

A Tale of Two African Cities: Hyper Growth, Sprawl and Compact City Development Towards the Development of a Sustainable Future City

Ambrose A. Adebayo, University of KwaZulu Natal, Durban, South Africa

1. Introduction

This paper focuses on a critical comparative analysis of efforts to create sustainable urban present and future cities in the face of hyper-urban growth and compact city policy intervention based on Nairobi and Durban, both cities in Sub-Saharan countries of Kenya and South Africa respectively. Sub-Saharan Africa is one of the regions in the world experiencing hyper-premature urbanisation trends and the affiliated policy challenges and problems. The UN-HABITAT (2006) notes that the urban growth rate in Sub-Saharan Africa is almost 5 percent twice as high as in Latin America and Asia. Associated with this trend the UN-HABITAT also highlights, it has the world's largest proportion of urban population living in slums. Therefore, focusing on Nairobi, Kenya and Durban, South Africa presents an opportunity for analysing urban policy intervention for sustainable future cities for a region facing various urban challenges in terms of different policies and socio-cultural practices.

In as much as Nairobi and Durban face more or less similar socio-economic urban development challenges, they are characterised by different policy responses and environmental challenges. Nairobi faces challenges of air pollution, waste collection and disposal, water pollution, noise pollution and development of slums/informal settlements (UN-HABITAT, 2006 and 2007; Chege, 2010; Mutisya and Yarime, 2011; and Mitullah, 2003). Furthermore, the city of Nairobi is haunted by the colonial legacy of socio-economic and spatial segregation along racial lines which has from the end of colonialism in 1963 mutated to spatial segregation along class lines. According to Nabutola (2010) by 1948 Nairobi was planned in ways that segregated its population strictly along racial lines, a trend which in present day has since been superseded by economic status segregation evident in spatial differentiation. On the other hand, the city of Durban which is under jurisdiction of EThekweni Metropolitan Municipality faces more or similar urban development challenges as it is still haunted by the legacy of apartheid planning which spatially and socio-economically fragmented and marginalised communities along racial lines. During the height of apartheid which came to an end in South Africa in 1994 the city of Durban was composed of three types of areas namely urban African townships with limited socio-economic opportunities where 75% of Africans lived and core and sub-urban areas well supported with socio-economic opportunities where Indians or White racial groups exclusively lived (Schensul, 2008). However, since the dawn of democracy in South Africa in 1994, regardless of positive policy intentions of the Reconstruction and Development Programmes (RDP) and Breaking New Ground (BNG) housing policy to reverse this negative spatial imprint the majority of the population of the city of Durban, Black African racial group is still living in areas with limited socio-economic opportunity such as peripheral former apartheid townships and informal settlements due to dysfunctional and inefficient urban land markets among other reasons.

However, there are key differentiating physical and climatic characteristics between Nairobi and Durban. Nairobi is an equatorial city which lies at the altitude of 1, 670 metres, latitude 36 degrees 50' east and longitude 1 degree 17' south about 140 kilometres south of the equator (Olima, 2001: 2). Durban on the other hand is a sub-tropical coastal city on the Indian Ocean east coast, within the province of KwaZulu Natal and is a major port city within the province of South Africa.

In terms of urban development policy, Nairobi has since the dawn of Kenyan independence

in 1963 been characterised by disjointed and fragmented policy approach to urban challenges and problems. According to Nabutola (2012) urban development in Kenya has largely been taking place without a comprehensive national urban development framework which led to problems of segregated conceptions of urban development, economic growth and urban rural development. In the case of Nairobi specifically, the UN-HABITAT (2006) noted that the latest master plan for Nairobi was developed in 1973 and although the Physical Planning Act of 1996 shoulders planning responsibility on local authorities, economic and physical planning is not integrated with land use and land taxation as the city lacks a clear vision to guide its development. It is only recently that the city developed vision 2020/2030. On the other hand, although the city of Durban has been characterised by socio-economic spatial segregation during the apartheid era as city planning was by and large under two racial local authorities namely Black and White, since the end of apartheid in 1994 focus has been on Integrated Development Planning (IDP) as a way of promoting sustainable city development. Therefore, a critical comparative analysis of Nairobi and Durban presents an opportunity to learn from similar urban development challenges and different policy environments and responses. The paper conceptualises concepts of urbanisation, urban growth, sprawl and compact city intervention before presenting a comparative chronological analysis of urban growth and policy intervention for sustainable urban futures in Nairobi and Durban.

2. Urbanisation, Urban Growth and Sustainable Cities

The primary basis for aggregating population globally is the rural urban divide. The importance in the distinction between rural and urban settlements lies in rapid rates of growth of urban population, rising share of urban population in total population, growth of large metropolises and urban primacy, problems of providing minimal urban infrastructure, issues in rural-urban labour transfer and employment and the linkages between urbanization and regional development issues (Jones and Visaria, 1997: 2).

Definitions of urban and rural areas are based on demographic, economic and sociological criteria (Tacoli, 2003). Rural settlements are attributed to a low population density, loose networks of infrastructure and services, tight networks of personal contacts and a strong identity with home localities, below average manufacturing and office-based employment; and a landscape dominated by farmland and forestry (Clout, 1984: 7; *cited* in Hoggart, 1988). On the other hand urban settlements are characterized by spatially intensive industries and occupations (Cater, 1990). Instead of being spread widely and thinly across the surface of the habitable earth, a population that is urban is one in which vast numbers of people are clustered together in very small areas (Clark, 1998). This relatively high dense area in some instances face many problems in terms of infrastructural services provision and also unhygienic environments.

Cheng (2003) argues that there is need to understand urban development in terms of physical expansion and functional changes. Physical expansion of urban development entails the increase in the size of the built up areas whilst functional aspects focus on activities associated with urban areas such as commercial and manufacturing. Urbanisation and urban growth is central in that cities are the centres of economic activity and growth whilst on the other hand they pose an array of environmental challenges (Jenks et al, 1996). As such focus has been on the role of cities in promoting sustainable development. With such large proportion of the world population, the concentration of environmental problems, and consumption of resources, cities clearly appear to be the most important location for action to help the goals of sustainable development (Jenks et al, 1996: 4).

The concept of sustainable development emerged in the eighteenth and nineteenth century Europe when foresters realised that they needed to plant enough trees to ensure that the

wood fibre lost to harvesting was replaced (Davoudi and Layard, 2001). Since then sustainable development has attracted a lot of popular support worldwide (Barton *et al*, 1995). Stupar (2008) points to milestone summits, declarations, promises and agreements about sustainable development - from the 'United Nations Conference on the Human Environment' (Stockholm, 1972), the Bruntland Commission (1987), the Rio summit (1992), Rio + 5 (New York, 1997) to Rio + 10 (Johannesburg, 2002) and Kyoto (1997, 2005). She argues that these are still far from in-depth implementation, trying to bridge the gap between political statements and terrestrial reality. However, their significance lies in the symbolical message transmitted all around the world, although its original meaning is altered- according to local conditions and (un) predictable political and financial winds (*ibid*). Therefore, as Stupar (2008) notes, sustainability remains a trendy term incorporated into the blurred local/global strategies while, ironically, the ambiguity of the globalisation process still represents the only truly sustainable category.

One of the main results of the 1992 Earth Summit was Agenda 21, a comprehensive programme of action throughout the world to achieve a more sustainable pattern of development (Phillips, 2003). Agenda 21 dedicates a complete chapter (Chapter 7) to the need to develop Sustainable Human Settlements (SHS) (Phillips, 2003). Agenda 21 points out that type and patterns of human settlements determine the amount of resources that are required for the livelihood and well-being of their residents (*ibid*). This clearly shows that the investigation of hyper growth, sprawl and compact city development for promoting sustainable future cities is imperative for improving the livelihoods of the people of Durban and Nairobi and also other developing world cities at large. Phillips (2003) notes that two main components of SHS highlighted are adequate shelter for all – as a human right and sustainable human settlement development described as economically buoyant, socially vibrant and environmentally sound.

In both the developed and the developing world there has been focus on the role of urban form in the creation of sustainable human settlements. Although challenges facing cities in the developed and developing countries are somewhat different there is unanimity in that city morphology and spatial structure plays a central role in promoting their sustainability. According to Jenks *et al* (1996) as much as cities in the developed countries are mature, relatively affluent and facing problems of population stagnation and decline, their excessive consumption of energy pose a huge environmental threat. On the other hand in the developing countries cities face challenges related to rapid urbanisation and growth such as peripheral location of squatter settlements and local income housing. The outermost ring of cities in the developing countries is comprised of squatter settlements housing mostly recent migrants to the city. The African city consists concentric zones of residences of decreasing quality from the CBD outwards housing the middle class. On the outskirts of the city there are also informal settlements housing new migrants to the city. However it should be noted that the footprint of spatial segregation by race left by colonisation is also eminent in African cities. They were clearly marked by racial and occupational divisions with the Europeans occupying sub-urban neighborhoods close to the CBD in contrast to Africans who were located in peripheral segregated neighbourhoods (Kaplan *et al*, 2004). The trend still exists today as city form is still characterised by urban sprawl and fragmentation.

It is in this context that compact city form has been punted as the main way of promoting sustainable human settlements in both the developed and the developing world. The concept is to an extent premised on urban containment, to provide a concentration of socially sustained mixed uses that will concentrate development and reduce the need to travel, thus reducing vehicle emissions (Jenks *et al*, 1996: 5). As such the compact city concept is premised on environmental sustainability (reducing the carbon footprint) and socio-economic sustainability (providing of social and economic facilities in close proximity).

3. Evolution of Urban Growth in Nairobi and Durban: A Comparative Analysis of Policies to Promote Sustainable Urban Future

The history of urban growth in Nairobi and Durban is by and large similar as both cities' history is shaped by colonial settler administrative and economic activity. Nairobi city was found towards the end of the 19th century as an administrative point for British colonial settlers who were building a railway line to link Uganda and Mombasa on the Indian Ocean coast of Kenya for purposes of natural resource extraction (Anyamba, 2005). 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 African protectorate (Stuma, 1992: 1627; cited in Olima, 2001). Olima, highlights that, by 1900 Nairobi had assumed the function of Kenya's capital city though this was officially conferred in 1907.

On the other hand, the City of Durban in South Africa is the first European settlement in KwaZulu Natal province that was established in 1824 by British settlers who were attracted by trading opportunities with the interior (Kuper et al, 1958: 51). Urban growth in the city of Durban was stimulated by the British settlers who after their occupation established a fort north of the settlement in 1842 which eventually developed into a 1, 200 yard square of ordinance land, squared to a grid iron street pattern at the market square (Davies, 1963: 23). According to Davies (*ibid*), with the opening of the Point railway in 1860 and the Umgeni railway in 1867 on the Southern and western sides of the square the area subsequently developed a central railway station, marshalling yards and an industrial area in the process blocking the future expansion of the central grid to the north-east.

In both cities the physical character of urban growth was influenced by colonial settler racial attitudes of socio-economic fragmentation and segregation along racial lines. During the colonial period of Kenya which spans loosely from 1900 to until the dawn democracy in 1963 Nairobi developed on the basis of racial segregation. From its earliest times, emerging spatial patterns in Nairobi developed on the basis of segregation between the Central Business District (CBD) and European, Asian and African residential areas (Mitullah, 2003: 2). By 1900 Nairobi had already become a large and flourishing place with the settlement consisting mainly of railway buildings and separate areas for Europeans and the later being mainly of labourers employed on the construction of the railway line (Olima, 2001: 2). According to Mitullah (2003: 3) Africans who formed a major part of population by 1963 lived in the eastern parts, while Europeans and Asians lived in the western suburbs with better services. At this juncture it is also important to note that informal settlements in Nairobi can be traced to the early colonial period as the alienation of Africans from their land and their concomitant migration to the city where they received meagre earnings from capitalist enterprises forced them to live in informal settlements at the urban periphery and around also around wealth residential neighbourhoods where they worked as domestic labourers (Olima, 2001). Nevertheless constant demolitions and restrictions on African rural-urban migration kept them at their minimum (*ibid*). Figure 1 below adopted from Mitullah (2003) shows the radial extension of Nairobi between 1900 and 1963.

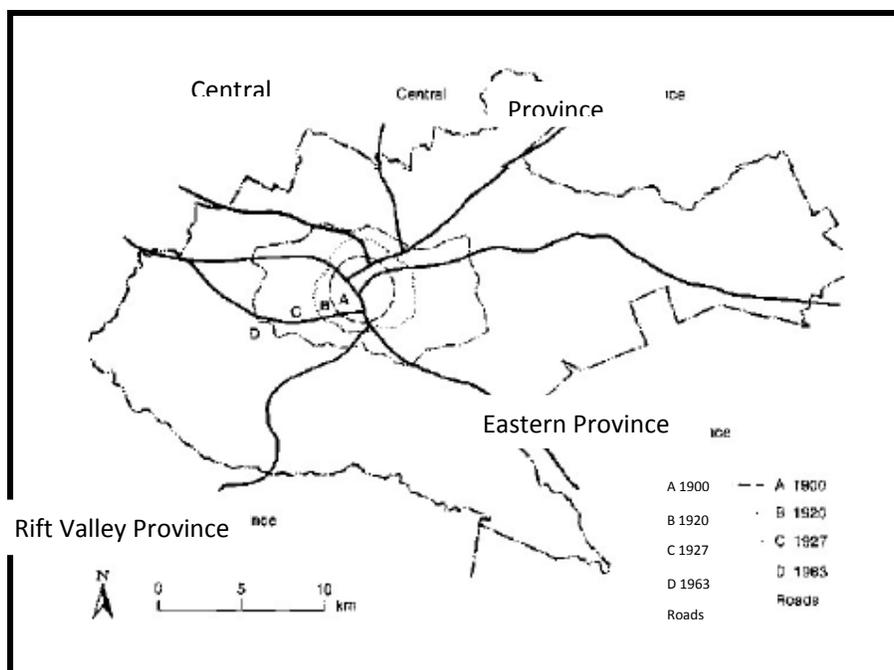


Figure 1: Nairobi boundary changes 1906 to 1963
 Source: Obudho, R.A and G.O. Aduwo (1992:53; cited in Mitullah, 2003)

From Figure 1 above Mitullah notes that by 1909 much of the internal structure especially the road network was developed and in 1927 the boundary of Nairobi was extended to cover 30 square miles (77 km²) as a result of the rapid growth of the centre both in terms of population and in terms of infrastructure. In 1963 the boundary of Nairobi was extended to cover an area approximately 266 square miles (686 km²) and from there on the boundaries have never been changed. This also corroborated in Table 1 below showing the population of Nairobi between 1906 and 1999 and the area in hectares.

YEAR	AREA (hectares)	POPULATION	% INCREASE IN POPULATION	DENSITY (persons per hectare)
1906	1,813	11,512	159.4	6.3
1928	2,537	29,864	60.0	11.8
1931	2,537	47,919	3.5	18.9
1936	2,537	49,600	119.6	19.6
1944	2,537	108,900	9.3	42.9
1948	8,315	118,976	188.1	14.3
1963	68,945	342,764	48.6	5.0
1969	68,945	509,286	48.6	7.4
1979	68,945	827,755	62.5	12.0
1989	68,945	1,324,570	60.0	19.2
1999	68,945	2,143,254	60.8	31.1
2010	68,945	3,750,000	75.0	54.4
2020	68,945	5,592,000	49.1	81.1

Table 1: Population of Nairobi Between 1906 and 1999
 Source: Situma (1992 cited in Dianga, 2011)

During the colonial era in South Africa which spans loosely from around 1652 when the first colonial settlers arrived up to 1948 when apartheid was introduced urban growth as in Kenya reflected colonial segregationist policies. Urban growth and urbanization trends during this period were influenced by administrative boundaries created in order to restrict the movement and distribution of Black population in the Union of South Africa as a way of protecting white labour interests. According to Dewar (2000), during the apartheid era racial groups other than white were systematically removed beyond the edges of settlements, in the worst cases to distances of over 60km away and since there is a direct correlation between race and income, the poorest people have been located furthest from agglomerations or urban opportunities. Apartheid spatial policies also saw spontaneous settlements grow on the metro-fringes and homelands and in cities townships were characterized by overcrowded houses and shack populations in the back yards and on open spaces in and around formal townships (*ibid*). On the other hand areas designated for whites were adequately serviced and characterized by low densities (McCarthy, 1991). Kuper *et al* (1958: 23) note that as a result of the Group Areas Act Durban was planned for total residential segregation, or complete avoidance of contact, as neighbors, between people of different race based on a Technical Sub-Committee of the City Council which was appointed on the 20th of November 1950 which proposed a pattern of development based on the segregated residential ribs or spokes, extending, in the shape of a fan from the industrial and central business district. Since, the population of Durban was partially mixed by the end of the beginning of 1950, implementation of these plans entailed movement of population. According to Davies and McCarthy (1984: 34) in the city of Durban for example almost half of the population was forced to relocate in order to accommodate the provisions of the Group Areas Act.

After the fall of colonialism in Kenya and South Africa, both Nairobi and Durban experienced tremendous rates of urban growth. According to Nabutola (2012: 2) when Kenya got independent from Britain in 1963, 8% of its population lived in urban areas as the Vagrancy Act and the Pass Laws restricted the migration of the bulk mainly rural African population from flocking to the cities. Currently 34% of the population live in cities and by 2030 58% of the population is projected to live in urban areas (Nabutola, 2012). Regardless of this tremendous rate of urbanisation since the birth of the Kenyan independence, there has not been any comprehensive policy to manage urbanisation and urban growth. Previously the policies that governed urban development the Local Government Act CAP265 (now repealed) and the Physical Planning Act of 1996 were inept in managing urban growth as they failed to integrate economic growth, development and urban and rural dynamics of urban growth (Nabutola, 2012). As such there was a process of drafting a National Urban Development Policy (NUDP) as a way of promoting integrated sustainable urban development.

In the case of Nairobi, the UN-HABITAT (2006) noted that the latest master plan for the city was developed in 1973 and had since been out-paced by the impact of urban growth. Thus the city lacked a common vision in terms of economic development and land use taxation (*ibid*). It is in this context of post-colonial Nairobi that class has replaced colonial racial attitudes in residential and spatial segregation of the city. According to Olima (2001; see also Anyumba, 2005) after the Kenyan independence in Nairobi, the white racial group mostly high income remained in their exclusive former colonial neighbourhoods where they were joined by a few high income educated and business black African people. The Asian racial group remained in their colonial middle income exclusive neighbourhoods where they were joined by middle income blacks. The low income population group, mostly Black Africans were confined mostly in informal settlements. According to the UN-HABITAT (2006) Nairobi informal settlements cover only 5% of the total residential land area of the city but they are inhabited by at least half of the city's population. There have been cases of both planned formal developments and spontaneous developments privately developed informal

settlements (Olima, 2001). In some cases these are low rise dense informal settlements as in the case of Kibera (Figure: 2) densities where densities are as high as 2000 people per hectare which makes it the most densely populated informal settlement in Sub-Saharan Africa (*ibid*).



Figure 2: Kibera low rise dense informal settlement
Source: UN-HABITAT (2006)

A typical informal high rise dense settlement is Zimmerman neighbourhood which is located on the urban periphery of Nairobi. It is characterised by congestion and a lack of adequate supporting infrastructure support mechanisms and a lack of good quality environment (Figure 3). This neighbourhood also has characteristics of crowded slums both in function and quality of the built environment.



Figure 3: Zimmerman high rise dense informal rental neighbourhood in Nairobi Kenya

In Nairobi, there are also inner city formal neighbourhood areas where formal low rise single family houses have been converted to high-rise apartments (Figures 4 and 5). This is evidence of low rise land use conversion to high rise dense mixed use developments that are not accompanied by infrastructure services such as sewer, water and energy. Due to this densification and population growth, traffic congestion in Nairobi has become untenable (Figure 6). Given this problem Nairobi has embarked on new infrastructure development focusing on the construction of new roads and bridges.



Figure 4 Low rise inner city high rise development



Figure 5: Converted low rise city neighbourhood to neighbourhood



Figure 6: Congestion as a result of urban growth and densification in Nairobi

In the South African context and the city of Durban in particular the negative effects of the apartheid segregationist built city form was increasingly felt with the dawn of democracy in 1994 as the previous oppressed Africans migrated to urban areas in huge numbers. South African cities were faced with serious socio-economic and environmental problems as the cities could not cope with the new socio-economic and environmental realities posed by rapid urbanisation. The Republic of South Africa Urban Development Strategy (1996) notes that with rapid urbanization into South African cities during the late apartheid era the built-in spatial and functional inefficiencies increased the costs of building, operating, and maintaining the apartheid city's infrastructural systems and providing services to its residents. These challenges were occurring in context where the built environment was also supposed to respond to the increasing diversity and heterogeneity of the post-colonial South African city. Furthermore, in the context of globalization where sustainable development is the most popular hymn and a clearly visible challenge as manifested by climate change around the globe cities in South Africa also had to respond to this challenge spatially. This meant that the South African government in the context of global concerns about sustainable development and climate change faced the challenge of providing mass housing which responded to the local social, environmental and economic context.

In the light of the aforementioned problems in South African cities, the post-1994 South African government adopted drastic legislative and policy measures with the aim of creating a built form that promotes socio-economic and environmental integrity through the creation of mixed-use compact urban developments. This is unlike in Kenya where since the dawn of democracy in 1990 there has been piecemeal and uncoordinated urban development policies. Eminent pieces legislation and policies include the Development Facilitation Act (DFA), Housing Act of 1997, the Breaking New Ground Housing Policy (BNG) of 1997, National Environmental Act (NEMA) of 1998 and the amendment of the Income Tax Act No.

58 of 1962 in 2003 and the Urban Renewal Tax incentive of 2004. The aim of the Development Facilitation Act (DFA) is to facilitate and quicken the implementation and reconstruction development programmes in the face of spatial imbalances and rapid urbanization in post-colonial South Africa. The objective of the BNG is the creation of versatile built forms that do not only cater for present human needs, but also respond to anticipated future changes in socio-economic conditions. NEMA seeks to promote social, economic and environmental rights of previously disadvantaged communities. It strives to achieve this through the prevention of pollution and ecological degradation, promotion of conservation and ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The amendment of the Income Tax Act No. 58 of 1962 in 2003 paved the way for tax breaks and tax incentives of for the redevelopment of the degenerated inner city areas in South African cities. Furthermore, from 2000 the Municipal Systems Act compelled all developments in South African municipalities to be guided by Integrated Development Plans which are a local version of Agenda 21 whose aim is the creation of sustainable human settlements.

The objectives of these legislations in the city of Durban have been translated into the narrative of compact city development which is physically given effect by the Municipality's Spatial Development Framework (SDF) which is a tool in the IDP meant to spatially guide all developments in the Municipality in line with the municipality's objectives. The SDF of Ethekewini Municipality's IDP is shown on Figure 7. One notes that the main structuring elements of the Municipality's SDF are urban edge; environmental assets; and investment networks made up of investment corridors and investment nodes.

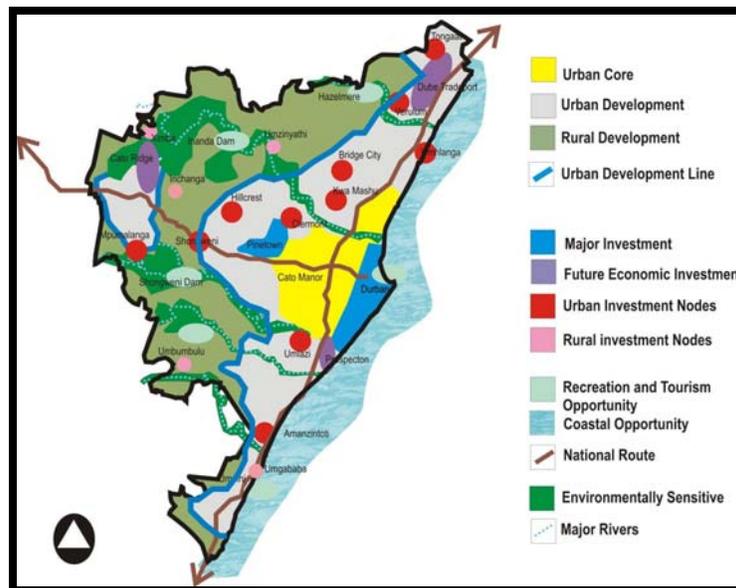


Figure 7: Spatial Development Concept of Ethekewini Municipality
 Source: Ethekewini Municipality Integrated Development Plan (2012)

The main urban growth patterns that have taken place in the city of Durban in line with the Municipality of ETHEKEWINI's IDPs include inner city neighbourhood revitalisation programmes (Point Water Front), new low Income incremental housing projects as per national housing policy (Cato Manor and Cato Crest informal Settlements) and uMhlanga suburban middle to high income mixed use node.

Cato Manor is located within the western urban core area of Durban where Black Africans the original occupants of the area were forcibly moved during the 1950s when the Group

Areas Act was implemented consequently designating the area for whites. With the dawn of a new era in South African politics in 1994, the reconstruction of and redevelopment of Cato Manor focused on the provision of incremental housing (Figure 8) in the area for mostly low income Black Africans. Cato Crest is a low-rise informal settlement located next Cato Manor incremental housing projects despite constant upgrading attempts (Figure 9).



Figure 8: Incremental Housing in Cato Manor



Figure 9: Informal settlements within the urban core area of Cato Manor

The growth of Durban is not restricted to informal settlements only, but in the formal strategic inner city area such the Point Waterfront. The objective of the redevelopment of the Durban Point Waterfront was encouraging the development of mixed, vibrant residential neighbourhoods with supporting social, medical and retail amenities (Figure 10). The Point area is one of the city of Durban's oldest settlements, with significant historical value in the development of Durban as the first European settlers to settle permanently in Durban in the 19th century erected their first township in the Point area in 1837.



Figure 10: Point Waterfront complete and incomplete Inner City Revitalisation Built Environment

The uMhlanga area is located in ward 35 of Ethekewini Municipality north of the Durban city centre. The uMhlanga area was developed by Moreland, a private property development company with the objective of building a multi-dimensional sustainable human community

within a harmonious and balanced built environment comprising of mixed-use retail, offices, residential and the Marriott Hotel as the international group's first foray into Africa (Deighton, 2010). Below (Figure 11) are the developments in city of Durban given effect by the compact city legislations and intentions.



Figure 11: uMhlanga suburban middle-high income residential environment

4. Conclusion

In the above discussion and analysis of urban growth in the cities of Durban and Nairobi it is very clear that there has been hyper-physical growth which is accompanied by many physical challenges and opportunities. The growth of the city of Nairobi has been without future forward planning for services and as such existing infrastructure has been overburdened by the hyper growth of the city in both formal and informal directions. If urban growth is to be sustainable, it must be accompanied by adequate infrastructure support services and development control that is effective. In the process of urbanisation and urban growth both cities were able to promote their unique assets through strengthening their competitive positions as capital and port-cities (Nairobi and Durban respectively). Policy interventions meant to guide development present mixed results in terms of success and failure. The concept of compact city development must be properly guided if it is to promote future sustainable cities. Often it is the poor communities faced with many developmental challenges that exacerbate the problem of unsustainable urban form.

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