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Housing (re)production dynamics and the emerging urban fabric in prime inner-city areas: Case of Kariakoo business hub

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Abstract - *This paper covers two major thematic issues: housing (re)production and urban morphology resulting from the former. On the one hand, it explores how housing units are (re)produced and factors that drive them. On the other hand, an analysis of the spatial effects of housing production is made. In this regard, spot densities were examined to assess how density is manifested at plot and street levels. Findings have shown that about 94% of housing units (re)produced in Kariakoo were through demolition of single or two to three storey buildings and replacing them with multi-storey buildings. Only 6% of the housing units produced were a result of extending and renovating buildings progressively. Whereas high demand, particularly for commercial spaces, attracted more investments; the existence of Kariakoo redevelopment plan did not motivate majority of developers to engage in housing production. Also, housing space (re)production had a bearing on the morphology and function of the buildings. While morphological conversions were associated with changes of building form from single storey to multi-storeys; functional conversions were related to change of use of buildings, i.e. from residential to commercial or mixed. Also, spatial conversions comprised change streetscape characters in terms of facade reconfiguration and on-going activities tend to deform voids and solids constituting the street.*

The paper concludes that the desire to maximize revenue from housing units is the main attractor to house developers and hence violation of planning and building standards. This requires routine development control and zero tolerance on urban professionals to rescue the situation.

Key Words: Housing *(re)production, urban fabric, prime inner-city areas, Kariakoo*

1. INTRODUCTION

Housing as a concept ought to embrace not only buildings as shelters but also the allied services such as roads, water supply, spaces between buildings and the overall neighbourhood environment. Housing becomes most functional and valuable if certain considerations are taken into account. These include what kind of housing to be planned, where it should be planned (location), when does it need to be planned (time), who should plan (actors) it and how it should be planned (process). [1] argues that constructions of new housing are heavily influenced by factors such as the current and projected housing demand or need. As such, the increase of housing units is affected by allocation of land for housing and the availability of infrastructure services in the location. Thence, the factors that affect (re)production of housing are those that are driving the type, size and density of new housing that is being supplied to the market.

Such factors also involve all factors of production directly involved in the construction and maintenance of housing as well as the provision of management, marketing, finance and insurance services [2]. A clear list of the main housing supply factors to include land tenure, location, price, availability of financial resources, services already available or to be provided and the mode of transport [2,3,4]. Others include construction cost and options in building techniques and the use of labour [2]. Market structure and conduct, including the growth of larger and more dominant firms, and innovation skills which include the constraints to investment in innovation skills are additional factors [4]. Furthermore, [5] and [6] postulate the importance of location in making housing choices in the Netherlands and reveal that location is a variable that can be deconstructed in functional, esthetical and social attributes. They conclude by opining that in many instances people have fairly strong location preferences in municipalities than in small urban centres. In acknowledging the importance of location and accessibility of housing units in housing supply, [7] claim that it is obvious for developers to make sure that housing, its spaces and appliances are accessible to the users. The idea which the author emphasizes is the relationship between housing location, services available and mobility. Together with [2], they further stress that houses built in good and accessible locations have higher values than those located in inaccessible and unpleasant locations. Such areas include those with high levels of crime as well as in improper and inefficient social services. In this aspect, location

and accessibility are certainly important because house developers would like to provide quality housing which would fetch the best market price with respect to customers' housing choice criteria. Consistent with this argument, [8] study on market rent formation in the UK confirm that location and accessibility are key determinants of rental value.

Access to land, land tenure issues and housing financing mechanisms form a strong pillar of housing (re)production [3; 4]. As long as real estate development requires huge investment capital, they also need to acquire land as well as finance for housing construction. With regard to land, [2] stresses that land is very essential for housing development while access to land is guided by the type of land markets that exist. Differences in land price basically reflect variations in terms of land use and accessibility in the CBD and other centres of work opportunities (ibid). For example, by comparing land price, services available and location one finds that well-located, serviced and amenity-rich land commands the highest price [2]. In conformity with Grimes's position on access to land, [3]and [4] assert that the land acquisition and/or change of land use is a process involving actors and procedures applied in specific local areas which ought be followed by land seekers. In cases where plots have been subdivided and in surveyed areas with small plot sizes not able to accommodate the upcoming housing projects, [2] and [5] suggest additional land for development purposes. This implies that in built-up areas, in which most cases plot sizes are small, two or more plots may be acquired and merged if the project to be carried out is huge. For the developers, this is important in order to adhere to the planning standards and development regulations. The importance of the local planning policy enables housing growth by making land available and ensuring sustainable development [5].

House developers make housing units available through different ways. [9] argues that housing supply comes from two processes: constructing new dwellings or converting the existing dwellings. From these processes there are net additions to the existing stock through conversion with/out change of use and new housing stock from new developments. The main actors in housing production are developers (private, public or private-public) and the government. Developers' decisions as to whether a development project is desirable and profitable depend on the market conditions e.g. the supply and demand situations of properties and capital. Thus, they are very sensitive to the market and active in producing or reproducing the built environment.

When supply is fuelled by market forces particularly high demand, there are always changes in densities and land use. For example, housing production through physical destruction of the former structures and replacing them with new ones with new structures and forms, addition of floors on the existing buildings or insertion of additional new multi-storey buildings on the plot; lead to high densities and land uses. This is usually a result of violating building laws, regulations and standards. Except alteration which does not increase the total net floor area [10; 11], extension increases the net floor area as well as the net residential density. Moreover, when the layouts of the original units are changed and positioned very close to plot boundaries and/or to adjacent dwellings. As a result, view and adequate circulation are blocked while individual privacy is infringed.

Emanating from the foregoing discussion, this study aims at finding out how developers secure housing land in built-up inner-city areas and in which ways they make housing units available to the market. Also, with the assumption that inner-city areas are prime areas in the urban continuum, housing production disregards planning and building space standards for the sake of maximizing housing space to be produced in order to increase revenue through outright sale of the units or renting. As a result, the emerging urban configuration deviates from the plan vision and objectives.

2. THE STUDY CONTEXT

Kariakoo is one of the inner-city wards of Ilala Municipality as Figure 1shows. At a regional scale, it is located in Ilala Municipality - one of the five Municipalities of Dar es Salaam Region. The other four are Kinondoni, Temeke, Ubungo and Kigamboni. The last two were formed from Kinondoni and Temeke Municipalities respectively in 2016. Ilala Municipality borders itself with the Indian Ocean to the East, the Coastal Region to the West, Kinondoni Municipality to the North while Temeke Municipality borders it to the South. Administratively, the Municipality is divided into 3 divisions, 22 wards (Kariakoo inclusive), 65 sub-wards, 9 villages, and 37 hamlets. In 2002 Kariakoo had a population of 9,405 [12]. This population had increased to 13,780 and an average household number of 4.3 in 2012 [13] contained in an area of about 196 hectares of land. To the North, Kariakoo is bordered by Morogoro road, Nyerere road to the South while Bibi Titi Street borders the settlement to the East [14]. To the West, it is bordered by Shaurimoyo Street and Msimazi valley.

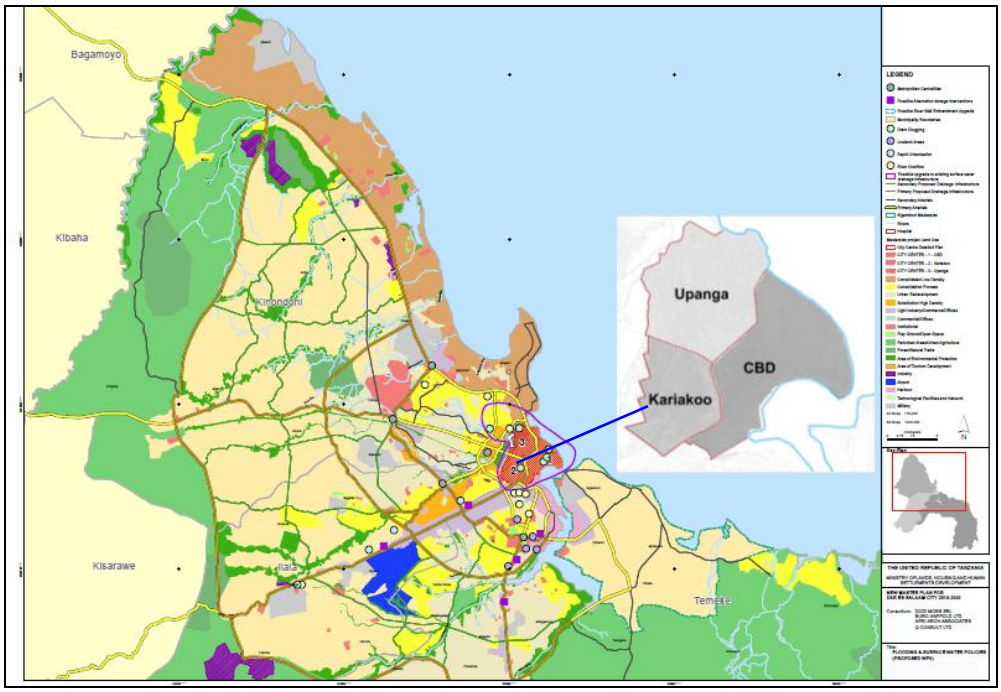


Figure 1: Location and connectivity of Kariakoo settlement
Source: [26]

Due to its central location, the settlement is well connected to and accessible from many parts of the city and the country in general. At one end, Nyerere arterial road connects Kariakoo to other settlements in the city such as Buguruni, Yombo, Ukonga, Gongo la Mboto and other urban centres. Bibi Titi road connects the area with Upanga settlement as well as centres located along Ally Hassan Mwinyi road (Morocco, Kijitonyama, Mikocheni, Mwenge, Mbezi beach, Kawe and Tegeta) as well as Bagamoyo town to the north in Coast region. On the other hand, Morogoro road connects the settlement to the city centre, Magomeni, Manzase, Ubungo, Kimara, Mbezi Luis and Kibamba sub-centres as well as Kibaha Township in Coast region while Kilwa road acts as a connecting link between the settlement and Mtongani and Mbagala sub-centres. Beyond these sub-centres, Kariakoo is also connected with Mkuranga Township in Coast region. Uhuru road moves traffic from sub-centres such as Ilala and Buguruni to and from Kariakoo.

[15] puts it clear that from its history, Kariakoo, the former African area which was commonly known as Uswahilini has been undergoing changes in its built form (see Figure 2). According to him, the former African area had undergone radical transformations which may generally be described as demolitions and replacements of the old built form with new contemporary forms and architectural style.

Figure 2: Redevelopment in the former native area
Source: [15]

3. METHODOLOGY

Using a combined/mixed methods research design - qualitative and quantitative sequential exploratory design, qualitative and quantitative methods and instruments were deployed to collect data [16; 17; 18]. The adoption of a mixed methods design was geared by the fact that the study intended to find out whetherhousing production in the area is associated with the urban-scape which is apparent today i.e. the relationship between the use of plot space during building construction and the emerging street-scape. Therefore, a total of 24 interviews with public and private house developers who owned/constructed buildings in Kariakoo area were conducted. Out of these, four interviews with public or semi-public real estate developers namely National Housing Corporation (NHC), Parastatal Social Pension Fund (PSPF), National Social Security Fund (NSSF) and National Investment Centre (NIC) were incorporated.

Also, four interviews with public urban professionals and three with private urban professionals were also done. Moreover, three interviews with local banks particularly the National Bank of Commerce (NBC), Access Bank and Cooperative Rural Development Bank (CRDB) were made to obtain the amount of cash banks can offer as mortgage finance, including conditions for borrowing and paying back.

Also, quantitative spatial data on the use of plot for building construction and the general land use were drawn from archives (government reports/documents) and physical surveys. Physical surveys were useful in capturing practices in the course of building construction. Depending on proposed zones, their corresponding development conditions, nature and extent of housing redevelopment in the settlement, 17 observations were made in respective plots [19]. Observation points included completed and on-going building construction projects and an investigation on spatial elements was done, photos were taken and where necessary sketches were drawn [see also 20, 21; 22; 23; 24; 25].

4. RESULTS AND DISCUSSION

4.1 Dynamics of housing production and supply

In Kariakoo, houses are produced and supplied through various ways. The major ones include demolition of old single storey traditional or two to three storey houses and reconstructing multi-storey buildings; vertical extension of uncompleted multi-storey buildings; and renovation. Others are horizontal transformation i.e. extension/alteration and addition of small rooms or building structures besides the main buildings. Results from registered building projects over the period of eight years (2006 - 2014) showed that 94.23% of all houses in Kariakoo were produced and supplied through demolition and replacement. The proportions of the rest are as presented in Figure 3.

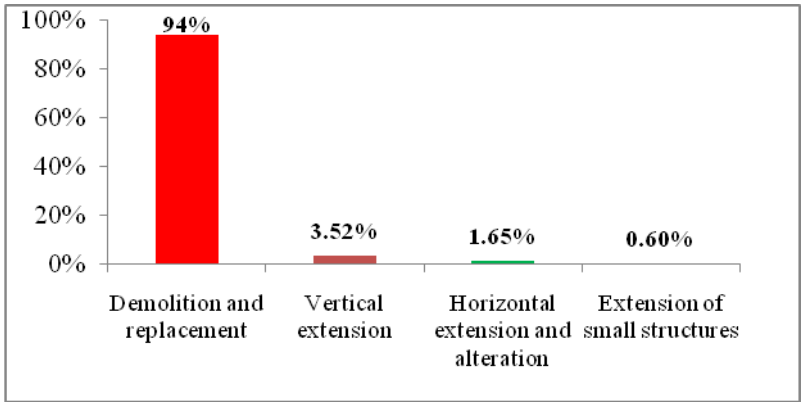


Figure 3: Housing production sytems in Kariakoo
Source: Field data, 2014

4.1.1 Demolition and redevelopment

Field results showed that 94% of houses supplied are produced through demolition and reconstruction. In this case, old single storey houses and 2-3 storey buildings are being pulled down and replaced with modern high-rise buildings. [15] finds that in 1975 the stock of Swahili houses in Kariakoo was 95% and it had declined to 75% of the total building stock in 2003. By 2008, the number had decreased to 40% at a block level. As per interview results from urban professionals, the Swahili housing stock had dropped to around 20% to 25% of the total housing stock at a settlement level and almost 5% at a block level by 2015 (cf. Figure 4). From the figure, a single detached building amidst high-rise buildings signifies that the entire area has almost transformed in terms of land use and density.

Figure 4: Demolition of old Swahili

Source: Fieldwork, 2014

Currently, more Swahili houses have been demolished as compared to 2-3 storey buildings. The houses were built on small plots (high density measuring 250 or 300m^2). These [Swahili] houses were characterized by one main building facing the road/street with between six and eight rooms separated by a corridor. In the frontage, there is often a veranda (*baraza*) which is used for resting, getting fresh air and for formal/informal conversations by men. Men could sit in the veranda and speak with neighbours living in adjacent buildings. One of the rooms, just after the front veranda, was normally used as a sitting room. In the courtyard/backyard (*ua*); a kitchen, toilet and bathroom were provided while the remaining space was used for outdoor activities. It was also an area for formal and informal conversations and cooking by women. The demotion and reconstruction has resulted into an increased building height and mixed-uses. As such, 95% of the emerging multi-storey buildings had a minimum of five and a maximum of 14 storeys and each building accommodated commercial-residential uses. The rest 5%, which comprise one to four storeys, accommodated a mixture of residential, institutional (offices) and commercial (hotels and other business activities). With the exception of very few buildings used for hotel and office purposes; the ground floor and occasionally first floor spaces are used for commercial purposes usually shops while upper floors normally comprise residential apartments.

4.1.2 Vertical extension

Vertical extension of buildings through an incremental approach was observed in Kariakoo whereby 3.52% of all housing units are produced through this modality. In this case, construction of buildings which started some years ago, ranging from five to ten years, could not be completed because of financial constraints. Only part of the structure was built i.e. one or two floors. Often, ground floors, mostly used as commercial shops (*maduka*) are completed and rented for income generation through renting. Later on, with the use of income generated, owners continue with finishing or adding one or two upper floors. Figure 5 shows two buildings along Kirk Street all built over five years ago and were not completed because of financial limitations and owners were able to resume construction activities as their income improved.

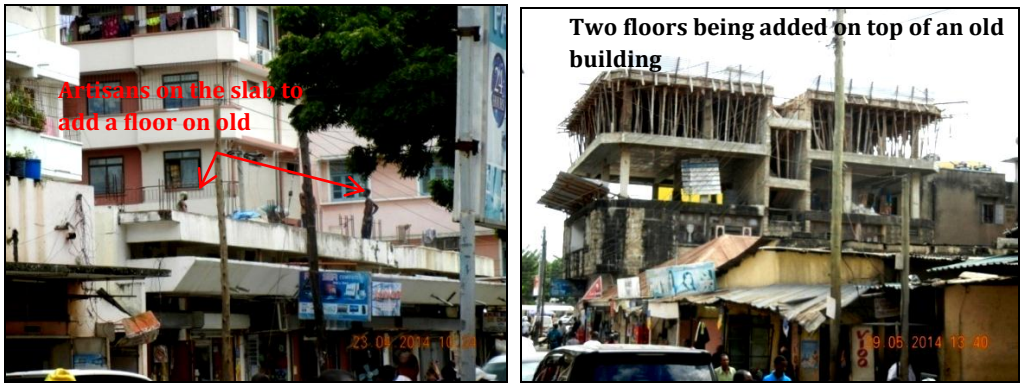


Figure 5: Vertical extension along Sikukuu and Kirk Streets

Source: Fieldwork, 2014

In other cases, only the ground floors were completed and occupied while the first and second floors were semi-completed. Figure 6 presents an example of the extension along Mafia/Livingstone Street. Vertical reinforcement bars were left protruding beyond the upper floors signifying that the buildings will undergo further vertical extension in the future.

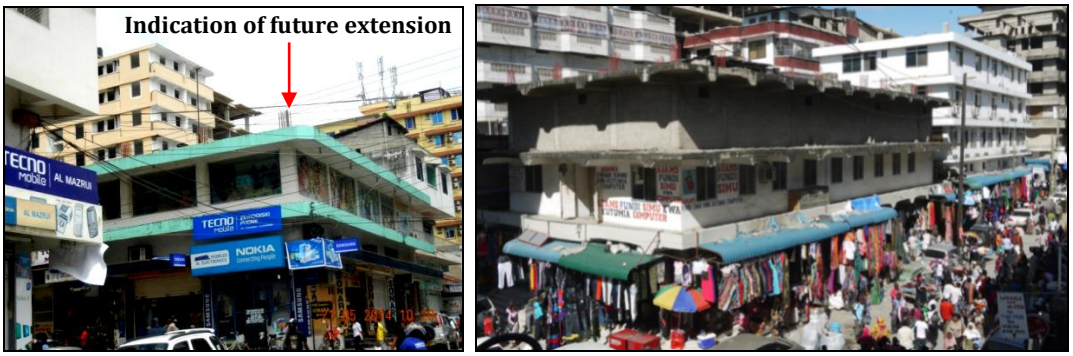


Figure 6: Reserved buildings for vertical extension along Mafia/Livingstone and Mchikichini Streets
Source: Fieldwork, 2014

Response from individual developers who extended their buildings vertically indicated the desire to improve earning to support their families as well as help them add more floors, as highlighted in the quotation below, were the main drivers:

> *"With rent collected from three shops on the ground floor I can sustain my family. […]. I accumulate the balance and after one or two years I can add one floor."*[1]

Besides revenues from completed and leased out spaces, mortgage finance from local banks also helped few to add more floors or renovate their buildings. Other closely related house supply means in Kariakoo included conversion of residential buildings into institutional (office) use by renovating.

4.1.3 Horizontal extension and alteration

Horizontal extension and alteration in Kariakoo began in the 1990s when housing demand boom was apparent in the area as a result of the increase of private sector role in the economy following the adoption of neo-liberal economic policies. Most extensions are done by creating new spaces for shops, informal garages, food vending outlets on the facades or extra residential rental rooms in the backyard. As a result, net floor areas of buildings as well as housing density have increased remarkably i.e. from six to eight rooms (of Swahili type) per 250m^2 to between 10 and 12 rooms per 250m^2 (see Figure 7). The motives for carrying out such conversions are mainly socio-economic reasons. Social reasons include a wish of house owners to become landlords/ladies while the economic reason is their desire to earn income (reap benefits) from the plot so as to improve household's income. In other words, most of horizontal extensions are livelihood strategies to overcome household economic hardships particularly for house owners who are still living in their houses.

Alteration also involved introduction of new uses or changing uses of some rooms. As such, main entrances of buildings were closed and new openings (doors) were opened on the side walls to create new residential rental units. Often, front windows are changed into doors and used as shops. In some cases, front spaces initially used as verandas formed by short walls, hollow iron pipes or wooden poles are converted into commercial spaces (cf. Figure 7). [15] observes similar trends along Livingstone and Mchikichini Streets. He records that in some cases, a whole house was converted and taken up by commercial activities: front rooms converted into shops and rooms at the back used for storage purposes. This study observed also that the choice of this housing production option over vertical extension is based on inability to mobilize resources for vertical development and/or reluctance to sell houses because of land/house price speculations.

[1] Interview with individual/corporate private developers, Kariakoo area, April 2014

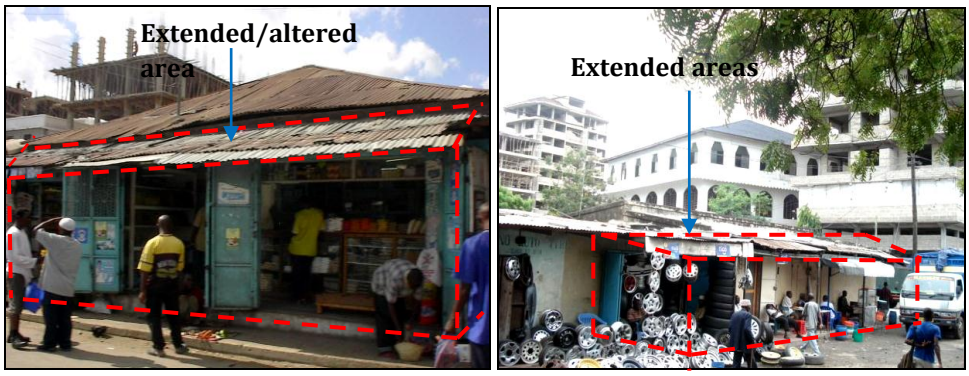


Figure 7: Extended/altered front verandas into business spaces

Source: [15] and Author, 2014

Unlike vertical extensions which are mostly carried out by buyers of original houses as discussed in the previous section, most horizontal or alterations are mainly carried out by individual home-owners. However, the desire to extend or alter buildings is a primarily a livelihood strategy driven by high demands for housing spaces.

4.1.4 Extension of small structures

This is the form of housing extension which often takes place besides reconstructed high-rise buildings but at a much smaller scale since small structures produced through this system constituted only 0.60%. Space supplied through this often involves blocking side setbacks between buildings; and constructing small structures within that space on the facades using soft woods or iron sheets. Figure 8 shows two options or manifestations of encroachment. While Figure 8a shows that one developer has encroached half of the space left over between buildings to establish a vending stall, figure 8b shows a new developer having constructed the building up to the end of the boundary line; and the adjacent developer has used the space left towards the boundary to establish a store.

8a **8b**

Figure 8: Extension of small structures along Uhuru Street

Source: Author, 2014

From figure 8b it can be seen that the encroachment is worse because the new developer has exceeded the plot line by extending the balconies adjacent to next building. Because of their poor quality and limited space, the spaces are mainly used as vending spaces or stalls by low and medium income businessmen such as technicians, water vendors, mobile phone agents and vendors selling recharge vouchers, pre-paid electricity vouchers commonly known as LUKU[2] and cash facilitate electronic transfer using M-Pesa, Tigo-Pesa and Airtel Money chains (cf. Figure 8). Other spaces are used as

[2]An arrangement of paying electricity bills through ATM and mobile money services

stores, spare parts shops and hair salons. The group of businessmen using such spaces cannot afford renting bigger spaces because of high rents charged. In such cases there is no sharing because the spaces are generally too small (less than 7m^2).

4.2 Factors driving the production and supply of housing

The main factors which attract housing production and supply in Kariakoo can be grouped in three major categories. The first category relates to market forces while the second and third are associated with locational aspects and most importantly changes in government policies.

4.2.1 Market forces

High demand for commercial spaces

In this category, the primary driver was found to be high demand for commercial housing than for residential uses. All 20 developers interviewed mentioned this as the key catalyst for housing production and supply in Kariakoo. A medium-scale house developer attracted to construct a building in Kariakoo had these to say:

> *"Kariakoo is a business hub in Dar es Salaam next to CBD. This also means that there is a higher demand for commercial housing spaces than other uses. For a house or real estate developer, this must be the primary driving factor for producing or supplying housing units in the market. This is because the supply is always dependent on the potential ability of the product to generate more profit over other products, and the type and quantity of a certain product demanded..."*[3]

Developers provided further indicators for the high demand for commercial spaces in the area whereby business and trade play major roles. One of the main indicators is a pile-up of applications for commercial spaces just when building construction sign boards are mounted on the site. The other indicator is the wish to rent, occupy and use commercial spaces while buildings are still under construction. Responses from developers showed also that residential apartments are fully occupied within four and six months after buildings are completed. Moreover, local banks are providing more mortgage finance for commercial and commercial-residential than residential buildings because the former are more likely to pay back better.[4]

4.2.2 Vibrant returns

All 20 developers and urban professionals said that monthly rents in Kariakoo especially from renting out commercial spaces are higher than leasing out residential apartments. This attracts developers to invest in the area. During interviews with house developers in the area, one developer of an Asian foreign origin indicated:

> *"...Any house developer knows that rents for commercial spaces are higher than residential spaces in Kariakoo because of the nature of the area. It is a business centre in Tanzania and it has also been a catchment area in East and part of Central Africa. Personally, I was motivated to construct a building in this area because of this (high returns)."*[5]

Moreover, developers asserted and emphasized that rents for commercial spaces in Kariakoo were not quite different from those offered in the CBD. The same response was aired out by financial institutions as the author asked them the criteria for offering housing finance to willing house developers. Representatives (loan officers) of three banks justified that:

> *"...Kariakoo is one of the areas in the City with high returns just after the CBD particularly for commercial and commercial-residential buildings. In this case, commercial spaces in Kariakoo almost pay as twice as much than residential apartments. [...]. Thus, we have no problem in providing housing loans to developers intending to construct commercial or commercial-residential buildings. The problem is on residential buildings and the issue is*

[3] Interview with a medium-scale private house developer, Kariakoo area, April 2014
[4] Interview with NBC Senior Loans Officer, Kariakoo area, May 5, 2014
[5] Interview with a private house developer of foreign origin, Kariakoo area, April 2014

how will the developer payback the loan; since residential buildings have low returns. We therefore need a proof about other sources for paying back the loan..."[6]

4.2.3 Location and other motivations

Next to high demand for commercial and residential spaces and attractive rents charged, eleven out of twenty respondents noted that prime locations, short distance from the city centre, availability of stable services such as water supply, electricity, banks, hospitals, food markets (Kariakoo and Ilala) and other facilities available in the settlement were important factors that attracted them to invest in the area.

4.2.4 Changes of government policies/plans

Since colonial era, Kariakoo had its first grid iron pattern and the land use was primarily for single to two storey buildings [27]. Single storey buildings were for residential use while two storey buildings were for residential and administrative purposes. Just after independence, there have been many changes in terms housing structures due to increased economic and social activities particularly commercial and service trade. Later on after independence, transformation included rebuilt and replacement of the old buildings with 3-4 or more storey buildings [28]. By the late 1990s, the area had had more or less fully lost its image with regard to the previous plan i.e. the Dar es Salaam master plan of 1978.

Furthermore, it was noted that due to its prime location in the city realm, land value in the area was high. The government therefore decided to change the plan of Kariakoo so that the plan could match with the on-going developments. Therefore a redevelopment plan prepared in 2002 whose aim was to transform the existing dilapidated buildings into a modern, thriving and attractive area was a result of what had been observed in terms of changes of land use, building structures and densities. The plan aimed to cater for the increasing demands for business, commercial, residential and cultural activities [14].

During interviews and consultations with different respondents, the existence of the Kariakoo area redevelopment plan was the issue least pointed by the respondents as a reason for the extensive housing reconstruction in the area. 14 out of 20 developers interviewed said that they were not aware of the existing plan as a tool to guide development in the area. Upon further probing on whether and how they are informed about the development conditions in the area, it was apparent that they were informed when they applied for the planning consent from the Department of Lands and Environmental Conservation of Ilala Municipality. My observation and argument on this aspect is there are little or lack of public awareness about the Kariakoo Redevelopment Plan. Often, such planning documents are only available in central and local governments (Ministry, City Council and Municipalities), but not in the local areas.

4.3 The emerging urban fabric

4.3.1 Functional [use] conversions of buildings

Kariakoo neighbourhood as it is understood from the colonial period had its first grid iron (chess-board) layout prepared by the Germany colonial administration. The area was a designated native Africans' residence with provisions to build traditional low-rise single family detached residential buildings. Later on, few other uses such as commercial, institutional and service trade were introduced, but within one to two storey buildings. Since 1950s, new structures emerged ranging from three to four storey buildings [14]. During the post-colonial period i.e. the Ujamaa period and introduction of Ujamaa policy (1960s-early 1980s), where the economy was strictly under the control of the state and land being state-owned and with low value, the focus in land development was directed on public related projects and activities. The private sector in the economics and social development was very limited. Despite economic restrictions on private sector as well as hostile development conditions under the ujamaa policy, Kariakoo continued to undergo land use and housing type changes due to the increasing demand for rental spaces including housing. As such, the idea to prepare the first Kariakoo redevelopment plan in 1969, which followed the 1968 Dar es Salaam master plan, was put in place to accommodate the new land uses as well as meet increased housing demands. Thence, the 1969 redevelopment plan designated Kariakoo neighbourhood a residential area in character but with few recommendations on other uses. These include provision for development of a high-density commercial and residential core around Kariakoo market and extending to Lumumba Street on the East. In this area, maximum plot ratio of 2.5 and building height of up to five storeys were endorsed.

[6] Interview with NBC Senior Loans Officer, Kariakoo area, May 5, 2014

Moreover, a new land use (for public interests) along Lumumba Street facing Mnazi Mmoja Grounds for government, public institutions and other quasi-government projects was introduced. Till 1978, 69.9% of Kariakoo neighbourhood comprised planned residential land use.

By 1978, the reality had out-passed the plans and a decision to prepare a new master plan (in 1978) was sought as a solution which, in turn, gave birth to the second Kariakoo redevelopment plan in 1979. This was conceived as a part of the master plan. The master plan recommended new land uses and building standards in diverse areas of the neighbourhood. For example, Western areas of Msimbazi and areas South of Uhuru Street were designated low-rise single storey residential buildings with a plot ratio of 0.5. Morogoro road, Lumumba, Mkunguni and Msimbazi Streets (named as a super block) were zoned for medium density residential buildings with three storeys and 1.0 plot ratio. However, during this time, building height around Kariakoo market increased from five to eight storeys while plot ratio decreased from 2.5 to 1.5. Most importantly, the plan encouraged retail commercial activities within residential buildings. These developments remarkably changed not only the skyscape but also the overall urban-scape of the area. One can also say that these developments together constituted recipe for the intensification of the redevelopment activities that followed in the subsequent years.

Intense land use and building height changes continued to increase during the 1980s; principally because of the liberal market economic policies which encouraged private investments [15]. These policies promoted and encouraged, among other things, private business and [real estate] investments. As such, investments in building activities in Kariakoo like in other areas of the city intensified. As a result of these policies together with an increased demand for land and housing in Kariakoo area, the Ministry of Lands, Housing and Human Settlements Development (MLHHSD) through Government Notice (GN) No. 374 declared the CBD and Kariakoo areas redevelopment areas; subsequently Kariakoo Redevelopment Plan of 2002 was prepared. During the preparation of the plan in 1999, 22.8% of Kariakoo area was under commercial-residential use followed by 12% for institutions; 10% of the land was for residential and 4.2% for commercial use.

The 2002 Kariakoo Redevelopment Plan provided for 22.6% of total land for commercial use than 18.5% for commercial-residential and 0.4% for pure residential use. In terms of building height, buildings were limited to seven storeys, except in zone D whose heights were proposed to exceed this limit. What is obvious from the land use distribution over time is the constrained space for public space use with respect to the current and future population. For instance, land reserved for parking requirement in 1999 was 0.1% of all land uses while open/recreational and cemetery areas accounted for 5% and 0.2% respectively. However, the recommendations of the 2002/2012 redevelopment plan were 0.3% for parking, 6.3% for recreational, and there was no land for burial purposes. Up to date, only Mnazi Mmoja Grounds which are reserved for government functions have been designated and up kept. Lack of public recreational open spaces and facilities remains an unsolved problem in the area. In fact, due to increased resident population in the area, problems associated with lack of recreational open spaces have intensified over years and are likely to worsen if the status quo continues.

The above discussion on the past land use patterns are not very different from what the Draft Dar es Salaam Master Plan (2012-2032) has revealed. The plan notes that until 2012, Kariakoo was a mixed land use area where commercial-residential use was dominant [29].

On the other hand, the 2014 fieldwork studies confirm that the dominant land use in Kariakoo has changed from residential and commercial to commercial-residential, primarily with changing rental space (housing) demands. On this aspect, Town Planners provided that more than 85% of the applications submitted for building consents and permits were commercial-residential uses. The analysis of data on on-going and completed building projects and their intended use from the Architects and Quantity Surveyors Registration Board (AQRB) for the period of 2006-2014 as presented in Table 1 revealed that 413 out of 503 building construction projects (nearly 82%) were commercial-residential. Furthermore, 54 out of 503 projects (around 11%) were commercial and 4% were residential buildings. The analysis presented in the table provides further that applications submitted for religious and institutional uses were the minority.

Table 1: Building projects and their uses in Kariakoo (2006-2014)

Year	Housing projects and use of buildings					
	Commercial-residential	Commercial	Residential	Religious	Institutional	Total
2006	43	4	1	1	1	50
2007	64	5	2	1	0	72
2008	56	5	3	0	3	67
2009	47	4	1	0	1	53
2010	41	4	2	0	1	48
2011	57	6	0	0	4	67
2012	62	11	6	0	3	82
2013	37	12	4	0	1	54
04/2014	6	3	1	0	0	10
Total	413	54	20	2	14	503

Source: Field data, 2014

From Table 1, commercial buildings comprise those intended for hotel, shops and godowns; residential buildings embrace residential apartments and hostels; religious encompass churches, mosques and madrasa. Institutional buildings comprise health facilities e.g. hospitals; bank and office functions.

4.3.2 Morphological conversion of buildings

Since the 1920s, the Swahili house type of six to eight rooms with a central access corridor and fairly small plot coverage was dominant in the area (cf. Figure 9). Walling materials were mud and poles, while roofing materials were thatch and corrugated iron sheets. Due to increasing demand for housing space, the house layout has changed. [30] echoes the foregoing noting that house layouts in Kariakoo are linked to the new demands for office, commercial and residential uses; land markets i.e. access to building land and the shape of plots including spacious corner plots. He further contends that while plot-by-plot transfer/sale and redevelopment processes inhibit comprehensive design and redevelopment, narrow plots have also limited building designs that are responsive to the hot and humid climatic conditions of Dar es Salaam (ibid).

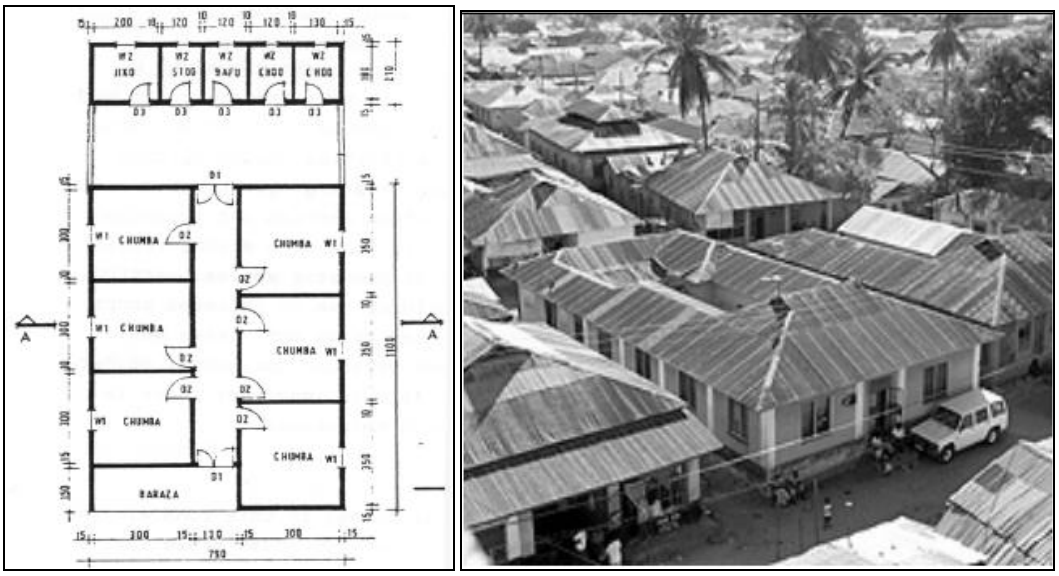


Figure 9: A floor plan and a cluster of Swahili house type
Source: [31] Source: [32]

Field observations revealed that the traditional Swahili houses are being demolished and substituted by high-rise buildings. Building materials used in reconstructing high-rise buildings are modern: sand cement blocks for walling, corrugated iron sheets and tiles for roofing. The simple house layouts are also being changed to a common double-banked layout, narrow due to small width of plots (cf. Figures 10 and 11). Yet, the layout plan of the new buildings still maintain the traditional Swahili house layout with rooms separated by and accessible from a central corridor. What makes a difference is the number of new spaces introduced and conversion of the main entrance on the frontage into commercial space and placing it on the rear side of the building for corner plots and on the sides for non-corner plots (Figures 10 and 11). In examining the layouts of the new building one observes certain physical design failures such as lack of spaces for washing or laundry services; as a result washed clothes were dried on the balconies. This reduces the use of balconies as resting areas.

Because of developers' desire to maximize plot (space) use and disregard of building regulations, the house layout of the resulting buildings, in terms of space organization and use, is of the same structure on the ground floor. Non-corner plots accommodate a maximum of three shops on the facades while on the rear sides, a common toilet for ground floor users, a stair-case and sometimes a lift (for taller buildings) are provided. The main entrances for the upper floors dwellers are often located on the sides. In addition, a total of 6-7 shops in an L-fashion are on the frontages of corner plots while a stair case, a lift and a shared toilet are located on the side of the adjacent plot while the main entrance is located on the rear side (see Figure 10). The emerging high-rise multi-storey buildings, collectively referred to as "emerging type" in this study, comprise individual formal and functional variations presenting a complex variety of urban morphology.

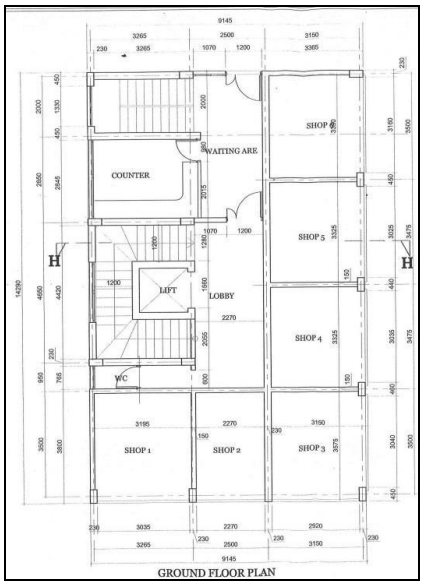


Figure 10: A high-rise building floor plan
Source: Fieldwork, 2014

Figure 11: A double-banked high-rise building
Source: [33]

With respect to building heights and skyscape of Kariakoo area, the scheme aimed to form a pyramid sky-scape image which could ensure sufficient air circulation and natural light inlet to all parts of buildings in the area (URT, 2002:33). To achieve this, three categories of zones divided into unique building heights with respect to plot sizes were proposed. The first comprised low-rise buildings with 0-2 (referred to as zone A in this work) and 2-4 storeys (zone B). The medium high-rise buildings were to be limited to 5-8 storeys (zone C) while the high-rise building category (zone D) had to contain buildings with more than eight storeys. The four zones were assigned in designated areas as illustrated in Map 2. In the first category, the recommended plot ratios was 2.0 and plot coverage of 40-60% whereas in the second and third categories, a plot ratio of 3.0 and plot coverage of 60-70% were recommended. The expected skyscape of Kariakoo in terms of building height is represented by Figure 12a.

Results from expert interviews further showed that house developers often exceed the number of the prescribed storeys as per planning consents. The main drivers of non-compliance with regulations were market forces and weak enforcement of development control. During interviews with urban professionals, a senior Town Planner uttered:

> *"... I was going through a file which has an application for a building permit on plot number 15 along Mkunguni Street. I need to check if the designs and architectural drawings concur with the regulations. I have seen that he applied for a seven storey building while the regulations allow only 2-4 storeys, and hence he is out of the regulations. This is just because the developer wants to produce more space due to the high demand for housing in the area..."*[7]

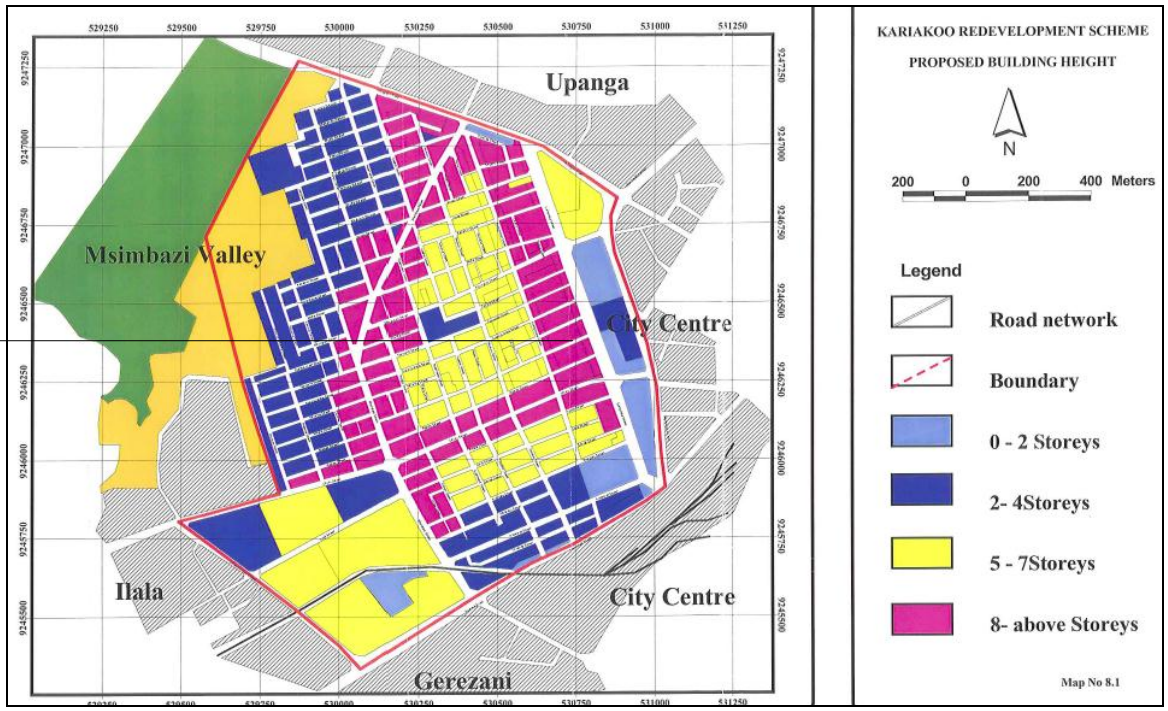
From the foregoing quotation one can observe that despite the fact that building developers are granted planning consents which specify building conditions including number of allowable floors, they do not take this seriously in the course of preparing architectural drawings which are submitted later during the application of building permits. This is a sign of negligence on part of builders and apathy or weakness in enforcing rule of law among planning authorities. In other words, this shows that developers ignore regulations and standards believing that technocrats will not note such anomalies during the approval of building permits. This may also suggest that such investors bank on lubricating the palm of those involved in the approval and issuance of building permits.

Results from physical surveys postulated that only zone C, which was designated to accommodate more than eight storeys, contained the permitted number of storeys as per the Kariakoo redevelopment scheme (2002). In this zone the tallest

[7] Interview with Senior Ilala Municipality Town Planner, May 02, 2014

building, a property of S Investments Limited, located in Block A, Plots 34 and 35 along Uhuru/Muheza Street had 17 storeys. However, this does not mean that all buildings in this zone had more than eight storeys; other several buildings were 4-7 storeys. More examples exhibiting this trend can be randomly observed along Msimbazi and Uhuru Streets. Buildings in other zones also exceeded the set limits. For instance, in a zone designated for 2-4 storeys, buildings with 11-14 storeys were observed. In this zone, buildings in Block 71, Plot 8 along Pemba Street and in Block 70, Plot 15 along Livingstone Street had 12 and 11 storeys respectively. Another SS building structure with seven storeys was noted in Block M, Plot 105 along Jangwani/Rufiji Street; and another in Block L, Plot 61 along Congo/Muhoro Street was 14 storeys. Similarly, in the zone which ought to accommodate 5-7 storeys, buildings with 8-11 storeys were built; and where the plan recommended more than eight storeys, some buildings were 4-7 storeys. Evidences include K Apartments Limited building with 11 storeys in Block 52, Plot 27 along Somali Street and A Investments Limited 9 storeys building in Block 66, Plot 7 along Ungoni Street.

The resulting urban-scape image comprise sporadic multiple of pyramids without coherent skyscape (cf. Figure 12b).



Map 2: Proposed number of storeys per zones
Source: [14]

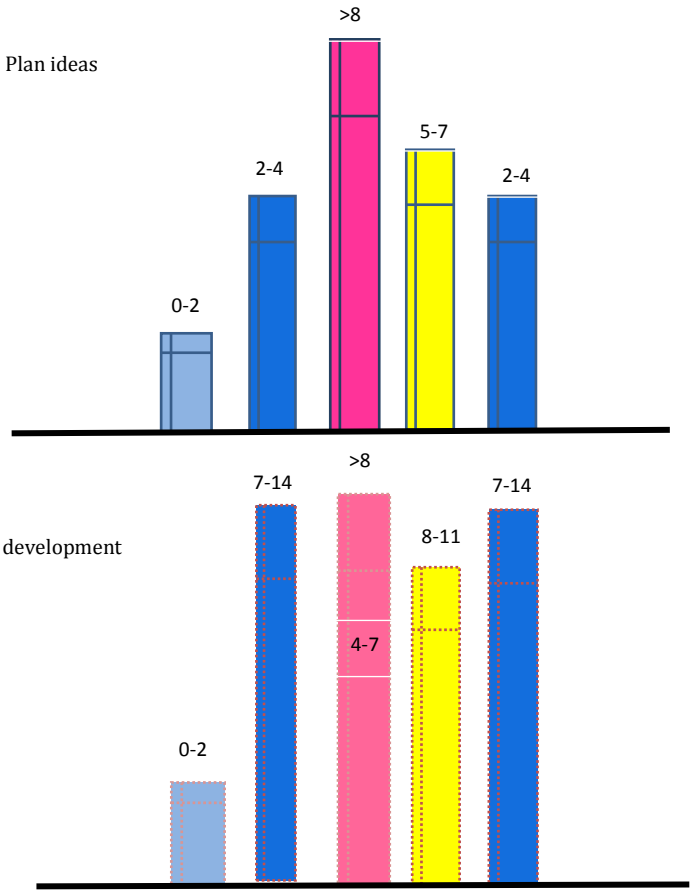


Figure 12a: Plan ideas

Figure 12b: Actual development

Figure 12: Kariakoo skyscape: plan ideas versus reality
Source: Own illustration from field data, 2014

4.3.3 Neighbourhood morphology and spatial qualities

Street layouts

As discussed earlier, the original guiding planning and design of Kariakoo from 1920s was a grid iron concept. Following this concept, streets aligned in a linear form and regular building lines particularly the frontages. Later on in the late 1960s a collection of superblocks, neighbourhood units in a grid format was introduced to accommodate the increasing land and housing demand. Increased building heights, primarily driven by the adoption of the neo-liberal economic policies which encouraged private investments in all sectors of the economy including real estate development, continued in the 1980s. Today, the area is spatially organized by 5-17 storeys high-rise buildings consisting of detached apartment style buildings in irregular grid iron patterns with tall buildings, narrow and diminishing origin street layout form or streetscape (Figure 13). This is due to the fact that building developers do not conform to building regulations for the sake of maximizing habitable or usable space at the cost of compromising the prescribed building regulations. Likewise, in areas where gentrification activities have not intensified, streets are also narrow and congested as a result of horizontal building extensions. This shows that buildings and population densities are also much higher than the proposed levels.

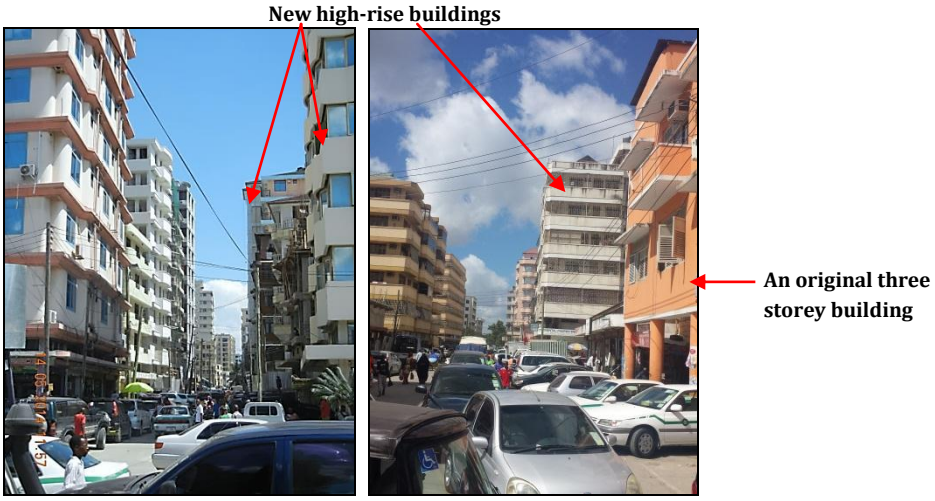


Figure 13: Diminishing building lines and narrow street scene
Source: Fieldwork, 2014

Figure 13 above shows how housing redevelopment processes have deformed the initial urban structure especially the streetscape. As seen from the figure and rightly observed by [37], deformation occurs in two ways. First, the shaping and alignment of the building lines (urban blocks) does not continue right through the grid from one side to the other but continually strikes the surface of the building blocks. Secondly, street width varies along the same street. This affects visual permeability which is an important influence on movement.

Traffic movement and parking

Concerning traffic movement in the area, the focus was on motorized and non-motorized traffic along the main distributor and access roads. What was commonly observed is the fact that both roads lacked traffic separation grades particularly pedestrians' walkways and people with special needs such as people with disabilities (PWDs). Some roads especially distributor roads had incoherent or discontinuous walkways (also see 34). This leads to a mixed and use of the limited available space. During peak hours (mornings, mid-days and evenings) distributor roads such as Uhuru, Msimbazi and Lumumba experienced high traffic mixture and prolonged vehicular congestions due to movement of people and vehicles from residential neighbourhoods to working places in the morning and back to their residences in the evening.

Along the prime commercial streets i.e. areas bordered by the major distributor roads of Uhuru, Msimbazi, Lumumba and Morogoro, one notes high levels of mixed traffic almost all the daytime than other feeder roads. This is due to the fact along these areas, shopping, selling domestic and construction materials activities and retail and wholesale outlets have increased. Thence, shoppers' and shopkeepers' cars, taxis, goods delivery trucks, pulled/pushed carts and pedestrians all scramble to use the limited space. Owing to the narrow streets resulting from violating building regulations and lack of parking spaces, vehicles are parked on the streets or just besides the roads where pedestrians and other non-motorized users including pulled or pushed hand carts (*maguta or mikokoteni*) could use; and hence causing conflicts. At present, Kidongo Chekundu ground on the South-Eastern part is the only public parking space close to this shopping area. In appreciation of the increasing traffic density, narrow streets and lack of parking space within the area, the Kariakoo Redevelopment Scheme (2002) required that parking lots be provided in each building [14]. In this respect, it was however observed that plots were entirely built up without space reserved for parking. Municipal Planners confessed that during the design and approval of most building structure plans, parking lots are included in the drawings; but excluded during the construction stage. Most parking spaces are converted into commercial or offices spaces.[8]

In some cases, pedestrians' walkways particularly those under shopping arcades intended to provide protection against scotching sun and rain have been interrupted and closed by developers to create space for small business activities or car parking. This means that there is a competition among vehicles, pedestrians and informal business activities for this

[8]See also http://www.pesatimes.co.tz/news/governance/kariakoo-buildings-violated-permits/ and http://www.thecitizen.co.tz/News/Kariakoo-multi-storey-buildings-a-time-bomb/-/1840392/2069604/-/p1lntyz/-/index.html

narrow carriage ways which were designated for other functions. The same scenario was observed by [34]. The level of traffic mixture, congestion and competition on existing streets become more flexible as one enters the medium commercial streets (mainly located beyond Uhuru Street in the Southern part of the area) and almost diminishing in the tertiary commercial streets (located beyond Msimbazi Street on the far Western side as well as on the Southern part of the area). Along these streets, single storey Swahili buildings used for both residential and small-scale commercial activities were still dominant.

Protection and security

Safety and protection against theft and robbery particularly in the prime commercial streets are not guaranteed. This is because of population congestion, concentration and competition for space by formal and informal activities along the streets. Responses from urban experts and pedestrians showed that petty theft and other criminal offences are common in the area. They include personal properties such as ear rings, hand bags, cell phones and wallets (for men) by unruly street boys as a female pedestrian expressed in the quotation below:

> *"I always feel insecure and unprotected as I walk along Kariakoo streets because of the recurring theft and robbery cases partly caused by high daily population density, concentration of activities and jobless street gangs. In the last three weeks or so my neighbour's lower part of the left ear was torn as she was penetrating through the crowd because they wanted her golden ear rings."*[9]

[35] on women business operators in Kariakoo rightly observes that they expressed the feelings of being unprotected and insecure as they operate in crowded spaces. Also, many informal business operators (machinga) feel insecure because their merchandise particularly second hand clothes and newspapers, often on the ground or low-raised wooden stands. Moreover, due to traffic congestion on roads, safety of pedestrians is generally poor. In summary, it is apparent that developers' violation of building standards and regulations seems to compromise movement, safety and security not only to personal properties. Rather, the situation is more threatening during disasters such as fire outbreak due to lack of fire escape stairs.

Waste management system

[36] observes that the main solid waste generators in Dar es Salaam city are households (2,768 tons/day), market areas (140 tons/day) and commercial activities (128 tons/day). At city and residential neighbourhood levels, these findings are valid but they may not be valid in some areas were commercial activities dominate. For instance, this study revealed that solid waste in Kariakoo is generated mainly from commercial activities (shops and street vendors) as well as from households (residential apartments). Although no statistics were available for Kariakoo area specifically, interviews and observations provided important ideas on this. Responses from business operators asserted that the bulk of solid wastes in the area per day are generated from commercial activities particularly during the daytime. Through observations, heaps of piled-up garbage along the streets mainly composing empty bottles; paper and plastic related materials were witnessed implying that they were generated by formal and informal business operators during the daytime. On top of the heaps, little domestic garbage in small plastic bags existed suggesting that they were damped during the night time. On-street waste damping on undesignated areas along the street and without collection containers also implied lack of waste collection points.

5. Conclusion

The assumption that due to high demand for commercial space developers would maximize more living and commercial space production to generate more revenue/income from especially rental spaces was confirmed valid. Over time and space, land use has totally shifted from residential to commercial-residential and slightly deviating from the plan proposals. Results have shown that change of land use started to be notable in 1998. Until 1999, 23% of Kariakoo land was used for commercial cum residential use as compared to 10% for residential use. Although the Kariakoo redevelopment

[9] Interview with informal business operator IB, Congo Street, April 10, 2014

plan (2006-2012) designated more land (22.6%) for commercial than 18.5% for commercial-residential use, results from this study showed that commercial-residential buildings comprised 82% as compared to 11% for commercial buildings.
Plot size and configuration have generally remained the same except in few cases where two plots have been combined to accommodate big building projects. Within individual plots one finds buildings with different external morphology (high-rise) unlike the former Swahili single storey or 2-3 storey buildings. Also changes are notable on building materials; from traditional to modern. The study however has established that due to narrow plots in the area, the internal configuration of buildings has remained almost the same (double-banked layout).
The transformation of the area from a residential to a commercial hub as well as the on-going building transformation processes geared by high demand for space use have also led to high densities. The morphological changes of the buildings in the area, fuelled by a desire to maximize vertical space use, are essentially contradicting the planning and development concept for the Kariakoo Redevelopment Scheme. The tendency to build beyond allowable heights has adverse impacts on the spatial density of the area, physical form of the buildings as well as on the prescribed functionality of the area. Owing to such violations, the resulting buildings look thin, tall and unpleasant creating narrow streetscape and a dysfunctional settlement. These are also problems associated with threat to public safety due to disregard of escape staircases in case of fire. As such, narrow streets compromise movement, protection and safety. Moreover, the quality of streets is unpleasant because of poor solid and liquid waste management by contractors and the Municipal Council. A combination of these ultimately has made the pyramid sky-scape image, which was envisaged in the plan, unachievable because of disregard of the plan by developers.
Nonetheless, these results suggest that housing development outside regulations is also geared by weak urban development control by respective local authorities and therefore seems to be a deliberation move.

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