

IMPACT OF GLOBALIZATION ON THE DILAPIDATION OF INFRASTRUCTURE AND URBANIZATION IN A DEVELOPING COUNTRY: CASE STUDY OF WEST AFRICAN CITY, DOUALA, CAMEROON

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ABSTRACT

The main classification and delimitation of the world today is based on socioeconomic and geopolitical principles. The criteria of classification cities in the world are centered on the degree of urbanization. Classification of cities in the world depend on a set of criteria, centered on the degree of urbanization. Urbanization stems from an individual and corporate efforts to shortens the expenses and time, needed in commuting and transportation from job to job. Sanitation of a city is a topic of paramount importance. A city will more likely have issues relating to political, technical decision if good urbanization and sanitization are not emphasized. This article focused on poor housing systems and slums in Douala, the largest city and commercial center of Cameroon, Africa. This study argued that the inability of the city authorities to deal with sanitation and waste management in Douala has health and social implications. However, the study outlined certain recommendations to remedy the problem associated with poor waste management and sanitations in the city of Douala.

Keywords: *Urbanization, Sanitation, Douala, Housing, Slums, Environmental Concern.*

1. INTRODUCTION

One of the factors that affect urban growth is rural exodus [11]. The recent growth of some of the major cities like Chicago, The growth increase in major cities such as Mumbai and Douala the economical capital is often attributed to rural urban migration. Rural migration is common place in the third world because of the availability of jobs in the cities [4]. Urbanization of the world's population describe in the 2005 revision of the united nation prospect report has rapidly increase over the 20th century. The Urban population increased dramatically from 22 million (13%) in the 1900^s to 732 million (29%) in the same report projects an even lighter figure of about 60% increase by the year 2030. The metropolitan city of Douala is the economic capital of Cameroon, the largest city with a population of 2.5 million inhabitants [5]. Douala is a flat coastal city with extensive swampy areas. The climate is tropical monsoon, and flooding is frequent and very severe, with severe erosive effects, especially during the rainy seasons [2]. Douala is also a major port and industrial center, with diverse industrial activities including food processing, cement manufacturing, and aluminum smelting, among others. A sizeable proportion of the population lives in low-income settlements where poor sanitation and lack of hygienic practices are causes for concern. The objective of this review therefore is to evaluate the sanitation situation in selected communities in Douala and to contrive measures that will alleviate the poor sanitation in these communities.

2. PRESENT SITUATION

Viewed as a cornerstone of modern civilization, contributes greatly to every individual's. Health and the overall well-being to a community and society at large. In Douala for example, sanitation conditions are poor, because majority of the population do not have access to hygienic toilets, large amounts of fecal waste are often being discharged into the environment with limited treatment facilities (figure 1). Studies have shown that most inhabitants of Douala are very poor and cannot afford sewage systems [6]. Most residents do not have access to decent sanitary facilities, this lack predisposes individuals to numerous health risk and disease. Poor sanitary conditions and mismanagement of solid waste has direct consequences to the inhabitants of the city of Douala. Plastic waste for instance which doesn't get disposed appropriately, changes the soil's chemical components thus rendering the soil less porous. The waste

usually creates some major impacts resulting in an infectious disease burden and inferior quality of life. Also, solid waste management is an issue.



Figure 1, Fecal and other waste in the city canalization

In the municipality of Douala, a mixture of human and house hold waste creates an enormous degree of water pollution. In many areas, municipal sewage is often mixed with industrial waste. In Douala, very little wastewater receives treatment before it is discharged into the environment. To make things worse, approximately 76% of the inhabitants do not have access to modern toilets. Most people defecate in holes or containers and dump fecal waste in rivers or bushes. Waste dumps are often seen on the street corners. These wastes are deposited directly by senseless urbanites and indirectly through sewage networks from poorly constructed houses. The wastes can also be seen in gutters where there serve as favorable environments for harmful insects. Children are frequently seen in these dingy gutters looking for valuable items which they can use at home or sell. The waste can decompose *in situ*, releasing an organic acid leachate, which meanders downstream between the houses into the nearest stream tributary. Polluting the surface over which it moves and the stream that it joins, this leachate attracts flies and forms a habitat that attracts mosquito breeding.

In the chain of infection, water pollution plays a vital role as the main conduit for transmission of contagious diseases such as cholera, dysentery, polio, typhoid, and ascariasis [17]. Most inhabitants do not have access to sanitation facilities [8]. Infestation of worm are also a symptom of unsafe water and poor sanitary conditions. Industrial waste also plays a major role in this human degradation, if not disposed through efficient and adequate means. Heavy metals and inorganic and organic toxins poses serious threats to human lives and the environment. Agricultural and municipal activities are also associated with water contamination. High fecal coliform bacterial infection has been observed in these water bodies [7]. An increase in urbanization and industrialization will undoubtedly worsen the situation [14]. Inhabitants in most localities on the banks of some rivers (see figure 2) make use of the water for domestic consumption. Individuals could also be seen discharging sewage into these rivers [16]. Which may result in A group of chemicals known as persistent organic pollutants (POPs) are very toxic and carcinogenic in nature. They can travel great distances via water and air Because of these factors proper sanitary conditions are of global concerns since POPs from one geographical region or country and affect humans, live stocks, and the overall environment of another [9]. They persist for a time in the environment and can accumulate and pass from one species to the next through the food chain.

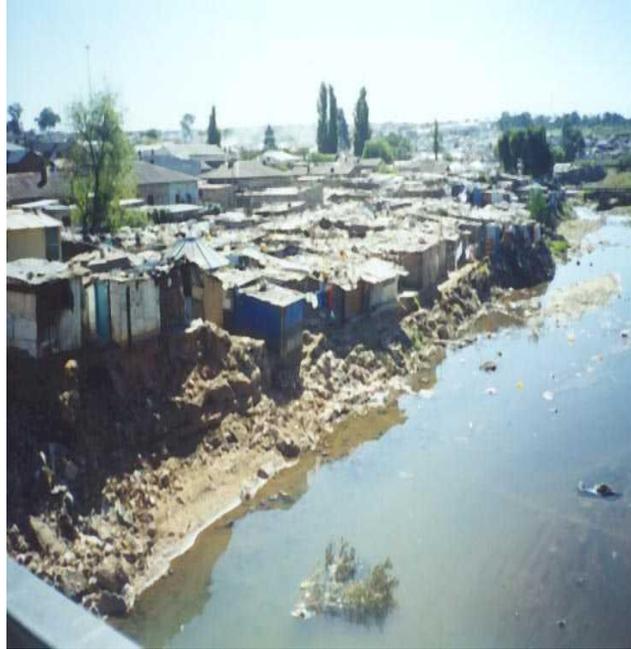


Figure 2, Slums on river banks

Uncontrolled disposal of the ever-increasing amount of solid wastes in Douala is also a threat to the environmental. The waste in water bodies has a detrimental effect in aquatic environment.

Douala does not encourage its inhabitants to separate various kinds of plastic and glass waste (see figure 3). Every year Douala City Council spends \$7 billion on municipal waste to dumpsites. Also, about 10 tons of non-hazardous wastes are produced daily and most of these wastes especially plastics are incinerated by the communities.



Figure 3, Disposal of plastic bottles in one of the neighborhoods

Malaria is a serious disease in African which kills a child every 30 seconds [18]. An increase in pollution correlates with an increase in the prevalence of malaria [10]. Lack of sanitation and inefficient drainage systems contribute to the presence of malaria parasites and their vectors in urban settings [10]. Rapid growth of the population and an increase in poor waste management account for the prevalence of malaria. Changes in the urban population also affects anopheline mosquito breeding sites [2].

Incineration, a waste treatment process, has both advantages and disadvantages. Incineration helps in the prevention of diseases transmission and it is also results in the reduction of wastes. However, improper incineration results in copious release carcinogens such as dioxin and dibenzo-*p*-dioxins/polychlorinated dibenzofurans (PCDD/PCDF) into

the air [12]. The release of these carcinogenic air toxins is a threat to humans. In Douala burning of wastes in open areas is commonplace in addition to or instead of landfilling. These wastes from various households rivals the emissions from an industrial-sized municipal waste combustor [12]; [15].

Plastic wastes production in Douala, Cameroon is a cause for concern because about 20 tons of plastic wastes are produced daily. In addition, plastic wastes account for about 10 % of generated waste in Douala city. Plastics wastes are non-biodegradable and can persist for several years thus affecting land and water [1]. Compounds from the plastics usually sink into nearby land, contaminating groundwater. Environmental index, a tool to measure financial results of companies that protect the environment. The Environmental index for Cameroon is 45.9 [20]. The per capita emission of greenhouse gases in Cameroon is about 0.112 tons of carbon dioxide per person (GEO3, 1998). The emission of carbon dioxide poses a threat to the rich biodiversity.

Indeed, the regular shortage of drinking water compels the population to construct water wells as well as cesspools on their parcel. Septic tanks are not usually built but they are often replaced by cesspools. As noticed during this work, in the same parcel, the distance between the cesspool and the water well is generally too close; less than 20m makes contamination unavoidable (see figure 4). Most often, cesspools are not protected which allows infiltration of wastewater that causes diseases. Moreover, wastewater from the cesspool can contaminate the water wells either from the same parcel or from neighboring parcels.

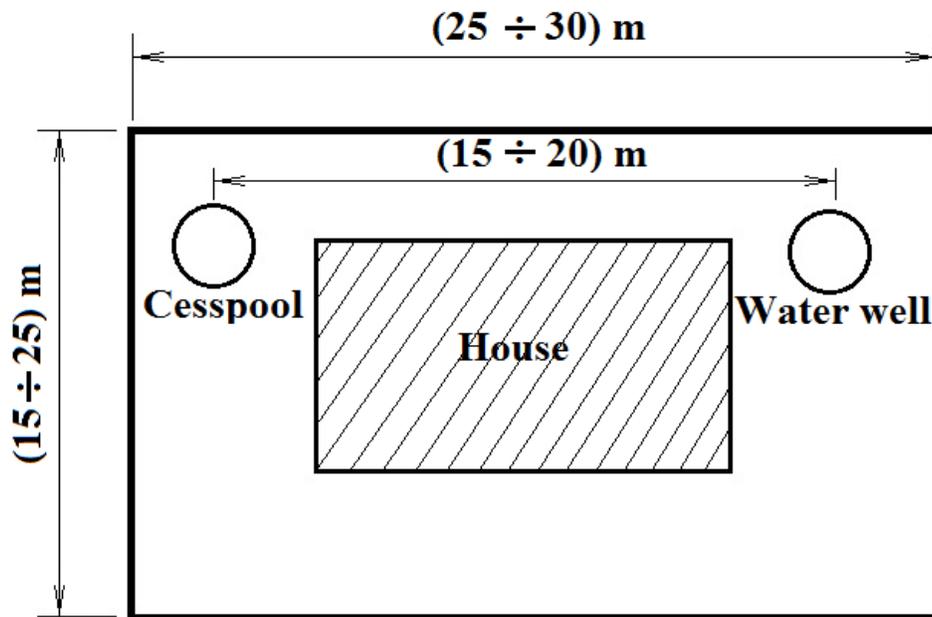


Figure 4, Typical occupation of a parcel

3. CONCLUSION AND RECOMMENDATIONS

The metropolitan city of Douala in Cameroon is overwhelmed with poor sanitation and pollution due to inefficient government machinery in solving issues relating to water supply and waste disposal. Disease infection reflects both the urban environmental quality and the abundance of the water vector. On both sides of the streets are houses, shops, schools, clinics, hotels, and informal sector activities. The slum areas are characterized by wooden houses, broken walls, makeshift huts along roadsides with uncleaned grass, and scrap cars, although some undergo renewals.

The problem associated with poor waste management can be mitigated. Considering the nutritional and hygiene problems in Douala, everyone needs to be involved in the fight against poor sanitation. The fight can be carried out through an appropriate education of the population on the importance of proper waste management. This entails the adoption of a strategic health plan that is in compliance with the city development plan, all of which should be targeted on the milieu traits of this humanized coastal zone.

The government should encourage their inhabitants to use proper toilets, which undoubtedly mitigate or eradicate diseases associated poor sanitation. An improvement in sanitation and hygiene in schools would be of significant help. Schools should be able to provide private and separate toilets for boys and girls. Each toilet should contain facilities for hand washing. The government should put in place a real policy of sensitization of the construction of septic tanks

that are in conformity with its norms and standards. Health care facilities should house efficient and safe waste disposal for everyone, which curb the transmission of healthcare-associated infections.

In a bid to put an end to plastic pollution individuals and government should make sure plastics never reach the oceans. The government and stockholders needs to create machineries for recycling. Anthropogenic factors that contribute to soil and water pollution, many of which can be circumvented by implementing sanitation and waste management practices. Phytoremediation is a plant-based technology that utilizes plants to clean up the environment [19]. Phytoremediation has been shown to decrease contaminants of heavy metals in both soil and water systems [21]. This low-cost technology could serve as a potential measure to improve soil health and water quality in Douala.

4. References

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