

BACKGROUND AND ANALYSIS OF KINSHASA COMPREHENSIVE MASTER PLAN

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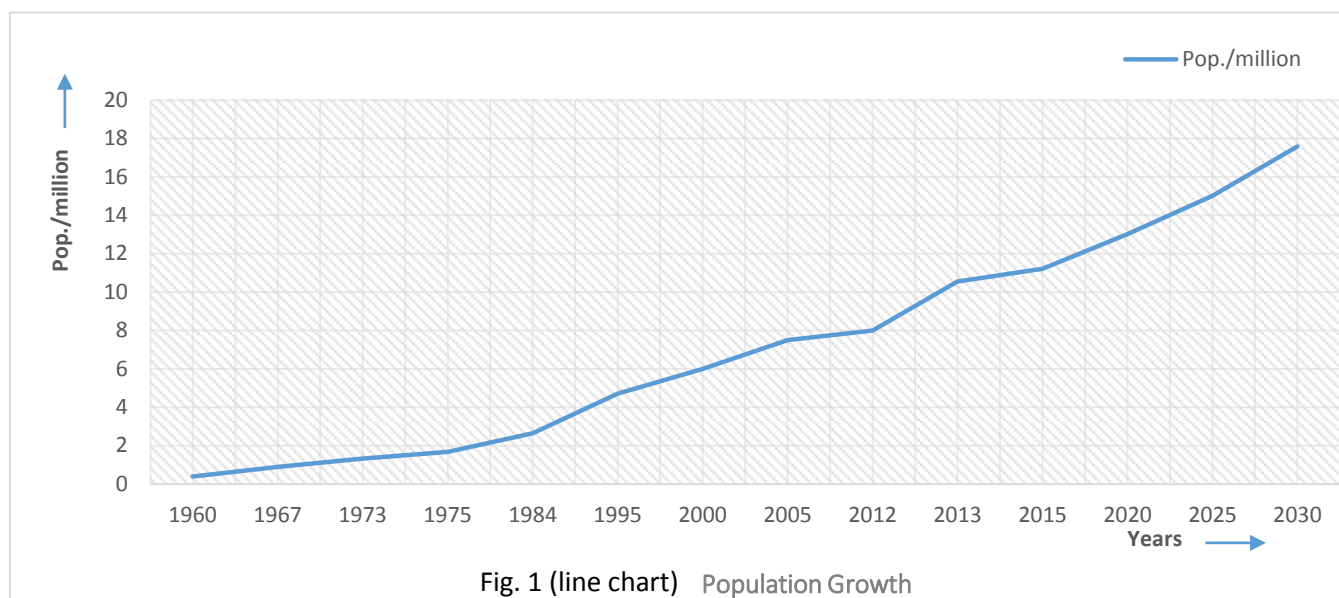
1. INTRODUCTION

Kinshasa is the capital and the largest city of the Democratic Republic of the Congo (D.R.C). This megacity has a total area of 9 965 km² with the population around 12.07 million of residents, and then many inhabitants constitute a large density in the center zone of the city during the weekdays due to the commercial and industrial activities. In Kinshasa, the road network is estimated in November 2017 to be about 3 621 km and is in an inappropriate condition and insignificant compared to the total land surface. It is worth mentioning that the traffic condition is not good, sometimes the traffic congestion averaging 2.3 hours. Then according to the Kinshasa urban problems, the Provision of adequate infrastructure is a prerequisite for the sustained growth of the economy and inherent to such growth is the need to ensure cost-effective movement of people and goods. In addition, the drainage network system is poor with the lack of appropriate waste water system and sewage. The appearance of the area, function and the structure of the Kinshasa are not good because of the poor urban planning and only 440 km² urbanized out of the total area. In fact, the urban diagnosis reveals a largely under-equipped city, which is undoubtedly the result of the absence of a suitable master plan and/or development strategies for several decades.

2. ACTUAL URBAN PLANNING

2.1. Population Growth

It is important to note that since 1960, the population has been growing rapidly and is influencing the bad conditions of Urban Planning in Kinshasa. From 400 000 residents in 1960, more than 12 million today (thirty times more), and an urbanized area that has increased eightfold on the total area 9 965 km². The population growth around urbanized area shown in the following figure (Fig. 1, line chart)¹:



Keywords: Kinshasa, Master Plan, City Planning, Roads network, Ring road.

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¹ Jica-EJECI et al. (2010a)

Provincial Government of Kinshasa et al. (2014b).

2.2. Contents of Master Plan

The present city of Kinshasa was built from two topographical sites, which have different attractive forces since the urbanization of the plain is easier than that of the hills. The two cities (low and up) developed in different periods. The low site was largely urbanized before Independence in 1960, and the up site (upper town) was born globally after the Independence. It is the Low Site (low town) built in the plain, which benefits much of urban amenities, more than the upper town, perched on hills.

2.3. Land Use Plan

The land use, which divided by four categories: commercial area, residential area, expansion residential area and industrial area. This circumscribing representation is not completely appropriate for the actual urban planning. The following figure shows the details (Fig.2)²:

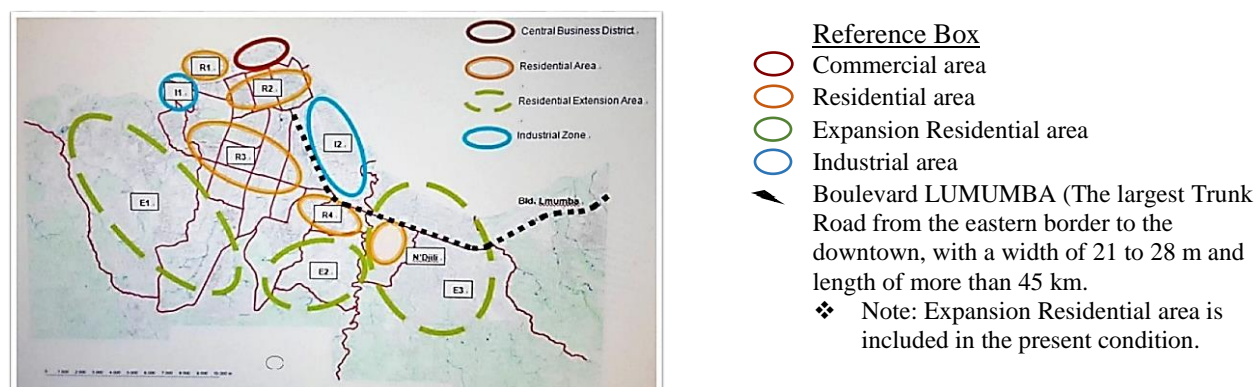


Fig. 2.Land Use of Kinshasa

2.4. Road Network and Others Infrastructures Plan

To the north of the Boulevard du 30 Juin, the residential district of Gombe bordering the Congo River is structured by wide streets with trees. To the south of the Boulevard du 30 Juin begins the city or popular part of the city, with its checkered structure characteristic of recent cities, until the hills prevent such a structure. The East-West road network linking the more distant neighborhoods is weak and thus transit through much of the city is difficult. Here is some of the great infrastructures of the city, from west to east: The Kokolo military camp, the People's Palace, the Martyrs Stadium, the Tata Raphael Stadium, Ndolo Airport and the International Airport of N'djili. The large road links that cross the city are insufficient in number and capacity, some roads detail shown in following table (Table 1):

Table 1 of State of the Network of Roads in Kinshasa³

			2010		2011		2012		2013		2014		2015	
N°	Type of Roads	State	%	Km	%	Km	%	Km	%	Km	%	Km	%	Km
1	Paved Roads	Good	8	125.6936	8	125.6936	8	125.6936	35	533.36	35	533.36	35	533.36
		Average	17	267.0989	17	267.0989	17	267.0989	22	333.9	22	333.9	22	333.9
		Bad	75	1178.378	75	1178.378	75	1178.378	43	652.62	43	650.45	43	650.45
2	Unpaved Roads	Good	-	-	-	-	-	-	-	-	-	-	-	-
		Average	10	591.55	10	591.55	10	591.55	10	10	10	591.55	10	591.55

3. HISTORY OF EVOLUTION OF MASTER PLANS OF KINSHASA⁴

Kinshasa is a strategic location, which was chosen by the Belgian authorities in the nineteenth century for its geographical advantages: proximity to the Congo River, great part of plain easy to urbanize. These following elements explain about urbanization progress:

² Jica-EJECI et al. (2010a) ;

C.Bureau/Japan et al. (1996b).

³ OVD et al. (2016).

⁴ Provincial Government of Kinshasa et al. (2014).

- In 1882, April 14: The first city planning was done by a European explorer Stanley Morton with 66 villages and 30 000 residents included unpaved roads network;
- From 1900 to 1922: Town planning development with Georges MOULAERT in 1911 included the port construction. Also, the first construction of planned neighborhoods in 1922 but the roads networks were still unpaved with a good improvement;
- From 1933 to 1949: first, the Zoning system of three steps proposed by the scheme of René SCHOETJES. After that, Georges RICQUIER had proposed his town planning in 1949 but not materialized, then the creation of industrial area of Limete with the plan of Van MALLEGHEM, finally Ricquier plan replaced Van plan that proposed a monumental Street crossing the city and the expropriation to cut down a larger neutral area.
- From 1950 to 1960: The construction of N'DJILI airport and the University of KINSHASA. Next, the organization of the public transportation system network. In 1960, D.R. Congo attained Independence, during this period great step of road construction with some pavement around the built urbanized area was realized.
- From the Independence up to now: The migration control ended, the population increased. Then, the squatter settlement developed certain without legal claims to the land and/or permission from concerned authorities to build, the population occupied the non-urbanized areas even in the hills. In spite of many comprehensive master plans done in this period, has not been realized yet.

4. ANALYSIS OF THE PROJECT OF COMPREHENSIVE MASTER PLAN OF SOSAK

Here is the decomposition studies of Kinshasa last Comprehensive Master Plan, named SOSAK (Schéma d'Orientation Stratégique de l'Agglomération Kinoise, Strategic Scheme of Kinshasa Comprehensive Master Plan) that was completed in August 2014. According to this analysis, the SOSAK explains about the organization of the general orientations and the construction planning of Kinshasa, to determine the great balance between the urbanized and non-urbanized areas, as well as the natural land and agricultural or forest. In addition, it defines, among other things, the objectives relating to the social balance of housing and dwelling construction, the balance between urbanization and the creation of public transport services, commercial and craft equipment, localization industrial and commercial activities, the protection of landscapes, the enhancement of city entrances and the preservation of risks. It determines the natural and urban areas and protection of historical site and museum, defines their location or delimitation. SOSAK serves as a frame of reference for the various sectoral policies carried out on the territory on the themes of housing, travel, structuring equipment, industrial and commercial activities, the environment and the organization of space. In a general way, it ensures the coherence of these policies on its territory as these following figures shown (Fig. 3 and 4)⁵.

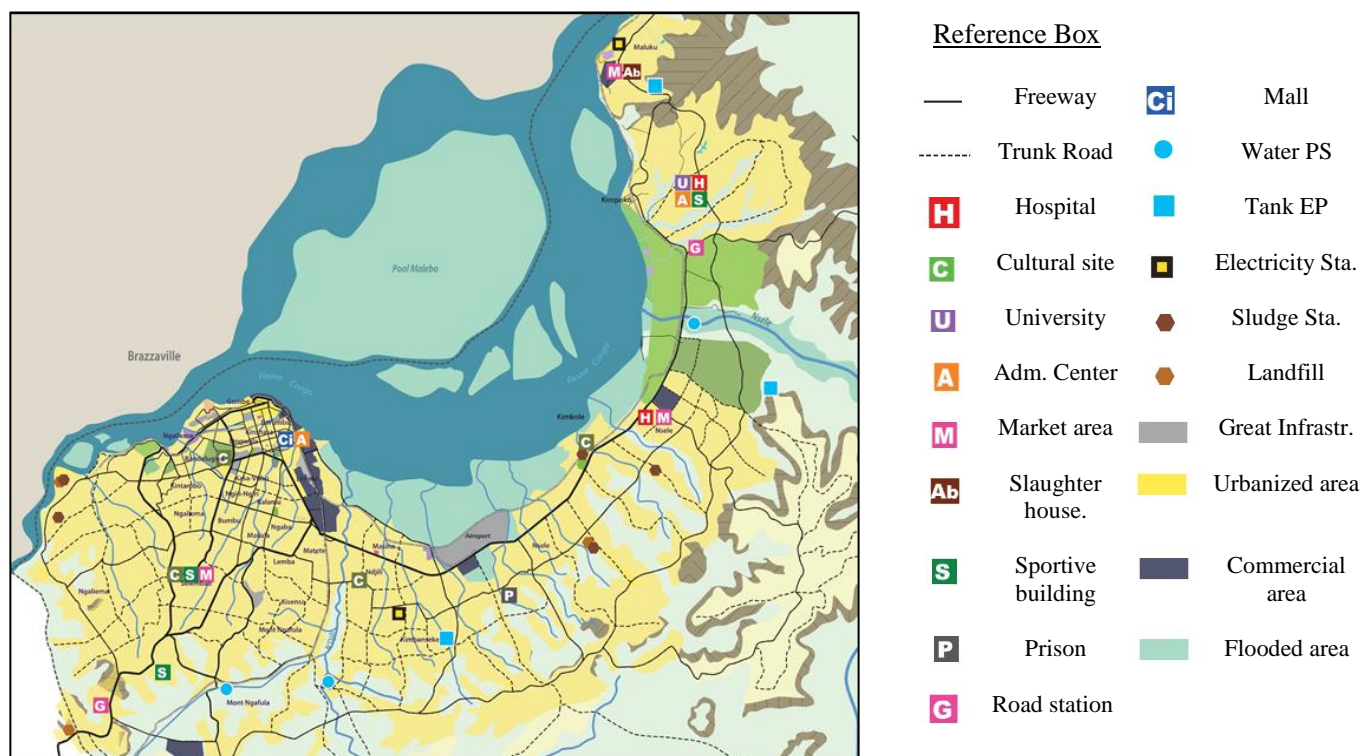


Fig. 3. SOSAK Master Plan (equipment and infrastructure)

⁵ Provincial Government of Kinshasa et al. (2014).

Furthermore, SOSAK proposes that every resident lives around 1 km from a trunk road, on which people can easily get public transportation. So, about the function of the master plan, these links (Fig. 4), which are essential for the city, have an impact on urban traffic, as well as the location of certain activities (markets, bus stations, etc.).

Based on the weak point of this Master Plan, that is the lack of in-depth study on Kinshasa traffic. The number of registered vehicles for instance on the main road in the center of the town ranges between 10,000 and 15,000 vehicles maybe more on some arterial roads. This situation remains important, because SOSAK aims to rehabilitate and construct by 2030, 604 Km of Trunk roads and Highways.



Fig. 4. SOSAK Network of Roads Plan

4. CONCLUSION

It is worth mentioning that, the SOSAK is a good Comprehensive Master Plan with several useful strategies. In this analysis, we want to be specific about land use system on a network of roads workings. In addition, we need to be competitive by acquiring the new methods of designing urban roads network in order to adapt to the realities and resources of our city. As there is a cross traffic in Kinshasa, the trunk road only cannot fulfill the requirement. Therefore, there are many methods to solve traffic congestion:

- Increase capacity of roads by number or/and width, for instance, Ring Road construction;
- Design good connectivity for avoiding bottlenecks like overpass and interchange;
- Walking or Biking, for the population living in the neighborhood (walk side and bikeway construction);
- Pricing, create a tollgate like Electronic Toll Collection (ETC) that can bring people to use public transportation or on the car instead of paying for several cars or movements; and so on.

Concerning this analysis, the Ring Road can contribute as a solution to traffic congestion. Seeing that the Ring Road or Beltway often indicates a circumferential route formed from one or a series of roads within a city or town, as an express transportation infrastructure, it plays a crucial role in town planning system; so that, traffic does not have to pass through the center. It will be necessary to compare our studies with some developed countries city planning methods such Japan and others for having a great solution, and find out how to convince the provincial government with the procedure of changing some SOSAK roads network system plan.

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