

Residents' Elements of Legibility of Informal Settlements

The case of Mlalakuwa informal settlement in
Dar es salaam - Tanzania

Justine Teyanga , Dr. Liberatus Kileki Mrema

Abstract- This study aims at investigating the way residents perceive their built environment in the informal settlements which are assumed to be the best field of knowledge as they are least affected by formalistic rules of the built form transformation game. The purpose of this paper is to identify residents' innate experiences of their built form. The researchers' experience on informal settlements and a transect walk conducted during the field studies at Mlalakuwa has made it possible for the researcher to clearly verify and reflect upon the applicability and universality of Lynch's (1960) perceptual theory on the "Image of the City". The study realized the residents' understanding of the built environment through Lynch's five elements of legibility namely nodes, paths, edges, landmarks and districts which were encapsulated through a research based on the Eurocentric and Western Countries ideology. Data for this study were collected through qualitative research method, which involved the use of multiple tools which included in-depth interviews, observations, photographing, recording and sketching of the existing situation. Interviews and discussions with professionals, developers, residents, and non-residents were effectively conducted and narratives were produced. Moreover, archival outsourcing aiming at tracing the processes of transformation and review of literature create a body of knowledge which gravitate the context of informal settlements. The study sought to explore and document the five elements of legibility in informal settlements particularly in Mlalakuwa. Varying types of elements of legibility of the built form, their emergence and their roles were identified and analyzed. Urban nodes include bars, social halls, social clubs, religious buildings, gasoline filling stations, banks, garages, parking areas and education buildings. Landmarks include communication towers, electric transformers, high rise office buildings, and trees. Urban edges include roads, rivers, and bridges. Path include setbacks of buildings within the private properties. Districts are not apparent. Residents use references which are not seen from far to direct movement in the landscape. Those include famous people's residences, old buildings, milling factories, road type (tarmac road), religious buildings, bus stops, taxis/motorcycles/bajaj stands and bajaj stations. This paper urges urban designers, urban architects and urban planners to understand informal and formal settlements through the native elements of readability when they are carrying out design and supervision of informal

settlements upgrading and regularization, and restoration and revitalization of cities. However, native elements of legibility are congruent to Lynch's four elements namely node, landmark, edge, and path. Districts are not apparent due to cacophonous space sizes, development densities, and lack of technological consistency.

Index Terms - Informal settlements and legibility.

I. INTRODUCTION

This study aims at investigating the residents' innate experiences of built forms and Mlalakuwa informal settlement was picked as a case. It is hereby assumed that informal settlements are the best fields of knowledge as they are least affected by conventional rules of the built form game. Moreover, it is believed that planned settlements cannot adequately cast light on the residents' perceptions as they are repeatedly predetermined through land use plans and master plan. Moreover, developments of individual formal land parcels are guided by by-laws and development standards Mrema, (2008). Therefore, the built form of planned settlements is to a great extent begotten by professional undertakings despite real life socio-economic and political dynamics. However, in spite of the existence and deployment of master plans, land use plans, building standards, statutory by-laws and government eyes on the practical development of the built forms, cities are coming up with unclear legibility. Therefore, there is a strong need of investigating the indigenous ways of understanding the built form. The study critically focuses on legibility of the informally built form and takes on board Lynch's (1960) elements of legibility of the built form, which include nodes, landmarks, districts, paths and edges as the research lenses. In 1960s and 1970s, as a reaction to destructive impacts of modernism on American cities and urban life; Kevin Lynch, Jane Jacobs, Christopher Alexander and some others urban theorists, tried to make the city legible once again. To them, this could be done by restoring the social and symbolic function of cities. They criticized the loss of human dimension on modern cities. Thus their works derived from the view of city dwellers, among others, Lynch saw the city as text and to "read" it he used scientific inquiry and empirical methods. Lynch, (1960) was also chiefly concerned with "the image of the environment" insisting that, "every citizen has had long associations with some part of the city, and his image is soaked in memories and meanings." Furthermore, he was also concerned with how we locate ourselves within the city, how we find our way around, but also to understand that "to know where we are within the city, we have to build up a workable image of each part". Lynch, (1960) also asserted

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that, each of these images will comprise; our recognition of its “individuality or oneness” within the city as a whole, our recognition of its spatial or pattern relationships to other parts of the city, its practical meaning for each of us (both practical and emotional), especially with the fast urbanization and urban sprawl happening currently globally. Writings by Lupala, (2002); un-habitat, (2010); Rasmussen, (2013); un habitat, (2004) in Ekandem, et al, (2014), narrate that; the world urbanization has been strongly increasing since the middle of the 20th century, and the rate at which city population grows and countries urbanize is indicative of the pace of social and economic change. Also they affirm that; in 1976, one third of the world’s population lived in cities and thirty years later in 2007, the figure rose to one-half of the world’s population, which is equal to 50% of the population in the world. This amount of global urban population is expected to reach 70% by 2050, which is equal to two-thirds of humanity living in towns and cities, given the fact that; the world’s population rose to 7 billion in 2012 and is likely to increase to 9 billion by 2050. This enormous rise in global urban population, has led to emergency of new settlements whereby most of them are taking place informally in developing countries (Oecd, 2011 in Sakijege, 2013), especially Africa, which is urbanizing much more rapidly than the rest of the world (Henderson et al., 2013).

Lupala, (2002); Nguluma, (2003); Kombe & Kreibich,(2006); also report that, the rapid urbanization and development of cities especially in Sub-Saharan Africa has made many cities unreadable; whereby city sprawl has resulted in complex urban structures comprising of formal and informal settlements and thus spatially unstructured. Therefore, in such complex situation, exploitation of cities as urban resource increasingly become difficult and indeed stressful. It has been initially observed that, mankind has from since history, integrated in the built environment with the assistance of spatial reference, towers, monuments, corner buildings, grand billboards and many more others.

One of the first coherent analyzers of the urban structure and spatial reference in empirical terms known as “the image of the city” was done by the urban theorist known as Kevin Lynch in 1960, where he gave an account of a research project, carried out in three American cities, (Los Angeles, Boston and Jersey City with comparisons to Florence and Venice). The project resulted in the evolution of the concept of legibility depending on the people’s ‘mental maps’. Before Lynch, (1960), the concept of legibility had proved invaluable as an analytic and design tool. “the image of the city” brought rise to a new science of human perception and behavior in the city. For urban designers, however, it is Lynch's innovative use of graphic notation to link quite abstract ideas of urban structure with the human perceptual experience liberating them from the previous strictness of the physical master plan, by making questionnaire surveys, which guided Lynch, (1960) to define a method of analyzing legibility based on five elements, i.e. Paths, edges, districts, nodes and landmarks. Lynch, (1960) theories on “the image of the city”, were studied only in planned settlements in developed countries that were also applicable in planned cities of the sub-Saharan Africa. However, the critical question remains whether the elements of legibility are also valid in informal settlements of the sub-Saharan Africa. Mlalakuwa informal settlement

which is located in Dar es salaam was picked as a case to answer the research question.

Tanzania is one of the rapidly urbanizing countries in sub-Saharan Africa. It is located in east Africa between longitude 29 and 41 east and latitude 1 and 12 south. The country has the biggest land among the five east African countries, and an annual urban population growth rate estimated at around 8 to 10%, making it one of the most rapidly urbanizing countries in the east Africa region (Unchs, 1996; Kironde, 1994 in Nguluma, 2003; un-habitat, 2010; Kyessi and Sakieta, 2014). Tanzania just like other developing countries in the sub-saharan Africa has the majority urban population living in informal settlements (URT, 2012). This is the result of the urban growth that has been doubling every ten years in Tanzania since 1960s (Kulaba, 1989 in Kyessi, 2002). Both the 1978 and 1988 national census reports show that a bigger share of urbanization is a result of rural-urban migration.

The trend continued even up to the 2002 national population census (URT, 2003). This growth of urban population is characterized by acute shortages of adequate shelter leading to growth and expansion of informal settlements in urban locations (Kyessi and Sakieta, 2014). Unlike western countries where urbanization was fuelled by industrialization, urbanization in Tanzania like in many Sub-Saharan African countries is urbanization under poverty which amounts to rapid population increase and uncontrolled expansion of cities with limited economic base or productive base (Aligula, 1999; Lupala, 2000).

Urbanization under poverty is characterized by increase in unemployment and mushrooming of informal settlements, sprawling urban centers beyond the limits and capacity of responsible local authorities. Scarcity of planned and surveyed plots, deterioration of existing infrastructure and social amenities, proliferation of the informal sector, and growth of non-urban activity sectors such as urban farming, (Unchs, 1996); (Ngware & Kironde, 2000); (URT, 2008); (Scholz, 2008); (Mlonda, 2009); (Kyessi, 1998 in Kyessi and Sakieta, 2014). The above settlements informality characteristics are most evidently seen in dar-es-salaam, one among Tanzania's cities, hence leaving a main question, on how exactly do dwellers living in informal settlements of this city orient themselves? How do they read the city? Does legibility exist in informal settlements as far as Lynch's (1960) discovery is concerned?

Most studies report that, informal settlements in Tanzania, apart from being a result of un-planned development, are densely populated and they accommodate lower, middle and higher income people. This argument is verified by Lupala, (2002), Victor & Makalle, (2003), Kombe & Kreibich, (2006), Kironde,(2006) in Hill & Lindner,(2010); (Mshumbusi,2011); (Bahendwa,2013); (Kiunsi, 2013); who account on Dar-es-salaam alone, that 70% to 80% of the urban population live in informal settlements, occupying 80% to 90% of all buildings in the city due to fast urbanization. The unguided developments in the informal settlements produce complex built forms, which cast doubts on the eyes of the observers regarding whether they are without difficulty read by the users.

II. BRIEF LITERATURE REVIEW

It is apparent that donors and local government authorities employ standard Eurocentric concepts in informal

settlements upgrading, urban restoration and urban revitalization without taking into consideration the native ways of understanding their respective built forms. This paper aims at exploring native elements of legibility of informal settlements through Lynch's image of the city theory. The relevance of this paper dwells on the employment of native experiences and concepts of understanding the physical structure for enhanced informal settlement upgrading and regularization, urban renewal, urban restoration, and urban revitalization.

Urban Nodes

Lynch, (1960), defines nodes as points, the strategic spots in a city into which an observer can enter, and which are intensive foci to and from which he is travelling. They may be primary junctions and roundabouts; places of a break in transportation like the subway station; a crossing or convergence of paths; moments of shift from one structure to another; large squares, or somewhat extended linear shapes, or even entire central districts when the city is being considered at a large enough level. Indeed, when conceiving the environment at a national or international level, then the whole city itself may become a node. Or nodes may simply be concentrations, which gain their importance from being the condensation of some use or physical character, as a street- corner hangout or an enclosed square. The nodes can be important even when the physical form is shapeless and slippery. Good recognizable node has its identity through singularity and continuity of walls, floor, planting, lighting, topography, silhouette, function, shape and intensity of use. Location determines nodes utilization, as locating nodes on main routes make movement economy more efficient than those located away from. In this study, we identified areas at Mlalakuwa, which are used intensively for social-economic activities like shopping streets, bars and restaurant and the like.

Landmarks

As per Lynch, (1960) writings, these are another type of point-reference, but in this case the observer does not enter within them, they are external. They are simply physical object: buildings, sign, store, or mountain". Some landmarks are distant ones, typically seen from many angles and distances, over the tops of smaller elements, and used as radial references. They may be within the city or at such a distance that for all practical purposes symbolize a constant direction. Other landmarks are primarily local, being visible only in restricted localities and from certain approaches. These are the innumerable signs, storefronts, trees, doorknobs, and other urban detail, which fill in the image of most observers. They are frequently used clues of identity and even of structure. Landmarks become more easily identifiable, more likely to be chosen as significant, if they have a clear form; they contrast with their background; and if there is some prominence of spatial location. Kaplan, et al., (1998); Salmi, (2002); Insists that; landmarks are distinguished by their dominance and singularity of shape, color, size, height, location, visibility and finally, their sharp contrast with background. Landmarks should be in a tune with their surroundings and not too many, as too many landmarks can undermine their helpfulness.

Districts

According to Lynch, (1960), these are medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of," and which are recognizable as having some common identifying characteristics. Always identifiable from the inside, and are also used for exterior reference if visible from the outside. The physical characteristics that determine districts are thematic continuities which may consist of an endless variety of components: texture, colors, skyline, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography. Districts have various kinds of boundaries; some are soft, hard, certain or uncertain, thus they may reinforce or limit district identity. These edges seem to play a secondary role: they may set limits to a district, and may reinforce its identity. Districts may be in relation with each other, well connected together, and then they are in an extrovert character. On the contrary, they may stand-alone to their zone, in other words they are not linked together, then they are in an introvert character.

Paths

Lynch, (1960), defines paths as the channels along which the observer customarily, occasionally, or potentially moves. They may be streets (weather wide or narrow), walkways, alleys, transit lines, canals, railroads, motorways, canals and the like, in which for many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths. Other features enhancing path as identified by Lynch,(1960), includes:- Arranged and relating environmental elements(e.g. plants); Concentration of special activity (e.g. construction work, shopping arcades) along a street which give prominence in the minds of observers.; Special facade characteristics; Pavement texture; Proximity to special features of the city for example bridges. Any path has three characteristics that enhance its prominence; they are identity, continuity and directional quality. The path may have continuity, if there is a concentration and variation of activities along it, and then people will be oriented by following the main stream of traffic. The similarity of names may also give the path its continuity. The paths, once identifiable, have continuity as well, is an obvious functional necessity. They can be followed by the stranger, even if with difficulty. Lynch, (1960) also maintains that; "when we consider more than one path, then the path intersection becomes vital, since it is the point of decision". In this study questions like what are the types of paths existing in Mlalakuwa and who are responsible for the creation of these paths were posed.

Edges

Edges are the linear elements not used or considered as paths by the observer. They are boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls, etc. and (Lynch, 1960). Additionally, they are lateral references rather than coordinate axes, they may be barriers, more or less penetrable, which close one region off from another; or they may be, lines along which two regions are related and joined together. These edge elements, although probably not as dominant as paths, are for many people important organizing features, particularly in the role of holding together generalized areas, as in the outline of a city by water or wall, Lynch, (1960). Edges provide an important contextual feature for development to react to.

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Informal Settlements in Dar-es-Salaam, Tanzania.

Dar-es-Salaam a coastal city, the most important commercial and manufacturing centre, and one among the fastest growing cities in Sub-Saharan Africa; is the largest commercial city in Tanzania located along the east African coast of the Indian Ocean, as seen in Figure 1. in the Eastern part of the Tanzanian mainland at 6°51'S latitude and 39°18'E longitude. According to Hill & Lindner, (2010); UN, (2010); UN-Habitat, (2010); Mshumbusi, (2011); URT, (2004); (Mbisso, 2011); (Kiunsi, 2013), it has a total of 1,393 square kilometers of landmass, which is only 0.19% of Tanzania Mainland's area. It is a cosmopolitan city, stretching about 100 km between the Mpiji River to the North and beyond the Mzinga River in the South, with a complex social, cultural and economic environment. Administratively, the city has five Municipalities namely Kinondoni, Ilala, Ubungo, Kigamboni and Temeke, which are also the administrative districts of the region. The five Municipalities are autonomous Local Government Authorities, but coordinated by the Dar-Es-Salaam City Council. With projected urban growth rates of about 4% between 2010 and 2025, Dar-Es-Salaam is expected to become a megacity with a population of more than five million inhabitants before 2020.

Furthermore, Dar-Es-Salaam which has more than 100 unplanned settlements in the city, hosting 80% to 90% of all residential buildings in the city; is characterized by urban sprawl and expanding informal settlements, resulting from increasing population pressure, severe shortage of good quality housing, poor or lack of infrastructure and services, inadequate town planning to match the Planning Visions for Dar-Es-Salaam for 2030, not considering informal settlements and their futures, (Rasmussen,2013; Mlonda,2009; Kiunsi,2013).

In Dar es Salaam, settlements informal settlements have developed outside the official land development process and planning procedures, however, "the emphasis is not on the illegality of land ownership or occupation, but rather on the nature of the land development process that is employed" (Burra, 2004 in Mlonda, 2009). Informal settlements occur as result of failure in the government system of land administration and planning to address the public housing needs, forcing privately owned, public or communal land to be sub-divided into plots and sold or rented out by the owner. Plots resulting from these sub-divisions most of the times do not meet planning standards. Since such procedures are not permitted by the planning authorities they are regarded as informal and interesting to legibility tests.

Table 1: Percentage of urban population living in informal settlements in selected major urban areas

Urban centre	Year of study	Informal area in (Ha)	Estimated urban population	Population in unplanned area	Percentage of urban population in unplanned area
Dar es Salaam	2002	5,197	2,497,800	1,696,500	70
Arusha	1992	9,198	113,019	76,332	86
Mbeya	1998	1,843	300,000	239,22	80
Mwanza	2002	2,900	476,640	281,217	59

Source: Mghweno (2002) in (Kyessi and Sakiete, 2014)

A few informal settlements are found near institutional areas such as Mlalakuwa near the University of Dar-Es-Salaam and the Lugalo Army barracks. A few settlements are located in escarpments and others on marginal land threatened by

environmental hazards e.g. Erosion, flooding and faulting. Such, settlements can be found in Msimbazi Valley and Mzinga creek respectively. This is because of nearness to employment places such as Dar-Es-Salaam city centre and the harbour. Some settlements have emerged on land designated unsuitable for urban development or on land reserved for other land uses. Kyessi and Sakiete, (2014) asserts that studies by (Kironde, 1998; Kombe & Kreibich, 2006; Mghweno, 2002; Kyessi, 2006) have revealed that informal housing settlements provide shelter to the majority of the urban poor in Tanzania and amounting to about 60 percent (in average) of the total urban population in major urban centres, as seen in Table 1 and Figure 2.

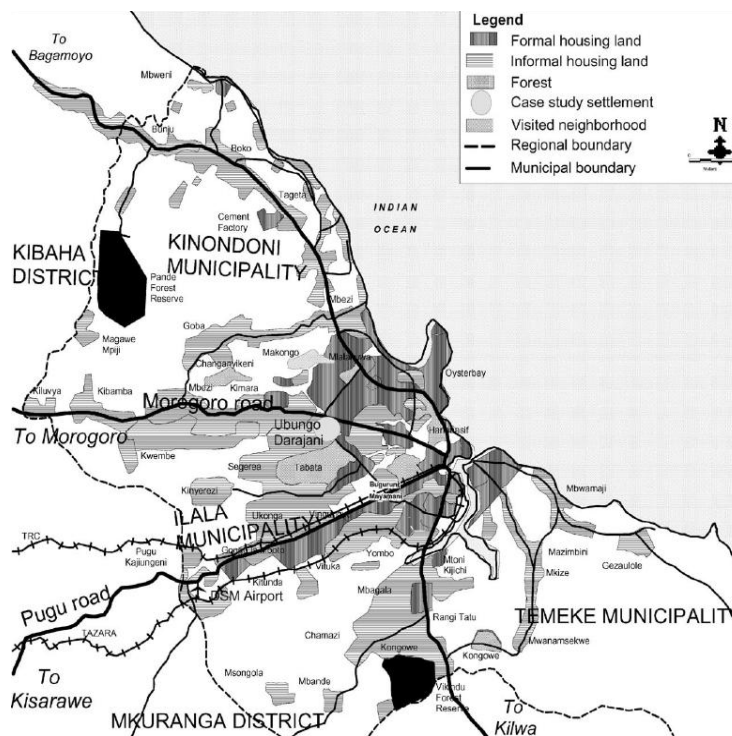


Figure 1: Formal and informal neighborhoods in Dar Es Salaam City, Tanzania, **Source:** Kyessi, (2002) based on 1992 aerial photograph, in (Magigi & Majani, 2006).

General Characteristics of the Informal Settlements

The urban structure of Dar-Es-Salaam as seen in Figure 1 resembles a four finger pattern following the four major arterial roads (to Bagamoyo, Morogoro, Pugu, and Kilwa), described as a diffusion process progressing in wave-like concentric rings from the city centre towards the periphery of the city in combination with broadening ribbons following the arterial roads. Dar-Es-Salaam's informal settlements are placed in different places for different reasons, hence ending up having different major defining characteristics with interrelated reasons as per, (World Bank, 2002; Habitat, 2001; and Shido, 1990 in Lirebo, 2006; UN-habitat, 2003 in UN-Habitat, 2010; Habitat, 1996; Fekade, 2000; Huchzermeyer, 2003; Syagga, 2004 in Mshumbusi, 2011; Davids, 2006 in Rasmussen, 2013; Kiunsi, 2013; Kalugila, 2013; Gouda, 2013; Bahendwa, 2013; Onyekachi, 2014), these includes:-

An informal settlement, due to its inherent "non-legal" status composed of **Physical Characteristics:** heterogeneous urban population, and has services and infrastructure below the

“adequate” or minimum levels. These services are both network and social infrastructure, like inadequate water supply, sanitation, road, drainage systems, electricity, schools, health center etc. Apart from overcrowding buildings, informal settlements show high variations in types and quality of construction and employ local building materials, design and technology.

Socio-Economic Characteristics: - which includes, housing shortage, increasing urban poverty, high rate of unemployment, high/rising cost of living, economic recession etc. Most households that reside in informal settlements belong to the lower income group. They are either working as wage laborers or in various informal sector enterprises. On an average, most earn wages at or near the minimum wage level. Presence of small-scale and large-scale landlords, as well as rental accommodation being the most common form of tenancy. They host a number of livelihood activities.

Legal and Institutional Characteristics: - the key characteristic that delineates an informal settlement from other settlements is its lack of ownership of the land parcel on which they have built their houses. Other characteristics include absence of accountability and transparency, corruption, absence of capacity (human and technical), poor situational set-up and absence of co-ordination, poor enforcement, unclear regulation and long procedures, misuse of public lands etc.

Political Characteristics: - informal settlements is associated with the lack of political will in issues relating to land banking, proper urban planning which results to settlement informality, and appropriate policy, old and complex legislation, lack of housing policy.

Institutional Framework of the Informal Settlements

World Bank, (2002) in Casmir, (2009); Mlonda, (2009); Bahendwa, (2013), reports that; Tanzania’s policy towards informal settlements in Dar es Salaam has varied over the past decades. In the 1960's, slum clearance was the main approach; slum sites were cleared and buildings with high construction standards were erected on cleared sites (implemented through the National Housing Corporation -NHC). The Government of Tanzania has over the years developed various policies and strategies of addressing the issue of insecure tenure in unplanned or informal settlements. The initiatives include the Urban Housing Programme of 1969, National Sites and Squatter Upgrading Programme (1972-1990), Sustainable Cities Programme initiated in 1992, Community Infrastructure Upgrading Programme (2003-2012), Unplanned Urban Settlement Regularization Program was conceived in 2004, and the Property and Business Formalizations Programme also initiated in 2004. The Human Settlement Policy of 2000 Sections 4.1.4.1 and 4.1.4.2 provides guidance for improvement of informal settlements; the National Land Policy in 1995 which was followed by new Land Act No. of 04 of 1999, as revised in 2004 and the Urban Planning Act 2007, all of which have been enacted to include provisions that provide security of tenure of property owners of legalized unplanned settlements (Mlonda,2009; URT, 2012). Also, a National Housing Development Programme was drafted in 2002 and partially

being implemented, (URT, 2002 in Kyessi and Sakiete, 2014).

Additionally, the city has no overall development plan –the last master plan dates back to 1979. The lack of a master plan and associated development control has contributed to the haphazard development., (Kiunsi,2013). Furthermore, all the national government ministries play a role in managing urban planning and development in one way or the other. However, the President's Office-Regional Administration and Local Government (PO-RALG) and the Ministry of Lands, Housing and Human Settlements Development (MLHHSD) play a key role in influencing the administration of human settlements and in carrying out urban planning functions respectively. However, it is argued by many scholars and political decision makers that demands of the urban population, due to rapid urbanization, have been unmet by the existing structures of governance. There are several managerial shortfalls to this fact, as per (Kyessi and Sakiete,2014) which include:- over-reliance on Central Government; unguided urban development; non-coherent regulatory frameworks and rigid and unaffordable standards; un-coordinated efforts of actors; top-down planning with inadequate local participation; and urbanization under poverty.

III. RESEARCH METHODOLOGY

This study employed **case study** strategy because it deals with human perceptions of a built environment. A case study is defined by Yin (1994:23) as ‘*an empirical inquiry that seeks to understand a contemporary phenomenon in its real life context, especially when the boundaries between phenomenon and context are not evidently clear and in which multiple sources of evidence are used*’. Also Bent notes about the importance of case study strategy in the study of human affairs state that: “... *first, the case study produces precisely the type of context-dependent knowledge which makes it possible to move from the lower to the higher levels in the learning process; second, in the study of human affairs, there exists only context dependent knowledge, which thus presently rules out the possibility of epistemic theoretical construction*” (Flyvbjerg, 2001:71).

The study approach

The study analyzed elements of legibility of Mlalakuwa informal settlement through case study strategy because the transformation of land from bare land to build form is underpinned by actors' meanings which cannot be unraveled without deployment of qualitative investigation as the study aims at answering 'what', 'how', and 'why' questions which require use of multiple data collection techniques. Qualitative data include visual observation, in-depth interviews, photography, mapping and sketching. The selected case study area is a Mlalakuwa informal settlement in Dar es Salaam, Tanzania.

Justification for Selection of Case Study Area

The choice was based on the fact that Mlalakuwa is occupied by all income cadres, it is a consolidated settlement with clear physical structure, and it is economically vibrant. The case is elements of legibility of informal settlements in Mlalakuwa settlement. Mlalakuwa informal settlement was selected as a case study area basing on the principle stated by Nachmias (1997) that; “selection of the study area must be based on the

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information availability.” It is among the oldest settlements in Dar-es-Salaam that consists of a number of retirees from different institutions and organizations like Lugalo Military Camp, University of Dar es Salaam and Ardhi University. Mlalakuwa settlement being saturated both in terms of population and housing density has challenges and problems, particularly in mental mapping.

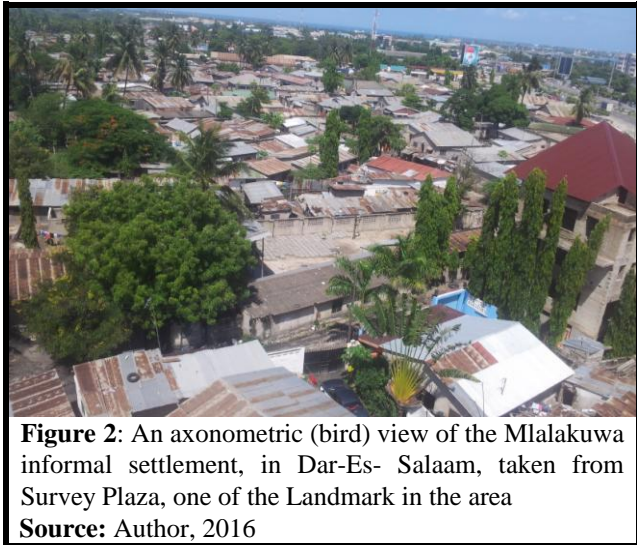


Figure 2: An axonometric (bird) view of the Mlalakuwa informal settlement, in Dar-Es- Salaam, taken from Survey Plaza, one of the Landmark in the area
Source: Author, 2016

as 'kitimoto', which attracts lots of people from inside and outside Mlalakuwa settlement. *Kwa Mama Kamche is a story-making place and well known stopover place to the majority of the to the residents of Dar es Salaam*".

Emphasizing the strength of Kwa Mama Kamche as a strong enterable and recreation place another respondent who is residing at Mbezi Beach neighbourhood, which is 5 kilometres away further, explains that: *"Apart from the said Kitimoto available at Kwa Mama Kamche, my friends and I, come here because Sam Nujoma Road which is abutting the Bar connects different settlements in Dar es salaam and thus greatly reachable. The bar is exposed to fantastic sea breezes and fresh air. This place is very cool, calm and quiet. Unlike Calabash Bar which is 200 meters away.. Kwa Mama Kamche, residents meet, discuss, eat, drink and commercially transact. The Bar is overlooking the elegant Sam Nujoma Highway and the vibrant Sinza Neighbourhood, which is simmering with social and economic activities as well as pedestrian movements. Moreover, Kwa Mama Kamche is near the gigantic Mlimani City Mall and thus a landing point for those coming from or going to the mall. Moreover, we youngsters meet here, invite our girlfriends for drinks and after a while we move to other bars like Samaki-Samaki at Mlimani City and the like. Therefore, we enjoy having a series of bars and pubs for variety."*

IV. RESULTS AND DISCUSSIONS

Elements of Legibility of Mlalakuwa Informal Settlement

Social Places as Urban Nodes

The social places with concentration of residents and non-residents entering and staying without restrictions or levy are reported as structuring elements of residents' mental schemas. Some of the social places extend into the streets and create social spots which are memorable through street furniture, parking areas, signboards, distinguishable entrances and building forms/shapes/technologies. The studied social places closely relate to the abutting streets through extension of floors into the street, treatment of parking spaces on streets, and cleaning of the adjacent portion of the streets which cast memories to observers. The building form and construction technologies applied, functions, lighting, planting, use arrangements and sparkling colours of the furniture celebrate remembrance in the observer minds.

At Mlalakuwa, there are 20 bars ("Vilabu" in swahili) namely Bulls Park, ETINA, DDC Mlimani Park, Mama Kamche, Calabash, Mpakani Bar, Mama Chambo Bar, Mbembe Bar, Miami Pub, Brajec Grill, New Cash Pub, Chobingo Pub, Octopus, Migombani Bar, Turunya, Makando, Makondeko kwa Kidevu (Kilabuni) to mention few. The study showed that such bars though with different sizes bear the same significance in orienting the users of the built form. According to the owner of Mama Kamche Bar, which is located along Sam Nujoma Highway, her bar is famous primarily because of accessibility. Field results showed that; out of 20 residents interviewed, 90% (18 respondents) knew this place. Another respondent said: *"Kwa Mama Kamche is a strong point of orientation to outsiders as it is so familiar to almost everybody because of its availability of top-notch quality pork meat locally known*

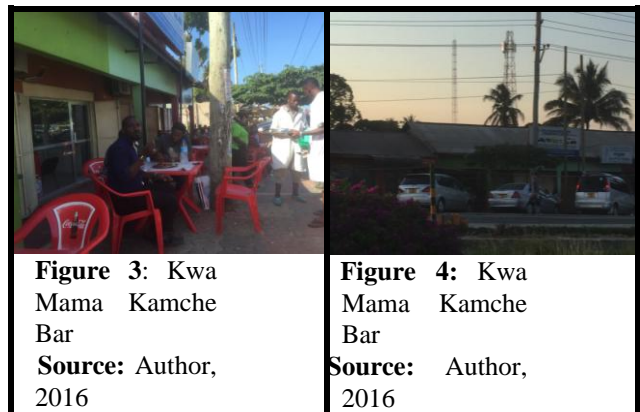


Figure 3: Kwa Mama Kamche Bar
Source: Author, 2016

Figure 4: Kwa Mama Kamche Bar
Source: Author, 2016

Calabash Bar

This place as seen in Figures 6 and 7 is 200 meters from Mama Kamche Bar but bigger in size. The appearance took on the traditional *makuti* construction, which makes it cooler and more natural. It is similarly accessible within and without Mlalakuwa. The study revealed that, its popularity does not differ much from Mama Kamche, only that; there are more food and beverage varieties. One of respondent said: *"Brajec Bar is very good for relaxation. In the evening hours customers are entertained with a very good live music band with so many good singers and dancers. They sing so many old good songs (zilipendwa). Apart from that, one can get a variety of foods ranging from snacks to buffet and roasted meat (nyama choma). This place is incredibly good and reachable to whoever is interested. It is easily identified and mentally located by the outsiders. In this place we enjoy views, breezes and beautiful girls lounging around. Air movement is maximum because of the wide road close by."*

Bulls Park Lounge

The study revealed that, all 20 interviewees knew this place. Before, the current Park was named Euro-H Bar. It changed into Bulls Park after getting a new investor. This place is not very big in size; it is located along the University Road and not very far from the previously discussed Mama Kamche Bar and Calabash Bar. It is easily accessible and very active especially when the surrounding University of Dar es Salaam and Ardhi University academic semesters are running. Its outstanding customers are university students. It networks different age groups with different statuses. It operates twenty-four a day within its indoor and outdoor spaces. In effect, it is a very good recreation place. Indeed, a very good reference point as it is located at a junction between the University and Mlalakuwa Thoroughfares. One of the respondents explained the history of Bulls Park as follows:

"Formerly this place was called "Mti Pesa". That was way back in the 1980s. Small bars like this Bulls Park just came up recently. The person who lived where Bulls Park is located was called PESA NTINGI who planted a tree and named it "Mti Pesa". So the name grew and became very popular. That tree was big and commonly used as a reference point. Few years after the death of the former landlord, the tree was cut down by the new owner of that land and rental shops were put up. Little by little "Mti Pesa" was forgotten and at present it is named Bulls Park. Indeed, it is a very popular meeting point for high and medium income youngsters. It is also a reference point to the university road users."

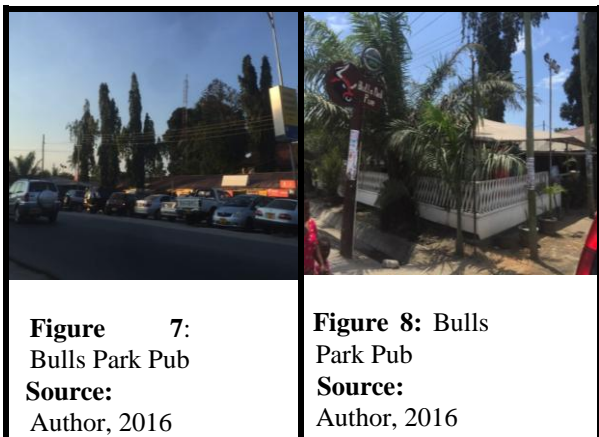


Figure 7:
Bulls Park Pub
Source:
Author, 2016

Figure 8: Bulls
Park Pub
Source:
Author, 2016

Brajec Bar

Brajec was established in 2008. It is situated in the middle of Mlalakuwa settlement. It is for middle and high-income cadres. Residents and outsiders meet, relax and hold meetings and ceremonies. Among the 30 interviewees, 75% knew the place and could direct someone through Brajec Bar. In corroborating the strength of Brajec as a guiding element in the settlement an interviewee said:

"If you are coming to Brajec Bar from Mlimani City just take the University Road and at about 250m from Mlimani City you will see a famous Bulls Park on the right hand side. On your right hand side adjacent to Bulls Park there is a road going eastward and about 200m on the left you will see a high rise building, and a telephone tower, just keep going straight you will see an electric transformer at the junction. Keep right and continue moving and after about 100m ahead you

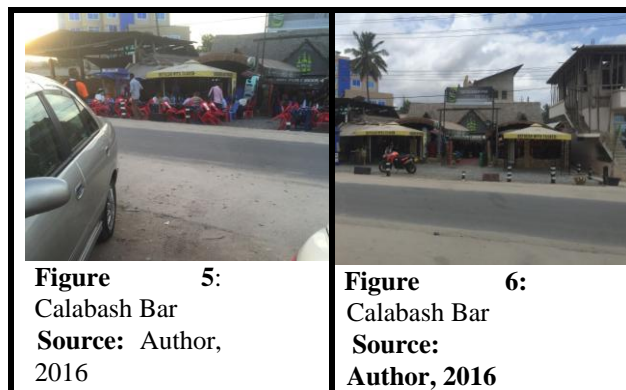


Figure 5:
Calabash Bar
Source: Author,
2016

Figure 6:
Calabash Bar
Source:
Author, 2016

will spot a billboard for Brajec Grill within a big fenced plot. ...That is Brajec."

However, on counterchecking whether Brajec is the only element of orientation another interviewee responded:

"Brajec is latest here at Mlalakuwa. It is very new I am telling you. I rarely use Brajec to guide anyone to anywhere, but rather I tell a person to go straight from Mpakani Road in case he is coming from that side. Then after a about 700m he/she can ask anyone to show him/her a maize milling factory (Mashineni) or Bakwata, or kwa Professor Wangwe as these are very famous places in Mlalakuwa. Then from Mashineni keep going straight, do not go left or right just keep the main road, you will reach Bulls Park adjacent to a tarmac road. That is the simplest way to guide outsiders in Mlalakuwa." The same respondent argued that the Name Brajec is difficult to memorize and thus not friendly as stated below: "The name Brajec itself is hard to mention. Here at Mlalakuwa our famous places were named using people's names, native tribes and heritage. This name Brajec is hard to pronounce it is as if it came from Europe (Ughaibuni in Swahili).

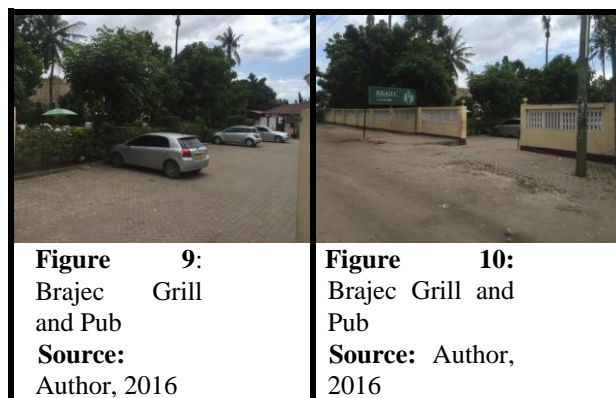


Figure 9:
Brajec Grill
and Pub
Source:
Author, 2016

Figure 10:
Brajec Grill and
Pub
Source: Author,
2016

Mama Chambo Bar

This bar is the most famous and oldest bar in Mlalakuwa. It is located along the main Mlalakuwa Road about 350m from Mpakani bus stop. It started as a small grocery, which kept on expanding and now is a big bar. Its outstanding recognition is because of its age. It is commonly referred to as Kwa Mama Chambo.

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DDC Mlimani Park

DDC Mlimani is one of the oldest recreation places in Mlalakuwa settlement. It is situated along the University Road. It is located opposite to Mlimani City Mall. DDC Mlimani Park is a mixed-use place with a bar, restaurant, offices, car wash area, social hall, taxi station and small shops. It is within a reasonable walking distances to Bulls Park which is about 250 meters away and Mama Kamche Bar, which is more or less 150 meters away. Its road-junction location made it a reference point for the city residents and outsiders.



Figure 13: DDC Mlimani Park
Source: Author, 2016



Figure 14: DDC Mlimani Park
Source: Author, 2016

Migombani Bar

It is located at Savei bus stop on the southern part of Mlalakuwa settlement. According to one of the respondents: *"Migombani Bar was given the name Migombani because it is located within a banana farm. The word mgomba means banana tree. People at Savei prefer to use this bar because it is 50m away from the University Road which is a bearer of noise pollution. The University Road is lined with shops, which act as noise barrier and thus result into tranquil Migombani Bar. This bar is a bit hidden and thus good for private socio-economic transactions and recreation."*



Figure 15: Migombani Bar
Source: Author, 2016



Figure 16: A path to Migombani Bar
Source: Author, 2016

Kilabu cha Makondeko kwa Kidevu

Kilabu cha Makondeko kwa Kidevu is accessible through Mikoroshini Road which starts at Savei Darajani. It is well known for vending of local brews. Every hour of the day people are found there. Sometimes some of them sleep there. Most of its customers are poor people who cannot afford to buy conventional beers. One respondent said: *"We are all poor here. This place is our home; we go out look for money and come back here to enjoy the little we get. We meet here,*



Figure 11: Kwa Mama Chambo Bar
Source: Author, 2016



Figure 12: Kwa Mama Chambo Bar
Source: Author, 2016

drink, talk and dance. This cheap beer "Mataputapu" is very cheap, sweet and it has a very high alcoholic content. It is so easy to get drunk with little money. People know this place to a large extent and they know us all. If you think I am lying just ask anyone around. Sometimes the local government authority guardians come here and arrest us for illegal drinking during the morning and afternoon hours but we cannot stop this as we have been doing it for years and no one can prevent us from continuing with such habit. If you demolish this "Kilabu", the customers and Mlalakuwa in general will be affected as this bar is serving multiple purposes, like socialization, recreation, livelihood and social identity."



Figure 17: Makondeko kwa Kidevu Club
Source: Author, 2016



Figure 18: Makondeko kwa Kidevu Club
Source: Author, 2016

Social Halls

Banora and Ngome Saccos:-

Banora is one of the famous social halls at Mlalakuwa settlement. It is located along the University Road. This place is used mostly for wedding ceremonies and sometimes for other social gatherings. One of the respondents said: *Banora Social hall is one of the strongest elements we use to orient people in Mlalakuwa. It is a voluminous building which is easily perceived by any passerby. It is more apparent when an activity is taking place inside it and a lot of cars are parked outside.*



Figure 19: Banora Social Hall (Exterior)
Source: Author, 2016



Figure 20: Banora Social Hall (Interior)
Source: Author, 2016

Banora Social Hall is fenced to avoid roadside vendors and theft. This building was previously a warehouse and workshop. It was converted into a functional hall and became a famous spot at Mlalakuwa settlement. Banora is very active mostly from Thursday to Sunday. During the daytime it is dormant. But from evening to midnight people come in for social functions like weddings, and farewell parties. Additionally, there is Ngome Saccos Building which is also a functional hall, which is owned by Lugalo Regiment. It is located on the north-western side of Mlalakuwa settlement along Ali Hassan Mwinyi Road.

Social Clubs

Kwa Nyerere, Kwa Anko, Kwa Zaka, Mnara wa Voda, Bata Boy, Mkungu Sheria and Kwa Dogo are places called "Vijiwe" in Mlalakuwa settlement. These are socialization places where different people of different age groups meet. Specific groups do discuss specific matters pertaining to national political spirit of a particular time as well as the global politics. Some of the male-youngsters meet at the selected social spots to discuss international and local sports, local politics, religious and social affairs. These social clubs are in a relaxed way formed and every Kijiwe has its own members. Moreover, the study revealed that, among all the mentioned social clubs, Voda Tower spot (Mnara wa Voda) is the most famous and recognized Kijiwe in the settlement because of its unique characteristics like being the tallest tower at Mlalakuwa, Out of 40 residents interviewed, 100% (40 respondents) admitted to be familiar to Mnara wa Voda. One of the respondents said:

"Before the construction of this telephone communication tower, there was a retail shop owned by Mr. Michael. We used to come here, have some soft drinks, talk and go back home. We used to invite friends to meet here, as it was very well known. After the construction of this tower in 1995 people changed from calling the place kwa Michael to Mnara wa Voda. As you know, Tanzanians love new things. Since then, the name Mnara wa Voda became famous to date."

At Mnara wa Voda there is a spot used by elders as affirmed by a respondent who said:

"Look here, that is another Kijiwe known as Mnara wa Voda senior. That place is for elders. These two places are very closely related. After this telephone tower came into place, elders started to come, because the area was famous. With time youngsters noticed that, they were not free to discuss and do their issues as youths while their elders are around. The youngsters decided to shift to another place 10 metres away. In so doing we had to re-name this places Mnara wa Voda Seniors and Mnara wa Voda Juniors. However, Mlalakuwa residents still recognize Mnara wa Voda as the separation was internally carried out. Now and then, when youngsters need an advices we follow our elders for wisdom."

In affirming the relationship between the Mnara wa Voda Juniors and Mnara wa Voda Juniors another respondent said: *"It is not the matter of juniors coming to the Mnara wa Voda seniors for wisdom as they say. Here we live like one family. We help each other in different ways and most people in Mlalakuwa know this place. You know, formerly, Vijiwe (Vijiwe is the plural of Kijiwe) was known as areas for robbery, theft and many other bad behaviours, but these particular ones are innocent ones and we are even thinking of*

starting our own microfinance. Our wives and children know where to find us anytime in case they need us. This area is active every time but mostly during evening hours when most of the residents are back from their respective places of work. Everyone is allowed to come and socialize but he/she must follow and abide to our rules. The owner of this plot decided to dedicate this place for the public use, as there are no official public open spaces in Mlalakuwa. So we use it for gatherings, socializations and other public activities".

Religious Buildings

Discussions with residents and passers-by revealed that religious buildings especially mosques and churches were used by observers to understand the informally built settlements. UWATA, which was established by a famous retired soldier Mzee Mwaipaja, and the T.A.G Survey church buildings were frequently reported by the respondents as reference points.



Figure 21: A Church in Mlalakuwa
Source: Author, 2016

Figure 22: A Church in Mlalakuwa
Source: Author, 2016

Education Sites

Nursery school and tuition centres at Mlalakuwa frequently mentioned by the respondents as reference points.

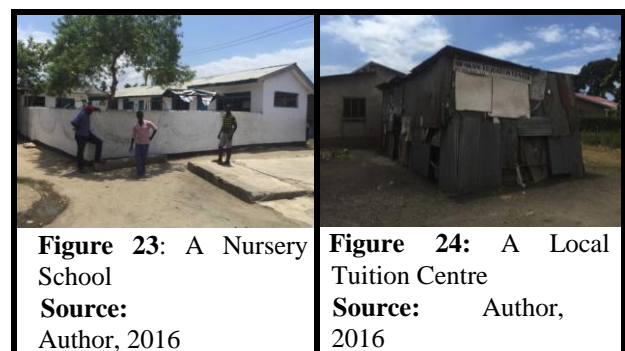


Figure 23: A Nursery School
Source: Author, 2016

Figure 24: A Local Tuition Centre
Source: Author, 2016

4. 2 Famous Residents' Houses as landmarks

The external form of private residential houses are used by residents and observers as reference points but in this case they are not entered within but rather used as physical objects. The names of famous people's residences stand out as names of places, albeit casual, houses. Such landmark buildings are principally local, being perceptible only in limited localities and from definite approaches but when associated with prominent names they become culturally amplified although not more particular, not more noteworthy, not more clearer in terms of form, not more contrasting with their setting, and less prominence of location.

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In Mlalakuwa settlement, there are famous places which bear the name of prominent residents as affirmed by 85% of the

known because of its roof shape and the stone cladding. " In verifying the meanings of the EZM House, the owner said: "I am an architect and a retired lecturer of Ardhi University. When I was designing this building I did not intend to make it a landmark. I just had another thinking. The roof design was simply a result of my concept and actually I wanted it to act as a shading device. So I am glad to hear that my building is a landmark and people use it for references here at Mlalakuwa settlement where I also live. You know, in design, one can have a primary concept and after the realization of the design and usage the building/structure becomes another remarkable urban element. Good designers design for people, and leave them to translate their designs. So for this case people have translated my design and it has become an outstanding one. I am humble." He concluded.



Figure 27: Landmarks in Mlalakuwa
Source: Author, 2016



Figure 28: Landmark in Mlalakuwa
Source: Author, 2016

interviewees. For example, Mzee Ngotonyingi, Tingisha, Mwaipaja, Kariakoo, Kongotea, Ngalapa, Makenzi, kwa Mpemba, Athuman Issa, Kwa Bibi Mikoroshini, Kwa Msekwa and Kwa Professor Wangwe to mention a few. Everyone has his/her unique prominence. Some of these people are dead but their names are still recognized and respected. In explaining the criteria behind the use of famous residents' names, one of the respondents said:

"Listen, the first most famous resident at Mlalakuwa was my late father Mzee Ngotonyingi. First of all, he was a traditional medicine doctor. He was a genius. He dealt with every disease except HIV. So everyone knew him and people were visiting us day and night". Again, "Do you know that he

Communication Towers as Landmarks

The field study identified five steel towers placed in different areas in Mlalakuwa Settlement. These towers are owned by different telephone companies for network signals. Two of them are for Vodacom Company; one is for TIGO Company and the rest are for AIRTEL Company. Residents are familiar to these towers and they use them as reference points. However the most well know and mostly referred to, is Vodacom Tower namely Mnara wa Voda (see Fig: 12). 90% of the respondents admitted that they use this tower to lead their guests to their houses. 15 outsiders from the neighbouring Mwenge neighbourhood affirmed being familiar with Mnara wa Voda. In explaining the strength of Mnara wa Voda as a reference point a respondent said:

"Mnara wa Voda was built in 1995 and it was the first tower to be constructed in Mlalakuwa settlement and neighbouring Sinza and Mwenge settlements. It was the main meeting point as it was visually observed as it popped up in the built profile. It is still the most generally known tower around this area. This tower brought so many activities around here. To date, Mnara wa Voda is excessively famous in getting together peoples mental maps."

In affirming the role of Mnara wa Voda in social activities a respondent said: *"We have our own jogging club, so every Saturday people from Mlalakuwa, Mwenge, Sinza, Kawe, Makongo, Changanyikeni and Ubungo meet here for jogging. I am telling you, once you tell anyone that let us meet at Mnara wa Voda, any bodaboda or bajaj driver will easily bring you there. It is the only well-known tower despite many others."*



Figure 25: Mzee Ngotonyingi residence
Source: Author, 2016



Figure 26: Mzee Mwaipaja Residence
Source: Author, 2016

had 40 children? Who else in Mlalakuwa had such big number of football team members? Don't mess up with my father," He insisted. Now "you can mention others like Mzee Mwaipaja who is also well known because of his notorious actions. You know he is like a mentally sick person, everybody knows him. I think he was affected by wars, as he was a soldier."

Another respondent, a 70 years old man while listening to our conversation added that: *"Well, your father was well known not only for the reasons you have said, but also he was a womanizer. He even used to seduce and sleep with people's wives and no one ever could confront him, because people were afraid of his witchcraft."*

High-rise Buildings as Landmarks

In Mlalakuwa settlement almost 95% of the houses are single storey buildings. People normally use Savei Plaza and EZM House as reference and orientation points as they are the tallest buildings at Mlalakuwa. In explaining the role of EZM House in Mlalakuwa a respondent said: *"That building is well*



Figure 29: Mnara wa Voda.
Source: Author, 2016



Figure 30: Kwa Bibi Mkoroshini.
Source: Author, 2016

Trees as Landmarks

A 78 years old retired soldier explaining the role of trees in understanding spaces and places said: "Mlalakuwa settlement was a village, which was influenced by the soldiers of Lugalo Military Base which is just adjacent to Mlalakuwa. The villagers grew cashew nut trees. This place took on the name Mikoroshini because it had so many cashew trees. If you ask anyone to bring you to Mikoroshini or kwa Bibi Mikoroshini he/she will direct you or bring you here without hesitation."

Tanzania Electric Supply Company (TANESCO) Transformers as Landmarks

Electric transformers are used as reference points as explained by one of the respondents who guided the researcher on how to arrive at Mashineni area. He said: "Go straight using this road, then after like two minutes right on the front side, you will see a transformer, then turn on your right you will find the shop ask someone there to show you Mashineni."

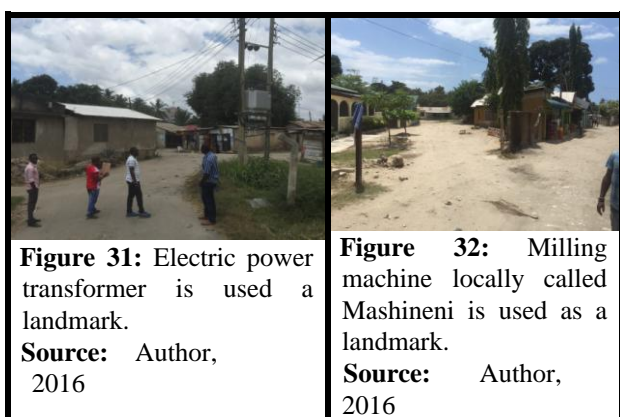


Figure 31: Electric power transformer is used a landmark.
Source: Author, 2016

Figure 32: Milling machine locally called Mashineni is used as a landmark.
Source: Author, 2016

Open Spaces as landmarks

Residents demonstrate the use of open spaces as an element of orientation in the landscape. The field study revealed that, most of the open spaces found in Mlalakuwa settlement were owned by good hearted persons who voluntarily surrendered portions of their plots for public use.

One of the respondents said: "We really don't have adequate spaces for recreation purposes. As you can see most of the areas are congested with houses and therefore the few public open spaces we have become easily noticeable and used to guide passersby in the built environment."

Garages, Banks, Filling Stations, and Parking Areas as landmarks

There are nine garages, two petrol stations, one bank, one car show room and 5 parking areas at Mlalakuwa and all were frequently mentioned by the respondents as reference points and nodes. All these elements are located along the major peripheral roads which make Mlalakuwa visually and physically accessible.



Figure 33: Oilcom Filling Station at Mlalakuwa
Source: Author, 2016

Figure 34: Puma Filling Station at Mlalakuwa
Source: Author, 2016

Figure 35: A bank at Mlalakuwa,
Source: Author, 2016

Figure 36: Public car parking at Mlalakuwa
Source: Author, 2016

Bus Stops and Tax, Bajaj, and Motorcycle Stations as landmarks

Residents in Mlalakuwa settlement use public Daladala, Bodaboda, Bajaji and taxis as means of transport inside and outside the settlement. Bus stops are located along Sam Nujoma and University Road. Stations for motorcycles and Bajaji at Savei-Darajani, Bulls Park Bar, DDC Mlimani Park, Mpakani Bus Stop and Mwenge are used as reference points. One of the bajaj operators while ascertaining the role of the bajaj and 'daladala' stations to outsiders, said: "The bajaj, and bodaboda stations were not designed by anyone despite the fact that they are recurrently used by the outsiders as landing points. They normally ask the operators to guide them to reach the specific areas they want to visit. He insisted that, "Every driver here knows every route and place in Mlalakuwa settlement. These stands are the most famous places in Mlalakuwa settlement as strangers come here first to ask for help. Most people in Mlalakuwa have handset-phones so they call, and get picked up easily."

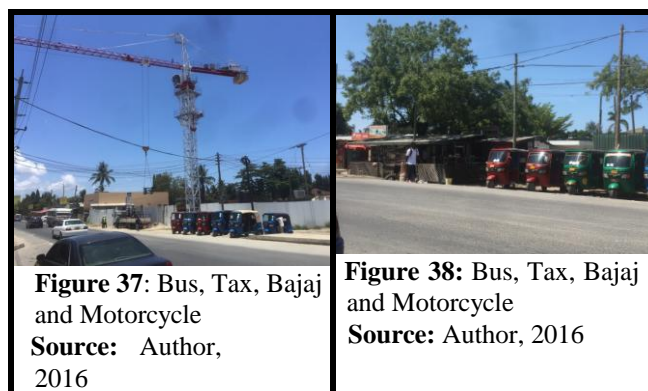


Figure 37: Bus, Tax, Bajaj and Motorcycle
Source: Author, 2016

Figure 38: Bus, Tax, Bajaj and Motorcycle
Source: Author, 2016

Moreover, the researcher identified other activities that take places at landings and attracts people to the places. These are shoe shining, newspaper vending and local food vendors.

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Figure 39: A map of Mlalakuwa settlement showing its boundaries and parts of neighborhood settlement
Source: Author, 2016

Road junctions as nodes

The peripheral roads namely Sam Nujoma and the University Road as well as the Mlalakuwa thoroughfares are looped with secondary roads and paths. It was noted that most of the junctions formed through looping are used as reference points. In most cases buildings at junctions serve commercial purposes. A ten year old boy while explaining to the researcher the location of Brajec Bar from Savei he said: "Go straight with this road, after about 500 meters, you will see a transformer in front of you and two roads intersecting. One road is going to the right hand and the other to the left, just take the right hand side road, in front of you, you will see the place you are asking."

4.3 Building Setbacks as Paths Network

Principally, people's movement in the Mlalakuwa settlement can be categorized into two groups namely combined motorists and pedestrians routes and purely pedestrian paths. People view Mlalakuwa walking or driving through it, and along it. Concentration of bars, shops, garages, social halls, parking areas for motorcycles, and taxis make the paths' impressions diverse and robust for improved distinction in the minds of observers. Proximity to Mlimani City which comprise diverse businesses and recreation activities gives Mlalakuwa extraordinary features. The paths of Mlalakuwa produce have varied characteristics in relation to widths and organic features which resonate diverse identities Mlalakuwa is lined with three perimeter roads namely University Road and Sam Nujoma and Ali Hassan Mwinyi Roads. It is , dissected with Mlalakuwa thoroughfare and inclusively networked by pedestrian routes which are practically the spaces between buildings. Literally there are buildings and spaces between buildings and life in buildings and life between buildings. The interwoven systems of paths produces a complex organic system with connections and directional feature. People are guided by the major flow of traffic. Names of roads produce continuity of paths at Mlalakuwa. In Mlalakuwa paths are

identifiable and continuity is ensured and thus they can be traced by outsiders (see Figure 38 below).

Mlalakuwa built environment is characterized by buildings surrounded by setbacks, which are used as paths. The study revealed that vehicular accessibility in the settlement is inadequate due to lack of coordination of the construction developments on different land parcels. In narrating the seriousness of lack of adequate vehicular accessibility to the majority of the houses, a fifty years old woman said: "In some areas when a person gets sick, he/she has to be carried by people from home to an area where a car can easily reach." See Figure 38 below.

She also added that when a person dies likewise people have to be involved carrying the body from the house to a place where a car can park. Out of 40 people interviewed, 50% (20 respondents) reported to have no vehicular access to their respective home places. Another male respondent emphasized that: "Accessibility is a big problem in the settlement; in case of emergencies like fire outbreak, mourning ceremonies and many others it becomes very difficult to handle those situations due to overcrowding of houses as a result of informal housing development and absence of open spaces."

4.4 Roads, Rivers and Bridges as Urban Edges

Sam Nujoma Road on the North Eastern side, the University Road on the South Western side and the Ally Hassan Mwinyi Road on the North Western side and Lugalo on the Northern side are boundaries between Mlalakuwa and University of Dar es Salaam, Ardhi University, Sinza, Lugalo Barracks and Mikocheni. These are cross references and permeable edges which differentiate Mlalakuwa from its neighbors. Such roads around Mlalakuwa generate the sense of in and out of Mlalakuwa and thus makes the settlement memorable and easy to interact with (see Figure 39 below).



Figure 40: A map of Mlalakuwa settlement showing movement patterns/paths connecting different areas in the settlement
Source: Author, 2016

Mlalakuwa River is on the North-Eastern side. One of the interviewees said: People in Mlalakuwa settlement; use settlement boundaries to orient outside at Mlalakuwa: "Mpakani was a name of the bar where we used

to meet and have drinks. By then this was a village with few houses. When the settlement started expanding, people used to stop here and walk inside Mlalakuwa. So it automatically became the name of the road. So people were used to direct each other using the name Mpakani Bar. Later Mpakani bar was demolished and the name Mpakani existed to date."

He also said that, "people in Mlalakuwa settlement use the Savei Bridge to define their boundary. They call it Darajani. Daraja means the bridge and Darajani means a place surrounding a bridge. The Ward Executive Officer pointed out that: "I wonder some people from Makongo and students from Ardhi University do not know the boundaries of Mlalakuwa and Makongo. You know sometimes they come here to seek for services. I always tell them to go to Makongo because Mlalakuwa and Makongo boundaries are Darajani at Savei. So we offer services for people within Mlalakuwa only."

4.5 Mlalakuwa as an Urban District

Mlalakuwa is enterable, and permeable to a large extent. However, due to the varied plot sizes, varied path-forms and widths, and varied people including poor, medium and rich cadres, it produces a complex and unpredictable built environment precipitating questions when experienced from within as there are no obvious common characteristics. The perimeter buildings are chiefly commercialized and create a wrap up commercial envelope which is visually and physical accessible. The well to do residents have big plots and fancy houses while the poor have small plots and high density developments. Use of colours to buildings is not prominent but display of commercial items in front of shops at the settlement perimeter is dominant. The skyline is predominantly single storey oriented with some few high rise buildings pitching the common skyline. The interiors of Mlalakuwa is dominated by interwoven paths between buildings which can be conventionally termed as setbacks. Principally properties are juxtaposed in compound forms and thus sharing of accesses to houses become feasible. Building uses are mainly residential with the exception of the perimeter buildings which are chiefly commercial residential. The common building type is single storey building with corridors flanked with residential rental rooms or apartments. Buildings are surrounded with walkable spaces between buildings which create organic paths with turns and contortions which make observer's movement unpredictable. Due to the use of spaces between buildings as social spaces residents have their eyes on the spaces between buildings and the social vibrancy simmering in spaces between buildings. Outsiders really feel their obligations as guests and the insiders really feel their responsibility to same spaces through defending and cleaning them. Mlalakuwa is a standalone district as it is surrounded by academic and military institutions as well as planned neighborhoods. However, it demonstrates the power of being liked, efficient and legible by all income cadres.

V. CONCLUSIONS AND RECOMMENDATIONS

The built form of Mlalakuwa informal settlement is visually graspable and memorable by both residents and outsiders. This paper evidently declares informal settlements as structured and perceivable settlements. It further verifies applicability of Lynch's five elements of legibility of cities.

The study reveals the use of famous persons' residences and vibrant social places as reference points. Therefore, social patterns play a big role in understanding the built environment of the informal settlements.

The contorted streets and paths and the fluidity of spaces between buildings make naming of streets and paths impossible as evidently showcased by not being addressed by the respondents of the enquiry.

The building setbacks in the compact informal settlements are freely used as public paths as the property lines are not demarcated and therefore such paths create a clear cohesion between buildings and spaces between building, apparent dichotomy between public and private domains, and continuity of paths and spaces between buildings and thus make users' oppression of the built form possible.

The absence of demarcation of property lines overshadows the identity of properties and personalization of spaces and buildings. Lack of mega facades, huge buildings, high rise buildings, extraordinary building forms and landscape designs does not deny applicability of Lynch's five elements of legibility in Mlalakuwa informal settlement.

The paper sees the importance of understanding the underpinning residents' perceptions of settlements in order to make informed planning and designs. Urban designers, architects and urban planners are urged to use native elements of readability when carrying out design and implementation of informal settlements upgrading, informal settlements regularization, urban restoration and revitalization of cities.

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