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2008

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MPRA Paper No. 13988, posted 11. March 2009 15:49 UTC

SOUTHERN SUDAN URBAN DEVELOPMENT STRATEGY

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DISCLAIMER

This working paper was prepared based on an urban planning study developed IN 2006 by the author to support a rapid deployment infrastructure development programme prepared by Gibb Africa, KweziV3 and PADCO-AECOM for the Government of Southern Sudan (GOSS).

The views expressed in this paper reflect exclusively author's point of view and do not imply the approval or endorsement of any other party involved in that programme.

EXECUTIVE SUMMARY

Developing an urban structure is critical to the economic development of Southern Sudan. Yet currently the basic building blocks needed for development – institutional structure, financial system, health and education infrastructure, human resources, active private sector and economic activities, and an operating inter-urban transportation system – are either missing or still at an embryonic stage. While some of these shortcomings can be dealt with in short-term, others will require a longer period to attain a satisfactory level, especially those involving human resources and social development.

The lack of basic statistics and the turbulent pre-Comprehensive Peace Agreement (CPA) period makes it difficult to establish trends and estimate future urban growth. At present it is assumed that only 10% of the population is urbanised. Even if the overall population doubles with the return of internally displaced persons (IDP) and returning refugees (RR), and if a significant part settles in the state capitals, the population should continue to be overwhelmingly rural within the foreseeable future. Rural development is a national priority, yet it needs an operational urban system to provide essential supporting services.

The estimated population growth in the 10 state capitals is expected to double in the next five years. Catering to this extraordinary influx will require substantial investment in basic infrastructure – not only to upgrade the current towns but to provide developed land equivalent to double the existing built up area. After this growth surge the cities probably continue to grow, yet probably at a substantially lower rate. The most critical period is the immediate period.

The urgent priorities are upgrading the cities to a basic, yet fully operational level to perform their economic support functions, and providing basic infrastructure services to the current population and to the expected immediate inflow of migrants (IDPs and RRs). Given the logistics required to meet these priorities, the development effort should be divided into three distinct, consecutive phases:

- A first phase, already under way, comprising emergency works and road recovery programmes, which together should jump-start the development process;
- The second phase should be a short-term urban consolidation phase, enabling all basic ‘state capital’ functions and improving urban standards;
- The third would be a long-term urban expansion phase, during which most urban infrastructure expansion and socio-economic development would take place and improved standards would be progressively extended to the whole city.

This development strategy focuses on resolving the logistic and implementation issues progressively, each phase based on the work done in the previous phase. Even so, to upgrade the city and double its size in such a short period will put an enormous demand on available resources.

Responding to this demand on a financially sustainable basis, the urban development strategy should concentrate the development effort during the short-term consolidation phase on a “**city core**”, to attain a state capital operational level as soon as possible. The standards to be applied in the city core and the residential neighbouring areas must be contingent on realistic affordability levels so assure sustainability. Thus, the initial residential neighbourhood standards should be limited to improving the access to “safe water”, public sanitation and electricity. Even so, this will be a significant and highly visible improvement on the current conditions.

The planning of the short-term consolidation phase should prepare project briefs on priority land development and infrastructure works. This short-term plan should contain institutional strengthening guidelines, including initiatives to build up the capacity of the local governments for implementation related tasks.

The long-term urban expansion plan should provide guidelines for the progressive expansion of higher infrastructure service standards to the entire urban centre, providing

all the urban population with improved services and living conditions. The expansion phase assumes that higher affordability levels are attained so that sustainability will continue to be ensured.

Ideally, the proposed long-term planning guidelines should be reviewed at the end of the short-term plan, when a better information base on demographic socio-economic trends is available and further economic development opportunities are identified.

All the urban development plans should include three main components: a physical development component, focusing on land use, housing, land allocation, building, water supply, sanitation, waste management, electrical supply and road improvements; an institutional development programme, providing guidelines for institutional building and strengthening; and a capital investment and implementation schedule, outlining the required financial inputs to the implementation effort.

Finally, the urban development strategy proposes general planning recommendations on housing and land use, the city core, urban and socio-economic services, traffic and environment.

1 INTRODUCTION

The purpose of this paper is to present the development of a sustainable, affordable and realistic urban development strategy that can respond to the immediate needs of GOSS¹, to minimize the lack of an urban structure capable of supporting a comprehensive economic development effort, to provide shelter for IDPs², RRs³ and rural migrants, and to improve the living condition of the current residents. The initial work focuses on the future state capitals. Some of them already are sizable towns, although most without infrastructure or services. Others are smaller settlements, and a few will have to be built from scratch.

Southern Sudan is currently an autonomous, self governing region of the Republic of Sudan and is the result of a Comprehensive Peace Agreement (CPA) that ended 22 years of bitter civil war (1983-2005). Since the independence of Sudan fifty years ago (1956), Southern Sudan only had 10 years of unstable peace. Old buildings and structures left by the British were bombed and destroyed during the two long civil wars, and the continuous warfare prevented any urban development and infrastructure upgrading.

The population of Southern Sudan is almost entirely rural or semi nomadic, herding cattle and living at subsistence level. Yet the economy of Southern Sudan is based on oil revenues, which under the CPA are shared with the Republic of Sudan. These revenues are to be used to finance the development of the new nation – it is assumed that the referendum of 2011 will favour the secession of Southern Sudan from the north, as widely expected.

The task of rebuilding the urban structure is made more difficult by the stage of development of the existing centres. It's not simply a question of providing infrastructure, identifying areas for development, or providing shelter to the IDPs. It is a matter of providing urban support to the social and the economic development of the country, which

¹ Government of Southern Sudan

² Internally Displaced Persons

³ Returning Refugees

will have its main focus in these ten urban centres. Of these, Juba, Wau and Malakal have a reasonably large population, Juba rapidly being converted into the future national capital. Most of the other state capitals are rather small settlements (Rumbek, Bentiu-Rubkona, Aweil and Yambio), and the remaining are not much more than rural villages (Bor, Torrit and Kapoeta).

If the cities do not develop their own economic functions and their capacity to provide services, the economic development of Southern Sudan will be seriously compromised, and with it the hopes of providing a better future to its population. Urban development is thus an imperative to the national development of Southern Sudan.

Although there may be enough financial resources, the task of developing these cities is made difficult because the basic resources that are needed to trigger the development process are still not in place or exist only in an embryonic stage:

- the institutional context is weak and in some cases inexistent;
- the financial system is largely inexistent;
- the social infrastructure (education and health) is basically inexistent;
- the current human resources are limited and the skilled IDPs that might return may not want to settle in the current under-developed towns;
- There are no significant industrial or commercial activities, neither an active private sector.
- There is no significant rural economic base. Except for oil extraction, in which the role of Southern Sudan is still very limited, there are no other significant economic activities; and
- Neither the urban infrastructure nor the transportation network can currently support any significant economic development process.

Some of these shortcomings can be dealt with in short or medium term, given sufficient resources. Yet building human resources and adjusting living patterns from a rural

subsistence level to a more modern urban context is a long process that can take decades to achieve.

There are also no reliable statistics to estimate socio-economic and demographic trends. Much of the development process has to rely on 'educated guesses' on how the population will grow, on the rate of returning IDPs, on future employment opportunities, on the effects of better sanitation, water supply and electricity on the population growth and urban expansion, and so on. Thus, an urban investment planning approach must be based on a step by step process, each serving as support to the next. Such approach will minimize mistakes and allow making changes in the investment programme in response to the effects obtained.

Yet the challenge of developing Southern Sudan's urban system, starting with the State capitals and progressively including the other regional urban centres, presents a unique opportunity to build up the urban backbone that is required for the social and economic development of the nation.

2 THE DEVELOPMENT CHALLENGE

Currently, Southern Sudan has an estimated population of around 8-10 million people – no reliable figure is available – and the 10 state capitals have, altogether, not over a million inhabitants, about 10% of the assumed total population. This indicates that Southern Sudan is an overwhelmingly rural country and, regardless of a probable short term urbanization trend, should keep that characteristic in the foreseeable future.

Nevertheless, it is essential to establish a basic urban network to support the social and economic development of the rural population – functions that can only be performed from an urban base. Urban areas are the main focus of economic activities and provide a higher per capita contribution to the national production, due to the higher levels of productivity and performance. Furthermore, they also provide a more diversified employment base and income earning opportunities than rural areas, as well as higher educational and health service levels, which support both urban and rural populations. The urban environment also provides greater and more diversified opportunities for female education, employment and income, reducing the gender inequities related to the Islamic cultural influence. The development of the urban system also decentralizes the development processes, improving the accessibility of the population – urban and rural – to better living conditions, even if still quite basic at first.

Additionally, agricultural development relies on services that are can only be available in well-functioning urban service centres. Thus, the development of a basic urban network is critical to increase rural productivity and to progressively improve the living conditions of the inhabitants of smaller towns and rural villages, reducing the inequities between urban and rural areas.

Estimating the probable size of the state capitals – the basic nodes of the future urban network - is anything but precise or reliable - the current size is unknown and changes according to the season, as a considerable part of the population is made of semi-nomadic

herders. Natural growth has to be an educated guess, although it is expected to increase when sanitation conditions improve. The number of returning IDPs and RRs varies widely according to the agency making the assessment and it is quite uncertain where those returning will settle.

Population Estimates 2006-2011 (1,000's)⁴

	2006	2011	2016	2021	% Growth
Aweil	70	114	132	149	2.1
Yambio	65	108	128	147	2.3
Rumbek	85	153	182	210	2.5
Wau	220	409	490	571	2.6
Kapoeta	7	13	15	17	2.4
Torit	21	36	43	49	2.3
Bentiu/Rubkona	75	168	191	212	2.8
Juba	200	490	575	657	3.3
Malakal	140	359	421	480	3.4
Bor	12	57	73	91	7.6
Total	895	1,907	2,250	2,583	2.9
Average Growth (%)	-	2.1	2.5	2.9	
Additional Population	0	1,012	343	333	

A note should be made on how the numbers were generated. The current urban population was calculated based on the count of existing houses and huts and the average number of people living in each unit. The natural growth trend was estimated based on other African regions with similar characteristics, taking into account the probable influence of safe water and sanitation in infant survival rate.

The number of IDPs and RRs was based on the currently available UN estimates and used the medium rate of returning families. It is generally assumed that the displaced population will return in force to Southern Sudan and this could bring the national population to over 15 million inhabitants. It is expected that a high proportion of the already urbanised

population will settle in the more urbanised centres, such as Juba and the larger towns. It was also considered the added attraction of places with better accessibility and the influence of the ethnic profile of the IDPs and RRs on choosing the region they would prefer to resettle.

The development of an urban system itself should probably exert a strong influence in the demographic distribution. Natural growth in urban areas is expected to increase due to improved sanitation and health conditions, and migration from rural areas should increase, to benefit from urban services and take advantage of urban employment opportunities.

The expected rapid growth should increase dramatically the demand for urban land, infrastructure and services. On the other hand, urban based economic development should boost employment and income levels, and higher affordability will result in more people having access to better services and higher infrastructure standards.

⁴ Lucius, Douglas - "*Population, Social and Economic Development Report*". Urban Development Framework for Southern Sudan. Gibb Africa / KweziV3 / Padco-Aecom. Nairobi, June 2006.

3 CURRENT CONDITIONS

Southern Sudan is economically under-developed. There is little industrial activity and, besides oil extraction, it only shows a subsistence farming economy. The economic base of the towns is extremely weak and relies on the salaries of Southern Sudanese government's employees and of the Government of Sudan's military personnel. There are few businesses, banks are limited to the larger towns and local markets are small and poorly supplied.

The interurban transportation system that is currently being recovered does not offer all-weather conditions, constraining the supply of essential goods and the export of agricultural produce, which are limited to the few existing towns and their immediate surroundings.

This urban settlement context suggests a type of self-sufficient 'city-state' scenario, where an administrative, commercial and residential core is supported by a peripheral agricultural area, with limited external inputs or outputs. Due to such limitations, there is little production to export to external markets or any significant employment besides government jobs.

The urban infrastructure situation is bleak – there is no access to safe water, no sanitation, no waste collection, no electricity and no means of communication. There are insufficient primary schools, no vocational schools, few and ill equipped health facilities, no recreational areas.

Fortunately, there is plenty of available land for urban development and the urban road networks, having negligible traffic, are in reasonable conditions except where damaged by poor drainage. There are few sources of building materials available (timber, clay and sand) and all manufactured building products need to be imported from abroad.

The conventional benchmark for the provision of services – conditions of affordability and sustainability – cannot be directly applied in the towns of Southern Sudan, except within the government context itself: the government “consumer” paying for the services provided by the government “supplier”.

The lack of economic activity and employment does not stimulate the establishment of modern banks or credit institutions. Housing is based on the provision of land by the local authorities and self-built ‘*tukuls*⁵’, while the lack of demand constrains business activities to a minimum. Construction businesses are scarce or inexistent and the provision of general services does not go much beyond simple repair shops at the markets.

While there are some infrastructure and services in the larger towns and even in some of the smaller centres, in general urban development is still embryonic. This general overview shows that the city building effort has to be done from scratch, side by side with the on-going nation building effort.

Finally, it should be stressed that as the urban development challenge will require a large number of skilled and unskilled workers, this opportunity should not be lost by the Sudanese labour force. Nonetheless, local workers must still be trained to meet the manpower demand of the reconstruction process.

⁵ A round hut about 5-8 meters wide without openings except for the entrance. The roof has a conic shape and is made of straw, while the circular wall is has low height and is made of mud. A large roof overhand protects the wall from rain and sunshine and a small opening at the top allows hot air to flow out, reducing the internal heat.

4 DEVELOPMENT STRATEGY

There is much to be done in a short time and there should be attention on using efficiently the existing financial resources - which are not as inexhaustible as they tend to be considered.

The lack of reliable information makes long term forecasts unreliable – it is not possible to establish any reasonable assessment of population or economic growth trends. Furthermore, the level of development is so low that it is impossible to predict how the economic system will perform.

Thus, a progressive development approach is recommendable – initially the essential issues should be deal with, while the development strategy itself should be revised periodically throughout the implementation period to adjust to changing local conditions, development progress and new demands.

The first step has already been taken by GOSS, by initiating an emergency works project. Nothing can be done without a minimum infrastructure support and this is the main objective of that project, currently under design. Yet the emergency works project deals only with bare minimum basic infrastructure and repair works that are needed to provide an initial operational base. These works are indispensable and urgent, yet are insufficient to make the towns operate as state capitals or as economic centres.

To perform as state capital, there are critical pre-requisites, such as human resources, housing and infrastructure, institutional structure, government facilities, communications, financial institutions and supply markets. To develop these prerequisites, the towns must have a bare-minimum yet indispensable base: infrastructure, inter-urban transportation, building materials, electricity and basic communications.

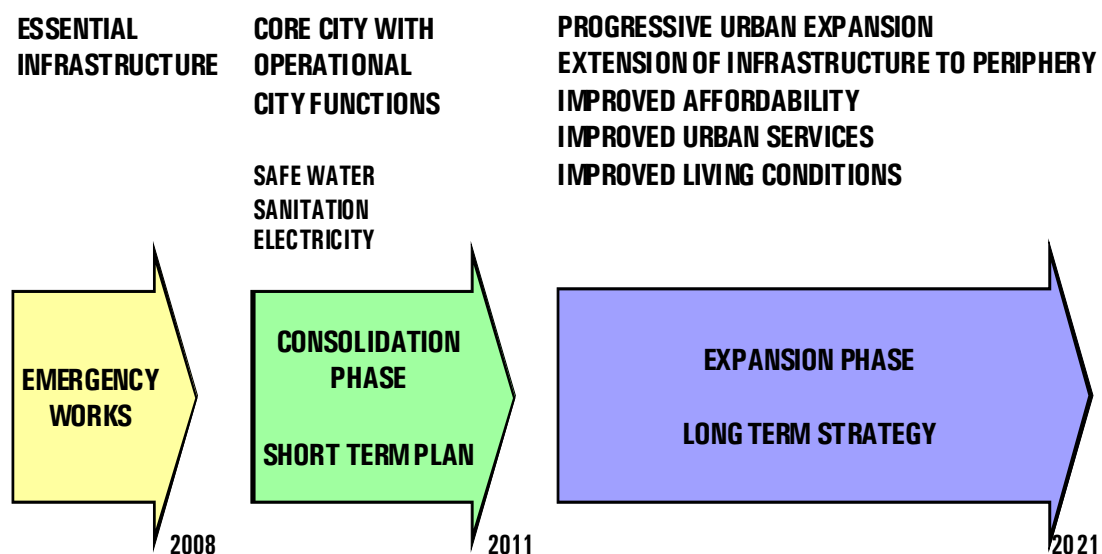
This scenario leads to a natural split of the planning development effort into three distinct phases:

- initial 'jump-start' phase (the current 'emergency works' project), to provide essential basic services;
- consolidation phase (a short-term development project, to enable all the minimum 'state-capital' functions; and
- expansion phase (a long-term urban development strategy), when most of the urban expansion and social-economic development would take place.

The current planning effort outlines the short-term development project and the long-term development strategy. The short term development plan aims to:

- enable the towns to function as state capitals, i.e. become effective administrative and political centres;
- provide the most essential services to their populations; and
- provide the basic essential requirements to start the economic development process.

Development Flow



The first phase can be seen as a comprehensive complement to the emergency works programme – not only by expanding its scope in terms of enhancing the urban infrastructure and building government facilities, but also to build up the non-visible yet absolutely essential foundation for development: institutional building and strengthening, capacity building, and establishing the education and health infrastructure to meet the current demand.

In most cases it will not be possible – due to resource and logistic constraints - to upgrade the entire town in one single effort. At present, due to such constraints, it is more realistic to focus on developing a ‘city core’ – a limited central area where the improved conditions are made available. The remaining informal urban area should adopt simpler standards, based on the capability to meet maintenance costs (essential for sustainability), yet improving access to safe water and electricity in the whole city is as important as developing its urban core.

The ‘city core’ concept intends to assure the operation of essential government functions at state capital level – this would include the operation of government functions and services, the operation of the central social facilities (education and health units); and the availability of land and provision of infrastructure support to the private sector.

The standards set for the city core must be sufficient to allow these objectives to be attained. It is expected that the existing economy, albeit weak, will be able to afford maintenance and operation costs.

The same level of standards can be extended to the adjoining areas based on affordability, such as the development of some housing areas. Yet the provision of services and infrastructure for the peripheral urban area should be contingent on the availability of resources to make the capital investment and the ability to sustain the services – both currently still unknown.

During the first development phase preference should be given to consolidate the existing urban space – occupying empty areas and densifying the residential neighbourhoods in line with the accepted affordable standards. The implementation of this policy will contribute to reduce the costs of providing infrastructure and services, thus increasing affordability levels and allowing the higher standards to be expanded from the city core to the whole urban area.

Yet this recommendation should not interrupt the supply of urban land for development – new housing areas will be needed to cope with the expected increase in population during the period, especially considering the returning IDPs. In general, the population growth estimates suggest that the urban population of the 10 cities should more than double from 2006 to 2021, roughly requiring the urban area to expand at almost the same proportion.

It is expected that the first phase, which would take about 3-4 years to be implemented, could be started in 2007-2008 and expected to be completed by 2011⁶. Being conceived as an integrated short-term plan - although consistent with the longer development vision for each city – the short term plan will describe with sufficient detail (as project briefs) the priority projects and activities to be undertaken, specially regarding the spatial and infrastructure development (physical and infrastructure plans), the social infrastructure and the basic institutional backbone.

The long term plan will cover the following 10 year period (2011-2020) providing comprehensive guidelines and recommendations for future urban development. It will take into account the expected urban growth rate and higher income levels. It will provide guidelines to progressively upgrade the urban conditions and cater for further development and urban expansion needs.

⁶ According to the CPA a referendum would be held in 2011 to decide if Southern Sudan will become an independent country or maintain the status quo within the Republic of Sudan.

The long term plan, however, should be re-evaluated at the end of the first phase, to correct eventual distortions and focus on possible unforeseen development issues and emerging opportunities.

By 2011 there will be a better information base from the planned census and it may be possible to re-evaluate the effective rate of return of IDPs, identify blossoming business enterprises, the growth in demand and the attainment of higher affordability levels.

These factors will allow improving the basic 'city core' strategy proposed for the first 4-year phase and extending the city core standards to the whole urban area.

5 URBAN STANDARDS

The fact that currently the South Sudanese towns have little or no infrastructure and that massive investment is needed to upgrade them into operational urban centres demands an analysis relating the social-economic demand to the resources needed to satisfy that demand. The investment must be weighted against the expected benefits – the improvements expected to be achieved in terms of economic production and social wellbeing.

Under this perspective, the urban plan is significantly more complex than a simple land use map indicating where housing and building should take place. The word “integrated” is used to indicate that several factors are weighted in – population growth, economic potential, physical resources (such as land, natural features and building materials), human resources (skilled and non-skilled workers), institutional framework (legislation, regulations, procedures, etc), logistics (transportation, communication and equipments) and, last but not least – financial resources.

From these analyses, estimates and projections, the baseline options can be drawn: which are the development priorities, and to what extent investment should be made on which sector to achieve the best – and affordable – combination in the shortest period.

The available capital resources from the town’s population, from GOSS and external sources must be balanced among the various sectors. The proportion that these resources are invested is a function of the standards that are chosen by the towns.

Applying very low standards for a sector may compromise its efficiency, while opting for higher standards may result in a waste of resources. The objective is to find the most adequate distribution that - within the existing resources – can optimize the economic and social benefits.

Having decided the standards to be used within the plan period it is then possible to re-organize the urban space – the physical plan – and define the corresponding level of infrastructure – the infrastructure plan.

It should be noted that the physical and infrastructural plans are insufficient, by themselves, to assure the beginning of a development process. The institutional and administrative instruments have to be put in place, the workforce has to be trained, the population provided with a basic health support, the economic sector has to be aware of the new investment opportunities, and the government has to be ready to provide the indispensable services that should characterize a state capital. These aspects will be addressed in the institutional plan.

As the urban development plan focuses on the urban environment, it gives more attention to land use, housing, land allocation and building, provision of urban services, development of infrastructure and similar aspects. For the sectors that are beyond the jurisdiction of the city and/or state government, the plan will identify the main actions that should be promoted, so that the city and state government can negotiate their implementation with the central government and other entities. The overall implementation budget will be the focus of the capital investment plan.

6 GENERAL URBAN DEVELOPMENT RECOMMENDATIONS

There will be considerable variation in what will be proposed for each of the 10 towns – the development of a short term, intensive and focused urban development plan seems to be the most sensible and logical approach to making the cities operate as simple yet reliable administrative and economic centres.

Individual town profiles will be tailored to benefit from their competitive advantages. According to their characteristics and potentials, the towns may develop as:

- administrative centres;
- providers of services;
- supporting nodes in the national transportation system;
- rural and agro-industrial support centres;
- industrial and commercial centres;
- education centres etc.

In principle, all state capitals will have a mix of these functions, yet in different proportions based on their capacity and development potential.

6.1 Housing and Land Use

The demand for land in the next 5 year period may double the urban area in some towns. Some of this can be absorbed in the existing urban area by infilling empty spaces and densifying - replacing large plot sizes around the city core (serviced area) by plots with smaller frontage and overall area, more suitable to a more compact development. This will reduce infrastructure costs, the provision of services and reduce average distances – the overwhelming majority of the population walks or uses bicycles for transportation.

The larger part of the demand for land will have to be met by providing plots at the town's periphery – where they will not have much more, within the short term planning period, than having access to safe water, sanitation and electricity. It may be more adequate, for such housing development, to offer a mix between compact plots and larger “agro-urban” plots to stimulate small scale agricultural production.

As a rule, the design of new housing districts should give preference to smaller, cost-efficient plots and more compact housing layouts. The archaic 1-2-3-4 design scheme should be replaced by a more pertinent land development system. There is no reason for not having a variety of plot configurations as long as such plots meet the accepted development standards. The cost of providing infrastructure is a function of the frontage of the plots – from the resource perspective, longer and narrower plots with small frontages are preferable to plots with square format.

The design of the new housing schemes should adopt a modular, “neighbourhood unit” concept, including in each module suitable areas for a primary school, green recreational space, a local market and other community facilities. The clustering of the residential area in such units will make it easier to build and maintain public sanitary units, provide safe water and electricity, and collect household waste.

House and building construction should give preference to using local skills and materials. Housing design and the choice of building materials & methods (especially roofs) should be designed to alleviate high internal temperatures: proper dimensioned overhands shelter the walls from direct sun light, larger openings provide better ventilation, and roof insulation reduces secondary radiation.

Housing development should give preference to use locally available building skills, stimulating the use of local manpower. Provision of government housing should be limited to key public sector personnel that are required to relocate from their own home to fulfil

their functions. There is no scope for a government-sponsored housing programme for the general population, although access to credit and micro-credit programmes should be facilitated for housing and site improvements (such as building private sanitary units).

Finally, the land market should be formalized, stimulating land development and building. No plot should be allocated without the right to land tenure – secure property rights stimulate investment on building and home improvement.

6.2 City Centre

The central area should provide space for government and other public buildings, social infrastructure; private commercial and office buildings; the central market place; parks and leisure areas, etc. A compact city centre – the city core - containing these assets will concentrate the larger demand for better standards on water supply, sanitation, waste management, electricity and communications. In principle, the city core should be a model for what the city will become in the future.

In general, most Sudanese towns lack more distinctive urban features and the flat landscape does not present outstanding natural landmarks. To counter this situation, the design of each city core should consider introducing a more remarkable urban element that, by its individuality, can become a symbol of the city and a source of local pride.

6.3 Urban Services & PPP approach

It is important that access to safe water and electricity should be made available to all inhabitants. Together, both services provide significant benefits to the well being of the population, such as improved health conditions and economic growth. Affordable user charges should be collected to assure sustainability, preferably through a PPP scheme.

Other services such as waste collection and maintenance of public latrines can also be operated through PPP.

6.4 Social Services

The school and health infrastructure should be given priority in the implementation programme as a pre-investment for future economic development and therefore should therefore be accessible to the whole urban population.

Yet investment in school buildings and clinics can become superfluous if teachers, doctors and nurses are not available and operational conditions are not provided. All schools and health facilities should be equipped at the same infrastructure standard as the city core, preferentially with flush toilets.

6.5 Industrial areas

According to the economic potential of each city, suitable areas in the urban periphery should be reserved for industrial use so that heavy traffic is diverted from the city centre.

6.6 Traffic and Road Network

The road system should be consolidated, yet a high priority should be given to provide for pedestrian and bicycle traffic. Transportation terminals, along with ancillary maintenance, repair services, storage and warehousing facilities should be foreseen. This is an economic function that can kick off immediately and should be stimulated.

6.7 Environment

A city greening policy should be pursued with community participation, by promoting growing fruit trees and other vegetables in the open areas of the plots. Such initiative will improve the quality of food intake and provide additional income while providing shade, a more amenable living environment, and a comfortable micro-climate. Current restrictions to this practice, imposed by old regulations, should be removed immediately.

A tree-planting programme on streets, schools and other public areas should be implemented by local governments, improving the urban landscape, providing shade for the pedestrian traffic and reducing excessive glare. Green open areas should also be made available for community gatherings and leisure in the city core.