan gains more momentum.

40. Improving access to sustainable means of transport

Access to sustainable forms of transport was also among the top priorities of urban dwellers who were surveyed in 2014. As mentioned in section 11 above, relatively small means of transport, such as mini-vans and rickshaws, have gained popularity during the past 20 years in most Sudanese urban areas – including the national capital. They are still considered a form of small-scale income-generating enterprises that households, small-scale private sector entrepreneurs and cooperatives could invest in. For urban dwellers they provide a form of affordable and flexible means of transportation.

Therefore, importation and local assembly of such forms of transportation means have been encouraged by national and state governments as well as by private banks and lending institutions.

Unfortunately, these small vehicles have replaced more sustainable means of transport such as the tram, which was operational in Greater Khartoum in the 1960s but has been dismantled. Large buses were also common in Greater Khartoum and other urban areas such as Wadmedani until the late 1990s when they became expensive to maintain and replace.

In recent years Khartoum state has started to reverse this trend and to improve access of urban

dwellers – especially those with limited incomes – to sustainable forms of transport. Large and medium size buses have been imported or locally assembled, and their ownership transferred to individual entrepreneurs against easy installments. At the same time, the State is making arrangements to re-introduce the tram within the coming few months.

41. Challenges experienced and lessons learnt in these areas (i.e. 35-40)

41.a. The main *challenges* experienced in the areas of slum upgrading, housing, access to potable water, basic sanitation, domestic energy and transport include the following:

- i. Slum upgrading and prevention challenges stem from the strong push factors that propel households to migrate to large urban centers in Sudan in search of basic needs, which they lack in their homelands, such as security, employment opportunities, health care, good education and even sustainable sources of potable water.

Insecurity is rampant in some states in Sudan, namely South Kordofan, South Darfur and Blue Nile, due to political tensions, inter-tribal conflicts and fighting over meager resources. Fearing for one's life is the strongest propelling factor that forces people to seek a safe haven in the nearest town (Hamid, 1996). Once there, households begin to have higher aspirations for employment, education, health care, etc. Thus, they usually take a second move to state capitals or even to the national capital. This is true even for households who don't face life-threatening conditions.

This means there is usually a continuous flow of internal migrants who resort to squatting in urban areas in order to fulfill their need for housing in their new locations. Thus, the forces that supply slums and squatter areas with newcomers are political and developmental in nature and beyond the capabilities of individual cities and states to deal with. In spite of the efforts exerted by some states – such as Khartoum – to deal with squatter settlements and to prevent the growth of new ones, the flow of migrants and IDPs to it from other states makes fulfilling the slogan of 'city without slums' an unattainable dream.

- ii. Similarly, high rates of population growth that characterize Sudanese urban areas – especially large ones – result in high demands for housing. The cost to households, cities and states of providing adequate housing increases annually due to high inflation rates, high customs imposed on imported materials and high local fees added to building materials' prices – especially cement – by national and state agencies.
- iii. The demand for safe drinking water is also constantly on the rise due to high population increases and high rates of urbanization. Sudanese water corporations have accumulated good experiences in water purification and pumping in water networks; however, they face serious challenges due to sanctions imposed on Sudan by the international community. These sanctions preclude importation of spare parts for purification and pumping stations; import of water purification substances, new technologies and software required to upgrade the water supply industry. Access of ordinary city dwellers – including the urban poor – is seriously reduced due to those sanctions.
- iv. The same is true for urban dwellers' access to basic sanitation and drainage. Sanitation networks that serve whole urban areas is indispensable for healthy living. Local systems of sewage disposal, such as septic tanks and pit latrines, lead eventually to contamination of ground water and may lead even to the outbreak of epidemics. Establishment of sewerage

networks in Sudanese urban centers is hampered by two factors:

- a. The high cost of treatment plants, pipe networks, pumping stations, etc. This is aggravated by the long network lengths necessitated by vast horizontal expansions.
 - b. Sanctions and embargoes imposed on Sudan which restrict importation of equipment, new technologies, chemicals and substances required for the proper functioning of sewage treatment plants.
- v. Electricity networks serving urban areas also suffer from the two impediments mentioned above, i.e., (a) the high cost of networks caused by vast horizontal expansion, (b) sanctions imposed on Sudan that limit substantially the ability of urban electricity corporations to import transformers, generators, cables, connectors, etc. Hence, their ability to extend badly-needed electric power to urban dwellers – including impoverished households – is severely limited.
 - vi. The same is true for the butane gas industry, which is increasingly becoming widely used in urban areas as the prime energy source for cooking. Gas imports and importation of necessary equipment are gravely hampered by international sanctions.
 - vii. The main challenges facing sustainable transport stem the following: (a) the long distances created by the horizontal expansion of urban areas; (b) the large volumes of traffic generated by mini-vans and small vehicles; (c) the high cost of mass-transit means, viz. large buses, trams, etc. (d) the large sums of hard currency needed every month to import fuel and spare parts; and (e) the grave consequences of the sanctions imposed on Sudan by the international community that restrict importation of new efficient vehicles and badly needed spare parts.

41.b. The *lessons* learnt in the above-mentioned fields include.

- i. Forward planning of housing areas – even if not provided with a full package of services immediately – is a guard against the unplanned and chaotic growth of squatter settlements. It is also less costly as slum upgrading and prevention often entail high costs.
- ii. Careful phasing of urban services, such as water, sanitation, roads and electricity networks is essential when resources are limited and urban authorities cannot provide all of them, to their highest and ideal standards, before home-owners and dwellers move in.
- iii. Resource limitation and lack of access to the latest technologies in urban services may force urban authorities and communities to adapt second best solutions that are less costly – e.g. septic tanks as alternatives to full-fledged sanitation networks.

42. Future challenges and issues in these areas (i.e. 35 – 40) that could be addressed by a New Urban Agenda.

- i. Sudan is a post-conflict country that aspires to forge and maintain a sustainable peace. The long conflict between northern and southern Sudan that continued for some 40 years, between 1954 and 2004, has been peacefully resolved by the secession of South Sudan in 2011. The mutinies and civil strife that broke out in the Blue Nile, South Kordofan and Darfur states are gradually coming to a peaceful end through negotiations, building trust and by investing in regional development in those states. Substantial amounts of funds are needed to rebuild destroyed towns, villages and means of livelihoods. Furthermore, careful planning of comprehensive regional development schemes is needed in order to achieve a balanced and

equitable regional development.

- ii. As a result of prolonged periods of conflicts, hundreds of thousands of households were rendered homeless and living on the fringes of urban areas as IDPs. There is a moral obligation and a big challenge to assist those IDPs to return to their homelands by re-building their destructed village and livelihoods. Those who wish to live in urban areas should be assisted to gain the necessary skills and resources needed to integrate there.
- iii. Adoption of a new national strategy to deal with squatter settlements; and establishment of effective and practical mechanisms to implement that strategy, so as to dispense with squatter settlements within the coming 20 years.
- iv. Urban water corporations should plan and strive to provide sufficient amounts of safe drinking water at the standard recommended by the WHO (i.e. 100 liters per person per day). At present most urban areas in Sudan fall short of achieving this minimum standard. They face big challenges in increasing their output, in raising their purification levels and in reducing the amount of losses (estimated currently at 30%) due to inefficient networks and old pipes. Furthermore, they need to propagate the use of water-conserving fittings and to prohibit the use of pure drinking water for gardening, car washing, irrigation, etc.
- v. Research and experimentation are needed in the areas of second best alternatives to a full-fledged sanitation network that has proven to be highly costly. Smaller networks that could be connected together at a later stage may also be propagated.
- vi. Dissemination of eco-friendly and affordable building materials and technologies is urgently needed. For example the use of stabilized soil blocks (SSBs) for walls; thin ferro-cement vaults for roofs; domes and vaults built in bricks with minimum formwork (e.g. the Nubian vault) etc. are cases in point. Cross-country sharing of experiences is needed, and national building research centers should take the lead in this regard.
- vii. Re-introduction of large and medium-size buses in urban areas in Sudan – especially in the national capital – is urgently needed as a form of affordable and sustainable transport. This will require re-aligning of streets, providing bus stops, dedicated bus lanes, etc. to facilitate their easy maneuvering within busy streets and dense down-town areas.
- viii. Dissemination of the use of sustainable and eco-friendly energy sources – such as solar and wind energies – which have proven their efficiency in reconstruction projects orchestrated by UN-Habitat in some areas of Darfur. They are also in limited use currently for lighting in some cities in Sudan.
- ix. Addressing the unplanned growth of new human settlements at the informal mining sites with planning, land readjustment and service provision. Advanced skeletal planning could be used as a form of predictive forward planning.
- x. Propagating the use of urban observatories in cities, states and nation-wide. Its regular assessment and follow-up of human settlements, their population, economy, services and housing is vital for achieving sustainable urban planning.

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ANNEX 1

SUDAN URBAN INDICATORS

Indicator	1996	2008
Home ownership (% of total households)	76%	87%
Home ownership in rural areas (% of total households)	95%	n.d.
Home ownership in urban areas (% of total households)	57%	n.d.
Urban population (% of total)	26.4%	29.8%
Population growth rate (% per annum)	2.6%	2.8%
Average household size (persons)	5.6	5.7
Households living below the poverty line, 2009 (% of total)	n.d.	46.6%
Households with access to clean potable water (% of total)	n.d.	55%
Households who use any form of sanitation (% of total)	n.d.	54.3%
Use of public sewerage network (% of total)	1%	n.d.
Use of individual sanitation system	7%	n.d.
Female participation in the labor force, 2010, (% of total)	n.d.	30.8%
Male participation in the labor force, 2010, (% of total)	n.d.	76.5%
Female-headed households (% of total)	n.d.	28.6%
School-aged male children registered in school (2006-2012)	n.d.	61.7%
School-aged female children registered in school (2006-2012)	n.d.	55.3%
Number of doctors per 100,000 people	n.d.	22.1
Energy use per person, 2009 (oil-equivalent kilogram)	n.d.	99
Carbon dioxide emission per person, 2009 (metric tonnes)	n.d.	0.3

n.d. = no data available

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ANNEX 2

UN-HABITAT'S URBAN DWELLERS' SURVEY

Towards Habitat III For a Better Urban Future Urban Dwellers Survey

As an urban dweller which of these are most important for you and your family? Please rank by order of importance to you using numbers 1-8 (with 1 being most important)

1. A well planned city, town and village
2. Better job opportunities
3. An honest and responsive government, city and local authority
4. Access to land, property and security of tenure
5. Reliable energy at home and at work
6. Better streets, roads, public transport and mobility
7. Better housing and a good living environment
8. A good education
9. Affordable and good nutritious food
10. Equality between men and women, girls and boys
11. Better health care
12. Protection against crime and violence
13. Access to recreation and public spaces
14. Freedom from discrimination and persecution
15. Action taken on climate change and pollution
16. Open, transparent and inclusive urban governance
17. Work safety and social protection in the informal sector
18. Political freedom, especially to organize at the local level
19. Reduction in the impact of natural and man-made disasters
20. Access to adequate and safe water and sanitation
21. Better collection and use of fair urban fees and taxes

Please add any two other options omitted above:

ANNEX 3

ORDER OF IMPORTANCE OF URBAN ITEMS TO SUDAN'S URBAN DWELLERS, 2014

