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Urban Spatial Segregation in Kenya:
Experiences from Nairobi Metropolis**

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THE DYNAMICS AND IMPLICATIONS OF SUSTAINING URBAN SPATIAL SEGREGATION IN KENYA – EXPERIENCES FROM NAIROBI METROPOLIS

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Abstract

Urban spatial segregation is not a recent phenomenon in Kenya. Its origin in the Kenyan towns can be traced way back to the emergence of colonization. Initially, the attitude and response of national governments towards the self-initiative of urban low-income households consisted of active hostility or benign neglect (Zaghloul, 1994) and government measures ranged from passing tough, stringent regulations to exclude such settlements from any infrastructure extension plans to outright demolition (Cheema, 1993). Eventually, however, governments have been forced to acknowledge that "informal" settlements exist because of or in response to public policies (Dowall, 1991).

The continued existence of urban spatial segregation has posed more questions than answers to scholars regarding the mechanism that has managed to sustain it in a modern metropolis like the city of Nairobi in Kenya. This is, particularly, so considering the complex interactions between land and housing market as well as the legal, economic and cultural forces at play.

Considering the fact that the urban spatial segregation is a reflection of the existing social structure, this paper uses robust empirical evidence, documented data, and experiences based on land market perspective to gain a deeper understanding of the forces (social, economic, racial or ethnic divides, legal, political and cultural) that have contributed to urban spatial segregation. The consequences, dynamics and implications of sustaining urban spatial segregation as well as the ambiguities responsible for its sustainability and possible policy directions are highlighted. The paper concludes that land management is crucial for the achievement and promotion of effective functioning of urban settlements in order to sustain and boost the social, economic, physical and cultural well being of the people.

Introduction

Urban areas are known to have prospered or declined depending on their environment, commercial activities, population growths, and natural resources. The primate urban centres in Kenya such as the city of Nairobi, Mombasa, Kisumu, Eldoret and Nakuru play major roles in nearly all aspects of a nation's development. The principle decision makers of the state, politicians, technocrats, entrepreneurs and landowners live and derive their political material support from these urban centres (Obudho, 1992:210). They ensure that the allocation of goods, services, income and other resources are carried out disproportionately to these urban centres at the expense of other parts of the country.

In the developing countries such as Kenya, rapid urban growth which is due to both natural population growth and rural urban migration has resulted in urban segregation and exerted too much pressure on provision of housing and related services. Kenya has been experiencing rapid urbanization at an estimated rate of 7.3 percent per annum. The proportion of Kenyans living in urban centres (defined as towns with a population of 2000 or more inhabitants) increased from 18.3 percent in 1989 to 30 percent in 1999. Currently, Kenya has approximately 194 urban centres with a total population of about 10.0 million, representing 34.8 percent of the total population (Republic of Kenya, 2001). Of the total number of urban centres, it is estimated that approximately 45 percent of Kenya's urban population lives in Nairobi.

Spatially, the internal structures of the major urban centres in Kenya are well marked into distinct zones based on land uses. There have been cases of both planned formal developments and spontaneous development of privately developed informal settlements in the major urban centres. However, the rapid urban growth of the city of Nairobi, particularly in the last three decades, has brought about characteristic settlement problems and, in some cases, environmental degradation. The spatial growth of the city of Nairobi can be viewed in the light of the prevailing geological conditions which influence or result from human activities as well as the role geology plays in Nairobi's urban growth and environment, and ease of transportation among others.

This paper uses the robust empirical evidence, documented secondary data, and experiences based on land market perspective to gain a deeper understanding of the forces (social, economic, racial or ethnic divides, legal, political and cultural) that have contributed to urban spatial segregation. The consequences, dynamics and implications of sustaining urban spatial segregation as well as the ambiguities responsible for its sustainability and possible policy directions are highlighted. The paper starts by examining the evolution and urban growth of the city of Nairobi in the context of the spatial development.

The primacy level and growth of the city of Nairobi

Nairobi is an equatorial city. It lies at an altitude of 1,670 metres, latitude 36 degrees 50' east and longitude 1 degree 17' south about 140 kilometres south of the equator. The city of Nairobi owes its birth and growth to the Kenya Uganda Railway (KUR). The railhead reached Nairobi in May 1899 "enroute" to the present day Kisumu which was then part of what is Uganda. The moving of the railway headquarters from Mombasa to Nairobi by its chief engineer, Sir George Whitehouse resulted in the subsequent growth of Nairobi as a commercial and business hub of the then British East Africa protectorate (Situma, 1992:167). By 1900 Nairobi had already become a large and flourishing place with the settlement consisting mainly of the railway buildings and separate areas for Europeans and Indians, the latter being mainly the labourers employed on the construction of the railway. There was practically no African Settlement. In the same year 1900 Nairobi assumed the function it was to perform as the capital of Kenya, with the boundary of the urban centre being defined. In 1907 Nairobi was made the capital of Kenya. Later in 1950, Nairobi was made a city.

Nairobi's population has continued to increase, resulting into unprecedented growth of Nairobi. At the time of Kenya's independence in 1963, the population of Nairobi stood at about 342,764. Between 1963 and 1979 the population of Nairobi rose from 342,764 to 827,775. According to the 1989 census, the population was at 1.3 million and was expected to rise to over 2 million by the turn of the century. Currently, Nairobi's population is estimated at about 2.14 million people from 1,324,570 in 1989, an increase of 55 percent in 11 years (Republic of Kenya, 2001). This is approximately 21 percent of

the country's total urban population. Table 1 shows both estimated and actual the population growth of Nairobi since 1906.

Table 1: Population of Nairobi between 1906 and 1999

Year	Area (Hectares)	Population	% Increase
1906	1,813	11,512	-
1928	2,537	29,864	159.4
1931	2,537	47,919	60.5
1936	2,537	49,600	3.5
1944	2,537	108,900	119.6
1948	8,315	118,976	9.3
1963	68,945	342,764	28.5
1969	68,945	509,286	48.6
1979	68,945	827,755	62.5
1989	68,945	1,324,570	62.6
1999	68,945	2,143,254	55.2

Source: Compiled by the Author

Nairobi was first established as a transportation centre station during the construction of the Kenya Uganda Railway (KUR) which later grew up to become an administrative centre (Obudho and Aduwo, 1992:50). A noticeable feature then was the physical disparity between the apparatus of Government of Kenya and KUR administration with the latter administration having its own physicians, police, magistrates, and a highly developed technical and administrative staff (Thornton and White, 1948). In 1900, the Nairobi Municipal Committee (NMC) regulations were published by the Government of Kenya and these defined the urban centre as "the area within a radius of one and a half miles from the offices of the sub-commissioner of the then Ukamba Province" (Morgan, 1967:102). A small number of settlers had began settling in the urban centre area at the time, particularly around Kabete and around Westlands. Some White Fathers, an Order of

French Catholic Missionaries, settled on the present St. Austin's Road. They acquired a huge estate including Lavington and certain portions of Bernhard Estate for their mission. With the construction of the KUR on the move, it became essential to designate a mid-way site where a well-equipped maintenance depot would be built. When the railroad arrived in Nairobi, the Chief Engineer acting on recommendation of the engineer in charge of the site selection team, Guildford Molesworth exercised powers vested in him under the Land Acquisition Act of India (1894) and obtained for the use of the KUR the whole plain south of Nairobi river swamp to the Ngong River. In addition, a strip of land on both sides of KUR line, 3.2 kilometres wide was deemed to be KUR land. The designated land areas came under absolute ownership and control of the railroad authorities according to the act.

<u>Emergence of Spatial Planning in Nairobi</u>

By 1909 much of the internal structure of Nairobi, especially the road network in the Central Business District (CBD) was already established. The boundary of Nairobi was in 1927 extended to cover 30 square miles as a result mainly of the rapid growth of the urban centre both in terms of population and infrastructure. From 1928 upto 1963, this boundary remained the same with only minor additions and excisions taking place. In 1963 the boundary of Nairobi was extended to cover an area of approximately 266 square miles. There has not been any boundary changes since then. From this early growth, the city's functions have developed and expanded such that to-day it has achieved an overwhelming dominance in the political, social, cultural and economic life of the people of Kenya and the whole of the Eastern Africa region.

Thus once the KUR authorities made the decision to locate a depot, certain spatial patterns started to emerge. The railway station, a shopping centre and subordinate staff housing were established on level land with black cotton soils. Senior railway officers put their homes up on the hill to the west. European colonial officials also established their homes on the hill. Infact, when the East African protectorate headquarters was moved from Mombasa to Nairobi in 1905, Sir Donald Stewart, the Commissioner, himself occupied the house of the former chief railway engineer at the hill (White et.al,. 1948:12). All Europeans who lived in this urban centre created their residences away from Asians and Africans. This pattern soon led to exclusive European residential settlements at Muthaiga, Upper Parklands, Westlands, Loresho, Kileleshwa and Kilimani, among others.

Meanwhile, part of the Asian population which had been discharged from KUR employment established shops not far from the railway station, an area which came to be known as the Indian Bazaar. The Asian buildings were used both for business and as living quarters. The few Africans who worked for the KUR were given subordinate housing while others lived in shanty villages in the eastern part of Nairobi (Obudho, 1987a).

Generally, the core of the city is noted for commercial activities, hence the presence of multi-storey buildings. There, at the core, vegetation cover is rare, as the surface is either bitumized or heavily slabbed with cement. To the eastern and western part of the commercial area in the "medium"/"high"-density residential areas. The "low" – density residential area is found towards the northern, northwestern and, part of the eastern parts of the city. Although the southeastern part of the city is officially designated as the industrial zone, some industries still spring up in some other sections of the city. Both Jomo Kenyatta International Airport (JKIA) and Wilson airport, are situated around the southern suburbs of the city.

The Evolution of Urban Spatial Segregation in Nairobi

Urban spatial segregation is not a recent phenomenon in Kenya, and indeed in Nairobi. It's origin in the Kenya towns can be traced way back to the emergence of colonization. Hence, the evolution of human settlement policy for Nairobi and indeed for the whole country can generally be categorized into broad phases: the pre-post war and the post independence phases. The major intervention strategies adopted were the public highly subsidized conventional housing prevalent during the first phase and the aided self-help and enabling environment strategies of the later years of independence to the present. The implementation of the human settlement strategies overlaps having a high degree of continuity both in structures and in general goals (Stren, 1978:212).

By 1900, a racially segregated Nairobi measuring 18 kilometres in the area had been created. The origins of Nairobi lay in the need to accommodate people of different races and ethnic origins. The major influence that set the frame of the city was racial segregation, a practice of the colonialists that prevailed as late as the early 1960s (Desouza, 1988).

For instance, the colonial government did not enact any legislation in relation to segregation although they argued that natural affirmity would keep together different races in separate quarters. Indeed, the master plan of 1948 did not address the issue of segregation but rather, seemed to condone it.

Whereas health considerations were important in the mind of the Europeans, there were no immediate medical reasons for the emerging spatial patterning. Subsequent developments in the political economy of health and disease tended to fossilize the incipient segregation.

Initially, the attitude and response of national government towards the self initiative of urban low-income households consisted of active hostility or benign neglect (Zaghloul, 1994) and government measures ranged from passing tough, stringent regulations to exclude such settlements from any infrastructure extension plans to outright demolition (Cheema, 1993). Eventually, however, the government has been forced to acknowledge that "informal" settlements exist because of or in response to public policies (Dowall, 1991).

The surface texture of Nairobi is complex, making it difficult to decipher the city surface into distinct land uses. Inevitably, there are wide variations in population density reflecting different land utilization patterns within what Obudho and Aduwo (1988) sees as six distinct and different land use divisions, namely; the Central Business District (CBD); Industrial Area; public and private open spaces; public land; residential areas; and undeveloped land. The spatially divided internal structure is based on land uses and income levels or a coarse classification. Apart from both the CBD and Industrial areas which contain a low density of population and a low incidence of housing Obudho and Aduwo (1988) pointed out five residential areas of varying population density and social mix. These are:-

(a)   Upper Nairobi lying to the west and north of the CBD. It is an area of low density, high-income population (2-25 people per hectare in 1980) and comprises many of the former well-known expatriate residential areas such as Woodely, Sclaters, Kileleshwa, Kilimani, Lavington, Bernard, Thomson and Muthaiga.

(b)   Parklands, Eastleigh and Nairobi South, an area of medium income, medium density population (30-40 people per hectare in 1980) and consists of mainly owner-occupier housing (many owned by Asians).

(c)   Karen and Langata, to the South and South East, are also high income, low-density residential areas, typified by large housing, gardens and paddocks. These areas are in transitional phase in that several mid-income estates often owner-occupied by civil servants are growing to absorb the population spilling from the other areas.

(d)   Eastlands in the marginalised urban fringe to the east of and away from the CBD, is a low-income densely-populated area (50-300 people per hectare in 1980) with the core region of old NCC housing areas and a new institutional housing estates (Race Course, Ngara, Shauri Moyo, Pumwani, Mathare Valley, Eastleigh, Kariobangi, Kaloleni, Bahati, Jericho, Mbotela, Dandora-byewords for urban deprivation and disadvantage) reaching densities of 200-300 people per hectare in 1980).

(e)   Mathare Valley to the east of the city and Kibera to the west form the most famous, largest uncontrolled urban settlements in the city, reaching staggering densities of 1,250 people per hectare in 1980. The populations of these (and other areas like Korogocho and Kawangware) grew by 220% between 1969 intercensal period.   They are characterized by the uncontrolled, spontaneous mushrooming of squats (often bulldozed down by the NCC), created by low income migrants fleeing from the rapidly rising costs of living in the city but fleeing into cardboard city along valleys close to the CBD itself. Here there are rapid shifts and movements of the population, shortages of accommodation, high rents and overcrowding. Here is observed the starkest inter-relationship between income structures and housing and schooling opportunities and the inadequate distribution of schooling and educational opportunities despite the high profile of social demand for 'education in the country as a whole. It is a sharp illustration of "subsistence urbanism".

The Dynamics of Urban Spatial Segregation Nairobi

Urban spatial segregation into distinct land uses is a feature of urban centres in Kenya. However, human settlement problems in the city of Nairobi can be traced from as early as the 1920's when almost all Africans lived in unregulated settlements emanating from the colonial apartheid policies (NACHU, 1990).

One of the most striking aspects of social polarization and urban spatial segregation in housing is the degree to which it has persisted for almost a century. Unlike many other social problems that have been partially remedied by improved economic conditions and various forms of intervention, residential segregation has shown itself to be persistent. For instance, currently an estimated 55 percent of the total population of Nairobi lives in the spatially segregated informal settlements that occupies only 5 percent of Nairobi's residential area. One such settlement is Kibera whose high density of about 2000 people per hectare, makes it one of the most densely populated informal settlements in Sub-Saharan Africa.

The forces that have contributed to urban spatial segregation in Nairobi are many and varied. Some are legal and economic whereas others are cultural. During the colonial period, the people of Kenya witnessed a large-scale government sanctioned spatial segregation based on race and reinforced by planning laws as well as exclusionary zoning regulations. The segregation/division along racial lines divided the city into four distinct sectors; North and East defined as the Asian Sector (Parklands, Pangani and Eastleigh); East and South East defined the African Sector (Pumwani, Kariokor, Donholm); South East to South marked another small Asian enclave before it was bounded by the Game Park (Nairobi South, Nairobi West). Finally, the line North and West marked the European area.

Since the physical development of Nairobi was based on the British model of the garden city plan, the colonial government had a policy of controlling the African urban population which had mainly been driven by the desire to keep African wages low; to segregate the African living quarters from the European residential areas, and finally, the desire to ensure that a reasonable standard of public health among the African population was realised in order to prevent the spread of infectious diseases (Stren, 1978). This was

realised through the stratification of human settlements along both racial groups and ethnicity basis as well as income status. The effect of the "ethnic tripartition" of the city resulted in the Europeans overwhelmingly inhabiting the north-western and western areas of high rent and land values, the Asians predominating in the north-eastern parts while the Africans were condemned to living in the densely populated area to the east and south of the city (Salau, 1988). Moreover, the colonial government discouraged the provision of the large-scale public housing in order to curtail the excessive influx of the Africans into the city. Indeed, todate, there still exists some level of racial compartmentalisation.

During the first decade of independence in Kenya, further residential segregation was carried along both racial communities and socio-economic considerations as well as ethnic disparities. The bulk of African population remained in the former African locations – Eastlands in the NCC housing. According to 1962 census, 73 percent of the African population lived in the Eastlands area, 83 percent of all Asians in Nairobi lived in the former Asian residential areas, and 82 percent of the Europeans lived in the former European settlement areas. A similar pattern existed until 1979 with the development of some racial mixing. The question remains as to whether the residential segregation that does exist derives mainly from racial factors or whether what has the appearance of the racial segregation is actually economic segregation based on income status.

Conversely, Kingoriah (1980) observed that land ownership and choice of residential areas in Nairobi by individuals were based largely upon the economic ability to acquire land and housing. The lowest income group, who after independence were in large numbers immigrating into the city from the countryside became squatters. Europeans remained in the high-income brackets and most of them live in the former European residential areas. They were joined in upper Nairobi by African population of high-income group, mainly the better-educated and more successful businessmen. The middle income Africans joined the Asian and lived in Parklands, Eastleigh and Nairobi South. The low-income groups were confined to the sprawling Eastlands and the informal settlements. Virtually no European or Asian lived in the Eastlands area. Thus the residential areas got differentiated mainly in terms of income status.

The origins of squatting and informal settlements in Nairobi, according to Kobia (1991), can be traced back to 1902 when European settlers arrived in Kenya and hustled for large tracts of land in Kiambu, Kikuyu, Limuru, Mbagathi, Ruiru, around Nairobi, and beyond. He makes clear that squatting and informal settlements are thus neither a natural and inconsequential ephiphenomenon of modernization, nor the inevitable outcome of indigenous peasants leaving a rural agrarian subsistence sector in which their marginal productivity was zero and migrating to Nairobi in expectation of economic and social betterment. Rather, they are the consequence of the colonial capitalist development imposed by the British who alienated the local people from their control over land in order to provide surplus labour for the settlers farms and emerging urban centres. Working as farm labourers or domestic servants, they received meagre incomes that could not suffice basic needs such as food, clothing and adequate housing. Informal settlements consequently developed on the outskirts of Nairobi and around high income residential areas, thereby enabling the inhabitants to work as agricultural labourers or domestic servants, while others were employed in industrial and commercial concerns.

In the first two decades of the last century, almost all the natives in Nairobi lived in informal settlements (Ngau, 1995). The earliest settlements included Mji wa Mombasa, Maskini, Kaburini, Kileleshwa, and Pangani. Most of these, however, were subsequently demolished, and the indigenous landlords and tenants compelled to live in demarcated "native locations". In 1923, Pumwani, which in point of fact was the first site-and-service scheme in Kenya, was declared open as the official "African Location". Most of the initial inhabitants came from the aforementioned existing older settlements. It was envisaged that migrants from the rural areas to Nairobi would also be accommodated in Pumwani for a long time to come (Majale, 1985).

Informal settlements thereafter continued to develop in Nairobi, although demolitions restricted their number while the colonial authorities remained in power. However, following independence in 1963 and the concomitant lifting of restriction on the movement of the indigenous population to urban areas, the growth of informal settlements accelerated as migrants thronged to Nairobi in search of employment. The number of dwellings in informal settlements thus rose from an estimated 500 in 1952 to 22,000 in 1972, and multiplied to 111,000 in 1979 (Ngau, 1995).

Most of the informal settlements that exist in Nairobi today were established after Independence. From 1963 until the late 1970s the policy was to eradicate informal settlements. This hostile attitude was, however, superseded by a conciliatory and accommodating position. There was tacit acceptance of informal settlements, with the authorities adopting a *laissez faire* approach whereby they generally did not demolish any settlements, but also made no effort to institute improvement programmes. Informal settlements consequently expanded and proliferated unchecked.

Current status of informal settlements in Nairobi

Informal settlements have mushroomed and distended in the city of Nairobi at an accelerated rate in recent years. Currently, over 60 percent of the total population, i.e., upwards of one million people, live in informal settlements. However, together with low-income housing estates, informal settlements occupy just over 5 percent of the land designated for residential purposes in the city (Agevi, 1999; NISCC, 1996). This means that more than half of the population of Nairobi is crowed into an inconsiderable portion of the city's total residential land area.

The city of Nairobi is divided into seven administrative divisions, each under a District Officer. The NCC and NCCK carried out the first study in 1971 that identified the number of informal structures. Other surveys were carried out by NACHU in 1990 and Matrix in 1993. A survey by Ngau (1995) identified a total of 133 informal settlements, distributed over the seven divisions, with an estimated 77,600 structures. Table 2 shows the spatial distribution of the informal settlements by division in terms of number of structures, total number of rooms, occupancy rates and estimated total population. The divisions with the highest concentrations of informal settlements and thus with the most inhabitants are Langata (where Kibera is located), Kasarani (where Mathare is located) and Dagoretti. The results of the survey are, however, conflicting when compared to the 1999 Population and Housing Census.

The number and size of informal settlements has continued to grow, despite the poor living conditions, numerous demolitions, fires and natural disasters. Paradoxically, demolitions have invariably led to the creation of new settlements and have only further accelerated the expansion of existing settlements. The development of new informal

settlements evinces a high level of social organization, strong social networks and bonds of solidarity, and an outstanding degree and intensity of interpersonal relations.

The development of informal settlements in most localities is linked, either directly or indirectly, to employment opportunities. Informal settlements have mostly been established by persons employed in industries, construction sites, quarries, or large coffee farms in the vicinity, or in the homes of well off individuals in affluent neighbourhoods. Indeed, the greater number of residents of informal settlements who are employed walk to and from their place of work.

Table 2: Informal Settlements in Nairobi (1995)

Division	Number of Villages	Number of Structures	Approx. No. of Rooms	Av. No. of Persons per Room	Total Population
Makadara	7	5,013	11,496	6	68,976
Pumwani	11	3,136	10,418	5	52,090
Embakasi	14	3,865	14,865	3	44,595
Kasarani	43	26,530	97,715	4	390,860
Parklands	7	2,190	9,310	4	37,240
Dagoretti	34	15,240	97,320	4	389,280
Langata	17	21,615	180,625	5	903,125
Total	**134**	**77,589**	**421,749**		**1,886,116**

Source: Ngau (1995)

The continued expansion and proliferation of informal settlements in Nairobi is imputable to the rapid rate of growth of the city's population, the poverty of the inhabitants, a deficient national housing policy framework, and the insubstantial, inefficient and corrupt systems of urban governance. Rural transformation, increased population pressures on resources, poverty and income variability have prompted massive migrations into urban areas. The result has been a continuos influx of new migrants, motivated primarily by rational economic considerations, into Nairobi who need to be housed. Urban development policy has favoured formal housing, but the system for supplying formal

urban housing has been unable to produce at the necessary scale and rate, or at price levels affordable to most new households. The inadequate provision of land, a disposition towards over-regulation, and an institutional framework that is, at best, indifferent to the needs of the urban poor are additional reasons for the continued existence and expansion of informal settlements.

The continued existence of urban spatial segregation has posed more questions than answers to scholars regarding the mechanism that has managed to sustain it in a modern metropolis like the city of Nairobi in Kenya. This is, particularly, so considering the complex interactions between land and housing market as well as the legal, economic and cultural forces at play. The operations of the land markets, land use and land policy have played a significant role in creating and reinforcing segregation. The eviction of squatters, that is, low-income groups from the high and middle-income residential areas has widely been used to sustain spatial segregation. While government evictions and legal frameworks are explicit mechanisms for creating urban spatial segregation, more subtle methods/mechanisms also have been employed to create and enforce spatial segregation. By setting land use standards that the poor cannot meet, the government virtually force them toward the informal and peripheral areas. Currently, however, voluntary segregation is becoming a new force with the proliferation of informal settlements. This is motivated by both supply and demand factors as well as ethnic and cultural considerations. As a result, social conflicting interest are growing, and some new social groups are emerging with ever increasing socio-spatial disparity. A close examination of the informal settlements reveals concentration of members of particular ethnic groups in given settlement areas. This is an indication of the significant role being played by social and cultural factors. The implementation of the economic reforms and open-door policy after independence in 1963 created an enormous floating population to migrate to urban areas from rural areas. The increased social polarization and spatial segregation in Nairobi is a consequence of the urban reform processes.

The social polarization phenomenon and dynamics of Nairobi reveal the existence of a widening gap between the rich and the poor within a social entity. The appearance of such social polarization has been encouraged by the operations of the land markets and land policy which has resulted into distinct residential zones. The low-income group on

specific locations, and the high-income group on the other have created two new ends of the social ladder. The low-income social group comprises largely of unskilled people who are mainly engaged in informal economic activities. Similarly, the high-income social group consists of the elitist business people and professionals who by virtue of their positions in either the government or private sector have managed to purchase residential units in highly secluded localities.

Kenya did not evolve as part of an internally driven process of the expansion. Thus diversification and distribution of production as well as the urbanisation process under the dictate of poverty has exaggerated spatial inbalances.

The consequences and implications of sustaining urban spatial segregation in Nairobi

Spatial segregation is a serious policy issue because of the complex interactions between land and housing markets on the one hand, and their connection to distribution and quality of local services on the other hand. The combination of residential segregation by either income or ethnic groups has resulted in systematic and uneven spatial distribution of public services including schools, access to transportation, health care, and water and sanitation. Literature and general observation of land utilization in the various distinct zones reveal population density patterns, which are reflected in the availability of schools and in the differential opportunities of access to education. For instance, the city of Nairobi's 162 primary schools (1989 total) are spread throughout the city's 693 square kilometres but clearly not mapped out in equitable way (Lillis, 1992:68). There are obvious shortages in the CBD and Industrial areas despite the popular practice of working parents driving their children to school in these areas. Equally, in areas of high population density in specific residential areas, there are many shortages. Thus there are particular patterns of educational advantage and disadvantage as well as differential enrolment and achievement rates in the various residential areas.

The older established NCC housing estates in Eastlands are indeed better provided with schools than in the squatter and slum settlements for they were planned as part of integrated developments with schools, dispensaries, community halls (Jericho and Ofafa Jericho have St. Patricks Primary Schools; Makadara has St. Michael's and Jogoo Road; Mbotela has Cannon Apollo and St. Paul's; Makongeni has Makongeni Primary School to

which the NCC has recently added Joseph Apuro School; whilst some new estates such as Kayole with five schools and Umoja with six schools are well provided. Many other new estates have been developed without schools by profiteering businessmen. Unable to enforce the by-law that seeks developers to build schools within new estates, the NCC is seeking an alternative formula of levies/taxes/rates to distribute the costs of schooling onto local residents. Meanwhile, estates like BuruBuru continue to be under provided and parents continue to seek places outside their immediate locality. Indeed, though given the rapidly shifting and often transitional nature of the population, it is exceedingly difficult to plan for educational provision. Many of the youth of these areas are consequently out of school as the classic manifestation of the push-out, left-out and dropout syndrome.

The Eastlands Area, Mathare Valley and Kibera have witnessed both uncontrolled expansion of 'housing' and the evolution of low in-come residential zones and estates. It cannot be overstressed that it is within these areas that urban poverty and deprivation is at its starkest. Here there are densities of population of over 2,000 people per square hectare (Lillis, 1992) often 40 to 60% higher than the city average and living in unplanned settlements. 66% of this population live in rental accommodation, often spending 40% of their disposable income on rents alone. The substantial research in these areas report low nutritional levels and expensive food and cooking fuel including charcoal. Changes of cooking habits affect the protein intake of the children, which itself affects learning motivation. The slums and squatter areas reveal the highest levels of disease, the lowest levels of immunization and the highest levels of infant mortality. Here the women retain high levels of fertility (an average of 8+ per woman in squatter settlements – in contrast with decreasing average levels in Kenya). There are poor levels of family planning and high incidences of teenage pregnancy. Typically, there are also inadequate health care facilities (both primary health care and hospitals), but this typifies the city of Nairobi as a whole (Lillis, 1992:69). Not surprisingly, educational enrolments are lowest in such areas. Up to 60% of children in squatter areas do not attend pre-school; nursery schools are available in middle and high income areas but are expensive and, even where the NCC operates nursery schools, for example, Mathare Valley, they are beyond the affordability (or comprehension) of most squatter families.

Spatial segregation of poor people often occurs within informal settlements. Most informal settlements, particularly those on public land, have extremely high densities

resulting in high congestion levels. Typically, there are 250 units per hectare in such settlements as compared to 25 and 15 units per hectare in middle income areas and high income areas, respectively (GOK, 1997). This has exposed residents, particularly women and children, to severe environmental health risks which critically affect their ability to play a full economic role in the life of the city.

The provision of potable water is a serious issue within the informal settlements. Water is only provided to a few standpipes if it is provided at all. There are four main problems in the provision of water supply to informal settlements. These include:

- The provision of water by the NCC is generally insufficient to meet the demand in many areas.
- The kiosks from which most residents of informal settlements purchase water are inadequate in number. This scarcity of water tap points is causing a lot of inconvenience to the inhabitants of informal settlements.
- The pipes, which supply water to the kiosks, are in very poor state of repair and maintenance allowing the water to become polluted through seepage.
- There is very high cost of the water. The observation carried out within the informal settlements revealed that water bought by the debe costs very much more per litre than the official metered rate charged to those who receive it piped to the house.

All informal settlements face a host of environmental health and sanitation problems. The poor sanitary conditions relate to solid and liquid waste management. In most of the informal settlements, the solid wastes and refuse are placed in the open spaces existing in the areas (Olima, 1998:12). Even in the cases where dumping sites are provided, the NCC has been unable to clear the dumping sites on a regular basis. The disposal of liquid waste in informal settlements is mainly through pit latrines and other on-site methods which are shared by a number of families and are the source of considerable pollution. Many overflow into open drains and pollute ground water sources (GOK, 1997).

Informality is as a result of the normal functioning of land and housing markets. Illegal, irregular, informal or clandestine activities to access and occupy urban land are the way

that market provides housing for poor people, thus increasing growth of social inequalities.

However, informal settlements in Nairobi are by no means homogenous. Not only are they highly differentiated physically, there is also considerable heterogeneity within the socio-economic profiles of the inhabitants. Settlements vary considerably in their physical layout and density of housing units (Majale, 2000), ranging from neighbourhoods with methodical planning and a moderate concentration of dwellings, to areas with an arbitrary layout and extremely high densities. Similarly, residents range from illiterate and chronically unemployed or under employed individuals to professionals. The efficient operation and functioning of informal settlements is partly ascribable to this heterogeneity which allows individuals and groups to play all roles; leaders and followers; financiers and borrowers; and buyers and sellers.

In sum, informal settlements in Nairobi manifest marked disparities in density of both population and physical structures, size (built-up area), availability of basic urban services, materials and methods used in the construction of housing structures and their permanence, as well as tenure. The differences are traceable to various factors, including the history and evolution of settlements, location, ethnic composition and original ownership of land.

Possible policy directions and responses

Spatial segregation is both a reflection of the existing social structure and a mechanism to enforce that structure. It therefore raises the question of how and when segregation should be addressed. In the eyes of the international community, Nairobi exhibits a glaring discrepancy in its human settlement with both the poor and the rich housed in same neighbourhoods. Somehow, the shanties tend to thrive in the fringes, if not confines, of exclusive and upmarket residential neighbourhoods. It seems that every time a middle class or high income residential estate is being put up, an informal settlement is on the way. An aerial view of the city of Nairobi reveals the mismatch in human settlement – a phenomenon that borders on the bizarre. Be it government owned, Nairobi city council built or private residential estate, virtually all the upmarket and middle class houses share boundaries with the slums. For instance, the sprawling Kibera slum, believed to be the

largest informal settlement in the East African region borders Langata, Otiende, Ngummo, Golfcourse and Southlands estates. Kangemi slums border the posh Westlands estate and the rich neighbourhood of Mountain View estate. Mukuru slums border River Bank and South B estates whereas Kawangware and Dagoretti slums border Lavington estate with Mathare Valley slums next to Muthaiga estate.

The government, local authority and other stakeholders have treated the two groups selectively in terms of services provision. The diverse residents thus receive preferential treatment due to their economic status.

The Way Forward

The debate over the rationale of housing the poor and the rich in the same neighbourhood is inevitable. This is, particularly, so because the pace and volume with which the slums are mushrooming and more significantly, encroaching into the formal settlements, is alarming. The government, local authority, neighbourhood associations, urban physical planners and developers have to confront the issue. Since overnight overhauls of the urban spatial segregation phenomenon is from the resources (technical, financial and equipment) point of view neither feasible nor socially admissible, the challenge is therefore to find both a compromise and proper balance between the state and private actors in the management and planning of urban land. The motive should be a paradigm shift in order to create a facilitating environment where the two sectors can synergically and harmoniously operate. The pressure on land, the economy of scale, the consumption habits and provision of infrastructural services have to be considered when dealing with the issue of urban spatial segregation.

The policy instruments and tools to tackle the issue of urban spatial segregation must be multi-dimensional. These include:

- Massive provision of serviced land at affordable prices and appropriate locations.
- Regularization or upgrading of informal settlements.
- Formalisation of the informal.
- Deregulation or informalisation of the formal arrangements.

Currently, there is a new perception of informal or self-regulated land management in the international planning literature and by governments. It is based on the proposition that the deficits of the formal system can be partially overcome by a stepwise integration of the actor, institutions and procedures which are being deployed in informal or self-regulated local decision making for housing land supply, security of tenure rights, lay-out regulation and land servicing. It has to be realised that while maintaining its statutory monopoly in urban planning and land allocation the state is increasingly loosing its influence on urban land management and growth control. The formal and informal sectors of land management are found to be co-existing, interlinked and even complementary. The most efficient allocation and utilisation of urban space can be ensured through urban land management.

In Conclusion

Informal settlements in Kenya, on the authority of various writers, are essentially a product of the colonial era. Kayongo-Male (1998) asserts that there is a connection between colonial racial segregation and informal settlement development. Obudho and Aduwo (1989) contend that informal settlements are the result of a broader colonial and post-colonial economic structure that instituted the formal and informal rural and urban spatial structures. Ngau (1995) similarly holds that informal settlements have their beginnings in the contradictions of both colonial and post-colonial labour and housing policies and economic relations. Lamba (1994) maintains that informal settlements in Nairobi are the legacy of a history of neglect and maldevelopment.

In conclusion, there is evidence that sustaining urban spatial segregation in Nairobi has got negative externalities, particularly, in terms of the variations in the provision of environmental, infrastructural and community services. Both the formal and informal settlements have got diverse implications to the urban economy. The informal/unplanned settlements not only provide a place in which to live, they offer income-generating opportunities and an entry point to the urban economy. However, there are surmountable obstacles and difficulties in attempting to eradicate urban spatial segregation. What needs to be done is the integration of various sectors into the urban planning programme and development control mechanisms. The spatial segregation should be seen as a response to the social and economic needs of the community at a particular point in time. The

response to spatial segregation should be based on an understanding of local needs and factors such as age, gender, socio-cultural and economic activities.

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