SYNTHESIS OF HUMAN SETTLEMENT LAYERS IN MBeya CITY IN TANZANIA

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INTRODUCTION

Singh (2009) defines human settlements as a place inhabited more or less permanently. It includes buildings in which people live plus paths and streets that they use to move from one place to another. Human settlement layers may consist few dwelling units called hamlets in the rural settings or big cluster of buildings in the urban contexts. The national population census conducted in the United Republic of Tanzania (URT) in 2012 revealed that the country was predominantly rural with 70% of the population and the remaining 30% reside in urban settlements. URT (2000) estimated that urban population in developing countries has increased from 350 million in 1950 to 1.3 billion in 1995. However, the United Nations estimated that by the year 2015, two thirds of world population will be living in urban centres and cities. Such rate of urbanization is alarming in developing countries and poses serious questions on how to deal with issues of sustainable human settlements and adequate shelter for all. The construction policy of 2003 in Tanzania which raised this important issue of human settlements development has neither been adequate nor sustainable for both urban and rural human settlement layers (URT 2003). Urban layers are suffering from inadequate housing stock and poor infrastructure. Whereas, in rural human settlement layers the issue is not adequate stock of housing units but poor housing conditions as well as insufficient physical and social infrastructural services. Senkatuka (2009) contend that sustainable development recognises the need to live in healthy, secure and affordable serviced neighborhoods. Cities must have good physical and social infrastructure such as roads, drainage, water supply, electricity telephones, open spaces schools, churches, mosques, dispensaries and hospitals.

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Tanzania is the largest country in the East Africa region comprising the territory formerly known as Tanganyika, now mainland Tanzania and Zanzibar which is made up of two islands, namely Unguja and Pemba. It covers 945,000 square kilometres (URT 2011). According to URT (2016) Tanzania had a population of 50.1 million in the year 2016 of which 46% were under age of 15. The country is found South of Equator and shares borders with eight countries, namely Kenya, Uganda, Burundi, Rwanda, Zambia, Malawi, the Democratic Republic of Congo and Mozambique. It is a country with abundance of inland water, with several lakes and rivers. Lake Tanganyika runs along the western border of Tanzania and is Africa’s deepest (1470m), longest (1,828km) freshwater lake and the world’s second deepest lake after Lake Baikal (1642m deep) in Southern Russia. Lake Victoria (69,485 km²) is the world’s second largest fresh water lake after Lake Superior the largest (82,103 km²) located on the United States and Canada border. Lake Victoria connects into Nile River (6,853 km long) the second longest in the world after the Amazon River with 6,992 km length. One of Tanzania’s most distinctive geological features is the Great Rift Valley, which was caused by geological faulting throughout Eastern Africa and associated with volcanic activity in the North-Eastern regions of the country. Except for a narrow belt of 900 square kilometres along the coast, the country lies 200 meters or more above sea level. In the North is the Mount Kilimanjaro rising to 5,895 meters above the sea level and it is the highest point in Africa. This is the tallest freestanding mountain on earth. These qualities make Tanzania a very interesting country to synthesize its human settlement layers. The case study area for this research is Mbeya city which is found in the Southern part of Tanzania at latitude 8° 50’ - 8° 57’ South of Equator and Longitude 33° 30’ - 35° 35’ East of Greenwich and covers a total area of 222 km². According to URT (2006) Mbeya City had a population of 265,586, out of which 126,153 (47.5%) were men and 139,433 (52.5%) were women within 64,179 households in the year 2006. Mbeya City is built on an elevated land and spreads along the slopes of two mountain ranges, namely Mbeya and Mporoto, at an altitude rising from 1,600 to 2,400 meters above sea level (Kiondo et. al. 2015).

Layering of Human Settlements in Mbeya City in Tanzania

Classification of human settlements layers in Tanzania is based on the population size, level of services and economic bases. Human settlement layers may be divided into two broad categories, namely rural and urban settlements. Rural settlement layers comprise hamlets and villages. On the other hand, urban settlement layers are found in minor towns, towns, municipalities, cities and mega cities. Human settlement layers in Mbeya City are divided into two basic layers, namely planned low, medium and high density human settlements; and unplanned human settlements. The planned settlements are reasonably serviced with modest physical and social services such as health centres, schools, churches, mosques, tarmac roads, streetlights, water supply, sewage, drainage systems and communication networks. High and middle income class people live in low density human settlements layers. Whereas, unplanned human settlement layers exist in Mbeya city with limited social services, basic socio-economic services and are inhabited by low income earners.

Tanzania’s Development Vision 2025 wishes to attain a high quality of livelihood for its citizen; peace, stability and unity; good governance; well educated society; and a competitive economy capable of producing sustainable growth and shared benefits by 2025. To achieve this, it requires good strategies and policies to be in place. One of the specific goals of Tanzania population policy of 2006 is to increase and improve availability and accessibility of quality social services (URT 2016). Unfortunately, though the majority of world population are found in the rural settlement layers the larger portion of world resources is directed to urban human settlements (UNCHS 1998).

Singh (2009) argues that human settlements can be classified on the basis of existing sizes and functions into urban and rural contexts of a particular place. Basically, major functions within urban settlement layers include trades, commercial businesses, transport, communication, administration, cultural exhibitions, recreational activities, mining, industrial manufacturing and defense. Whilst in rural human settlement layers the major economic engagement is agriculture and its population density it is lower compared to urban human settlement sizes and densities. Moreover, classification of human settlements can also be based on their shapes and patterns, namely linear, rectangular, circular and star settlement layers (Singh, 2009).

Urban human settlements in other parts of the world are not only classified on the basis of its population size but also on occupational structure. For example in India, if more than 75% of the workforce is engaged in non-agricultural activities then that particular human settlement is referred as urban which is not a common scenario in other countries. In Brazil any administrative centre is termed as urban. Whereas in Tanzania human settlements are classified as: a village where the settlement is of less than 10,000 people; a minor town when the population is between 10,000 and 30,000 people; a town when a population is between 30,000 and 100,000; a municipality is a settlement with a population between 100,000 and 500,000 people; a city is the one with a population between 500,000 and 4,000,000 and a megacity is a settlement with more than 4,000,000 people (URT, 2011).

METHOD

The research was conducted in Mbeya city which is considered to be rich with information of human settlements within planned and unplanned urban contexts. Major field-survey was conducted in the year 2016 followed by minor field surveys in 2017. The main research method used was a case study. Multiple data collection tools that were employed included literature review, interviews with key informants, observations, and photographic registration. Qualitative data of urban settlement patterns were collected, studied, analyzed and presented in the form of text, photographic-images and tables.

FINDINGS AND DISCUSSION

This section presents key findings and discussion of various human settlement aspects which came out of the research. Different human settlement layers ranging from planned and unplanned; Low, medium and high density human settlements; and housing condition are analyzed and discussed.
Low Density Urban Human Settlement Layers in Mbeya City

Low density urban human settlement layers are found in planned urban areas which are supposed to be developed in accordance to city master-plans, regulations and by-laws. However, it has been observed that master plans are prepared but not followed. According to URT (1979), dedicated land for housing must be serviced before it is allocated to developers but the reality on the ground is absolutely the opposite due to financial constraints facing many governments in the developing world. Nnkya (2008) gives another phenomenon on poor planning of city master-plans that there is lack of deliberate collaborative efforts between spatial urban planners and residents. Planners could have an opportunity to learn from local people but they blocked themselves with presumptions that they know what the people want! Low density urban human settlement layers in Mbeya city are mainly found in Sisimba ward popularly known as Uzunguni, which refers to European settlements in Kiswahili language.

This human settlement layer provides reasonable level of accessibility to few but restricts many to enter. Plot boundary walls are built as seen in figure 2. Some community services such as churches, mosques and schools which are found in the low density areas are voluntarily shared by neighbouring communities. Gardening and small agricultural activities are found within the low density human settlements because the built-up area is smaller compared to the total plot area.

Medium Density Urban Human Settlement Layers in Mbeya City

This category of human settlements comprises detached and semi-detached dwelling houses and residential apartment flats. A flat may range from two to three bedrooms, a sitting room, dining and a kitchen in Uhindini settlements. Uhindini in Kiswahili language refers to Indian settlements. Commercial-residential block of flats in this type of human settlements are designed to accommodate commercial businesses at the ground floor level and residential on upper floor levels in Mbeya City as seen in figure 3. Furthermore, medium density human settlements in Mbeya city include Isanga (Blocks F, Q, and S and T), parts of Blocks X and Y in Mwakibete and Block M in Forest Area. This is a similar and common scenario in other cities in Tanzania as exampled in figure 4 which is a commercial residential undertaking in Kariakoo area in Dar-es-Salaam city.

Lupala (2006) is giving a similar scenario of Kariakoo urban context in Dar-es-Salaam city Tanzania where massive buildings are compacted in grid-ironed pattern of which ground floors are designated for commercial undertakings and residential apartments on upper floors. Horizontal and vertical building transformation is the basic and fundamental characteristic of these settlement layers. Table 1 explains further number of building storeys, land coverage and floor area ratio into various urban layouts such as medium, mixed and high density human settlements.

Medium density human settlement layers are suitable for urban infill development which includes mixture of dwelling house types, churches, schools, day care facilities, public facilities, and limited neighborhood commercial uses. Small scale domestic industries may be located in designated and selected...
medium density human settlement layer as can be seen in figure 5.

Figure 4 Commercial Residential in Kariakoo Urban area in Dares Salaam City Tanzania.
Source: Mosha et al (2015)

High Density Urban Human Settlement layers in Mbeya City

This type of human settlements comprises houses built and managed by the private sector in Mbeya City. The average occupancy rate in these residential areas is about eight people per household. Existing high density human settlements include Uyole, Ilemi, part of Block “S”, Airport Area, Iyunga, and Nzovwe. High and rapid urbanization rates in developing countries contribute largely in transforming urban human settlement layers from low to high densities especially in major arterial city spines. Densely built houses in high density human settlements cannot enjoy fully the natural ventilation and therefore require to be improved by artificial ventilation mechanism but at the same time suffering from shortage of electrical power supply (Nguluma 2006). The level of electricity usage in urban areas in Tanzania is apparently unsatisfactory as it can be seen in table 2. High density urban human settlement layers are explained further in the next section.

Unplanned Human Settlement Layers in Mbeya City

Unplanned human settlements refer to a phenomenon whereby buildings are constructed without building-permits from responsible government authorities and often times without legal ownership of the land. This type of human settlement is heavily populated and is classified as a high density human settlement layer. Lupula (2002) observed that development controls and guidelines in unplanned urban human settlements are not legally enforced. Nnkya (1999) argued that urban planning sector in Tanzania has failed to address human settlement problems because of too many plans without planning any.

Table 1 An Overview of Number of Building Storeys, Land Coverage and Floor Area Ratios

| S/N | Urban Human Settlement Types                                      | Number of Building Storeys | Land Coverage (%) | Floor Area Ratio (FAR) |
|-----|------------------------------------------------------------------|----------------------------|-------------------|------------------------|
| 1   | The Administrative/Institutional Area                           | 3 – 12                     | 35.2              | 1.8                    |
| 2   | Commercial residential area                                    | 3 – 5                      | 44.1              | 2.2                    |
| 3   | The Institutional (Former European residential) areas          | 1 – 2                      | 10.2              | 0.19                   |
| 4   | Medium density, moderate height residential                     | 2 – 4                      | 17.9              | 0.44                   |
| 5   | Mixed density, commercial/residential                           | 1 – 7                      | 40.0              | 1.5                    |
| 6   | Low density, low coverage residential                          | 1 – 4                      | 7.9               | 0.16                   |
| 7   | Small detached quarters                                        | 1                          | 6.9               | 0.07                   |
| 8   | Semi-detached residential quarters                             | 1                          | 18.7              | 0.19                   |
| 9   | Row housing residential quarters                                | 1                          | 22.1              | 0.22                   |
| 10  | High-density, low rise, Swahili house residential               | 1                          | 36.6              | 0.37                   |
| 11  | Consolidated high density, low rise unplanned settlements       | 1                          | 41.5              | 0.41                   |
| 12  | High density high-rise residential                              | 5                          | 10.8              | 0.54                   |
| 13  | Medium density, low-rise site and services residual             | 1                          | 36.2              | 0.36                   |
| 14  | Low density, low-rise consolidated unplanned residential        | 1                          | 25.5              | 0.26                   |

Source: Lupula 2006

There has been a problem of inappropriate use of resources and use of rigid urban planning regulations and legislations. For instance, the practice of trained professional Land Surveyors and Urban Spatial Planners do not necessarily use local skills and knowledge of indigenous people as part of enhancing technical input into city master-planning.

Unplanned settlements layers are sometimes referred as squatter settlements. This category of human settlement layer...
comprises many settlements in Mbeya city such as that of Isanga, Nzovwe, Nonde, Ruanda, Airport, Mwakibete, Mbatini, Mwanjelwa, Uyole, Ilomba, Itezi and Simike just to mention a few.

There are many names by which unplanned human settlement layers can be described ranging from negative to positive perspectives. These human settlement names include informal, semi-permanent, shanty towns, spontaneous, squatter, unauthorized and uncontrolled human settlements. Different countries attach different names to unplanned human settlements such as barong-barong in Philippines, jughi-johmpri in India, ranchos in Venezuela, favelas in Brazil and barriada in Peru. Turner (1969) takes a positive position of unplanned settlement layers by accepting and describing them as a solution towards urban human settlements problems faced by various countries with limited economic and financial resources. Nnky (2008) fairly complement Turner (1969) that there was a political will in Tanzania to naively accept the unplanned human settlement layers as a reality of urban life.

Among other governmental efforts, Tanzania has in the past launched several squatter upgrading programmes to uplift living conditions of unplanned urban human settlement layers. Shueya (2004) argued that some of factors which have influenced emergence of unplanned human settlement layers in various cities of developing country include poverty of the urban poor, unavailability of sufficient surveyed urban plots, lengthy and bureaucratic procedures of acquiring land right of occupancy in planned urban land, unrealistic urban development policies and unaffordable building materials and regulations.

Residential houses in unplanned human settlement layers are built and managed by the individual developers. The most common construction materials in unplanned urban human settlement layers are semi-permanent which include mud bricks for walls and corrugated iron sheets for roofing. Table 2 shows general housing characteristics including various building materials for floors and signifies that in the year 2016 earth floors were 17.5% in urban areas and 77.1% in rural areas in Tanzania. The earth floors in the urban areas are found only in the unplanned settlement layers because in the planned urban human settlement development policies such as the one advocated shelter for all by the year 2000 have failed. City layers in urban human settlements are highly impacted with heavy rural-urban migration. National housing condition of residential houses in these layers is poor because they are built with poor semi-permanent building materials. Houses are small with different orientations in favour of the available piece of land that could be afforded by the individual housing developer. Lupala (2006) ascertain that houses in the unplanned human settlements are densely layered but sometimes loosely layered with varying house forms from individual intuitive designs and involuntary construction methods.

### Table 2 Percent distribution of households by housing characteristics in Tanzania

| Housing Characteristics | Tanzania Mainland | Zanzibar | Tanzania |
|-------------------------|------------------|---------|---------|
|                         | Urban | Rural | Total | Urban | Rural | Total |
| With Electricity        | 55.9  | 5.1   | 21.9  | 47.2  | 22.5  |        |
| Without Electricity     | 44.1  | 94.7  | 78.1  | 52.8  | 77.5  |        |
| Total                   | 100   | 100   | 100   | 100   | 100   |        |

| Flooring Material       |         |        |       |
|-------------------------|---------|
| Earths                  | 17.5    |
| Dung                    | 0.0     |
| Wood                    | 0.0     |
| Palm/bamboo             | 0.0     |
| Parquet                 | 0.0     |
| Vinyl or Asphalt strips | 0.3     |
| Ceramic tile            | 9.9     |
| Cement                  | 68.6    |
| Carpet                  | 3.5     |
| Others                  | 0.2     |
| Total                   | 100     |

| Rooms Used for Sleeping |         |
|-------------------------|---------|
| In the House            | 43.5    |
| In a separate building  | 23.7    |
| Outdoors                | 30.7    |
| No food Cooked in Household | 2.2 |
| Total                   | 100     |

| Place for Cooking       |         |
|-------------------------|---------|
| Electricity             | 1.3     |
| LPG/Natural Gas/Biogas  | 7.7     |
| Kerosene                | 5.3     |
| Charcoal                | 63.1    |
| Wood                    | 20.44   |
| Straw/Shrubs/Grass      | 0.0     |
| Animal dung             | 0.0     |
| No food Cooked in Household | 2.2 |
| Total                   | 100     |

| Cooking Fuel            |         |
|-------------------------|---------|
| Electricity             | 1.3     |
| LPG                     | 7.7     |
| Kerosene                | 5.3     |
| Charcoal                | 63.1    |
| Wood                    | 20.44   |
| Straw/Shrubs/Grass      | 0.0     |
| Animal dung             | 0.0     |
| Total                   | 100     |

| LPG = Liquefied Petroleum Gas |

### CONCLUSION AND RECOMMENDATIONS

Up to 70% of urban poor cannot lawfully access urban planned land, infrastructural services and building standards required by urban human settlement regulators. Consequently, the urban growth cannot conform to pre-conceived and prepared city layered master-plans. Several global human settlements policies such as the one advocated shelter for all by the year 2000 have failed. City layers in urban human settlements are highly impacted with heavy rural-urban migration. National human settlement development policies should ensure government and private sectors are collectively involved in developing sustainable human settlements; promote use of available low cost local building materials; innovative building technologies and practices. Integrated rural-urban synergies are important in national and global human settlements development agenda. Urban and rural spatial planning must be married so that the joy out of that “marriage” brings an improved urban spatial human settlement layers. Regional, national and global institutions responsible in designing,
planning and implementing human settlement policies and development strategies should consider urban and rural human settlement layers as well as planned and unplanned human settlement layers as a magnet. Sustainability of the two are dependant and un-separable.

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