Local Residents' Responses to Livelihood Transformation in the Peri-Urban Mwanza City, Tanzania

Laison S. Kaganga
Department of Geography,
St. Augustine University of Tanzania, Mwanza, Tanzania
https://orcid.org/0000-0002-6669-4872

ABSTRACT

The profound effect of urbanisation in most cities' peri-urban areas in the global south is the transformation of the livelihoods of local residents through the destruction or creation of livelihood assets. This occurs when urbanisation constrains or enhances the livelihood during the transition from rural to urban monetary economies. This study aims to assess the local residents' responses to the livelihood transformation brought by urbanisation in the peri-urban Mwanza City, Tanzania. In order to achieve that, the capital assets framework of the sustainable livelihood approach (SLA) has been used as an analytical tool to understand peri-urban livelihood. Data was gathered from 155 local residents' households in the study ward of Buswelu by employing both probability and non-probability techniques. Geographic information systems technologies and remote sensing were employed in the study to identify changes in land use and their implications for livelihood. In-depth interviews, structured interviews, documentary reviews, and field observation were all employed as data collection methods. The findings indicate that the built-up area has expanded by 412%, from 220 to 1,957 hectares, between the years 2000 and 2020. This expansion has been at the cost of other land use, which has eventually affected local peri-urban residents' livelihoods in various ways. Conversely, urbanisation opened up new urban livelihood opportunities for residents in peri-urban areas. Consequently, the local residents responded to the transformation of livelihood by intensifying agriculture and diversifying activities for both farm and non-farm livelihoods, and some herders opted to migrate with their animals to more rural villages. However, the findings exhibit that some of the coping mechanisms helped them improve their livelihoods, while others did not. Additionally, human and financial capital appeared to be of greater relevance in the urban livelihood setting. Thus, a proper understanding of the local residents' responses to livelihood transformation is of great significance for enhancing their livelihood during the transition from rural to urban life.

Keywords: Livelihood assets, Local residents, Tanzania, Peri-urban areas, Urbanisation

INTRODUCTION

Over the next three decades, the world will continue to urbanise, from 56% of people living in cities in 2022 to 68% in 2050. This corresponds to the rise of 2.2 billion urban dwellers, the majority of whom will reside in Asia and Africa (UN Habitat, 2022). Notably, the contribution of African residents to global urban dwellers by 2050 is projected to be 20.2% (OECD/UN ECA/AfDB, 2022; Afriyie et al., 2020), attributed to natural population increase and rural-urban migration (Korah et al., 2024). According to UN DESA (2018) urbanisation is the "gradual shift of people's principal place of residence from rural to urban areas".

However, despite the fact that urbanisation is a necessary development stage, it has not been as good for most dwellers in peri-urban areas in many developing countries (Woltjer, 2014). Peri-urban is defined "as the territorial area on the edge of an urban settlement typically characterised by rapid growth in population; mixed land use between agriculture, industry and

housing; and thus, representing both livelihood opportunities and shocks and stresses to local residents" (Hutchings et al., 2022). Yet, the linkages between peri-urban and urban areas are in fact important parts for the local residents' pursuance of livelihood strategies (Farrington et al., 2002).

Nevertheless, urbanisation is associated with excessive consumption of peri-urban land due to urban expansion. It is estimated that by 2030, the built-up area in the world will have expanded by 1.2 million km^2 as a result of the increase in urban land consumption. That consumption will surpass population growth by up to 50% (Marcotullio & Sorensen, 2023; Mahtta et al., 2022). However, much of the expansion of urban land is forecast to be in Africa (Angel, 2023; Yussif et al., 2023).

For instance, over the last decade, Africa has seen the fastest rate of urbanisation of 4.6 (UN DESA, 2022). The continent is characterised by unplanned and unregulated growth, and such expansion has been harming the livelihood of rural residents in various ways in peri-urban areas (Angel, 2023; Bonye et al., 2020; Beckers et al., 2020; Guneralp et al., 2018). According to Bonye et al. (2020) and Beckers et al. (2020), the conversion of rural land to urban use has a remarkable effect on the economic conditions of the local residents, as normally it tends to transform it.

On one hand, when land is converted for urban use, employment in agriculture tends to decline. Because of this, the poorest local residents suffer the most during the shift from rural to urban economies due to the lack of appropriate urban sustainable livelihood solutions (Ayele & Tarekegn, 2020). But also, urbanisation tends to push the local residents to become more dependent on cash-based income as the economy becomes more monetised in an urban setting (Abdulai et al., 2020).

On the other hand, the horizontal expansion of cities has been presenting myriad opportunities to local residents in the peripheries of cities (Abdulai et al., 2022; Hutchings et al., 2022; Sakketa, 2022; Hatcher, 2017). Urbanisation and subsequent urban growth tend to open up peri-urban zones by providing means of access to services and infrastructure, which diversifies the local economy (Abdulai et al., 2020; Afriyie et al., 2020).

Studies show that peri-urban areas are transformed into intricate secondary economies. Then, the trickle-down effect of urbanisation results in the rural agricultural economy assuming urban characteristics (Sakketa, 2022; Hatcher, 2017). But also, as the peri-urban areas transform into urban areas, a variety of livelihood sources emerge for the local residents (Abdulai et al., 2022; Hutchings et al., 2022).

Consequently, at any rate, local residents tend to respond differently to the consequences of urbanisation depending on the endowments of livelihood assets. Some of the affected local residents tend to intensify agriculture or diversify, while others adopt off-farm livelihood strategies. In the process, some local residents may gain livelihood in their response, and some may lose livelihood; others may neither gain nor lose (Afriyie et al., 2020).

However, important are the intervention mechanisms that can either enhance or constrain local residents in the course of pursuing their livelihood strategies. Thus, the pre-requisite of most authorities is to be sufficiently prepared to have effective responses for a smooth shift towards inclusive, safe, resilient, and sustainable cities (UN, 2023). This is because when urbanisation is properly managed, increased productivity and innovation can promote sustainable growth (UNDP, 2018).

Tanzania, as is the case in most countries in the global south, has an urban population of 36.7%, which has increased during the last ten years by 5.2% (p.a.) (Tanzania Urbanisation Laboratory (TULab), 2019), and is projected to reach 50% by 2030 (UN Habitat, 2023). According to the Tanzania Urbanisation Laboratory (TULab) (2019), this growth has already imposed devastating impacts on cities in the country, due to the lack of a clear urban policy, which results in low economic multipliers and sprawl.

Mwanza City, the second-biggest city after Dar-es-Salaam, is among the urban centres in the country that are expanding tremendously. Its urban land expanded by 107% (2179.9 hectares) and 118% (4957.53 hectares) between 1999 and 2009 and between 2009 and 2019, respectively (Kaganga, 2023b). This expansion converted most of the rural lands into urban use and transformed the livelihood of many local residents in the periphery of the city.

It is important to remember that the bulk of the local population within peri-urban Mwanza City are the ethnic tribes of Sukuma, who are traditionally crop growers and cow herders. (Kaganga, 2023a). Their livelihoods are derived from their cattle and crops. Thus, access to natural-based resources was a significant asset for their livelihood. Those traditional activities provided them with security as they managed to produce enough food to meet their own needs and surplus. They used existing knowledge and skills to militate against any productive changes within the peri-urban settings (Kaganga, 2019).

However, it is not known how the local residents are responding to the livelihood transformation brought by urbanisation. This study therefore attempted to (i) assess the effects of urbanisation on the livelihood of local residents in the study ward and (ii) analyse the local residents' responses to the transformation of livelihood by urbanisation. This paper aims to assist the Mwanza City authorities in guiding the local residents' livelihoods as they transform into urban economies by enhancing the local residents' abilities and capacities to seize new urban livelihood opportunities.

MATERIALS AND METHODS

Profile of the Study Ward

This study was carried out in the ward of Buswelu, in Ilemela District, Mwanza City (Figure 1). The ward is situated on the southern shores of Lake Victoria in northwest Tanzania, 17 kilometres from the Central Business District (CBD), consisting of 19 Sub-wards. In addition, as of 2022, the ward had a total population of 42,614 with 10,020 total households and an average household size of 4.3 (URT, 2022). The average household size is above the national urban household size of 3.8 as of 2022 (URT, 2022). It is located between latitudes 2°29'S to 2°34'S and longitudes 32°54'E to 33°05'E. The ward was primarily agricultural, consisting of farming communities, prior to experiencing significant urbanisation.

The ward was chosen for this study for two reasons: first, the moving of Ilemela District headquarters from the city centre to the ward in 2012 resulted in a significant increase in the ward's population and development. Subsequently, the area was converted from agricultural land use to urban use, changing the way of life for the local residents (Kaganga, 2023a). Not only that, but the introduction of urban fabrics to the local population had a profound effect on their livelihoods. Second, the area was home to both rural and urban livelihoods. Peri-urban areas are normally described by identifying the co-existence of both agricultural and non-agricultural activity in an area (Woltjer, 2014).
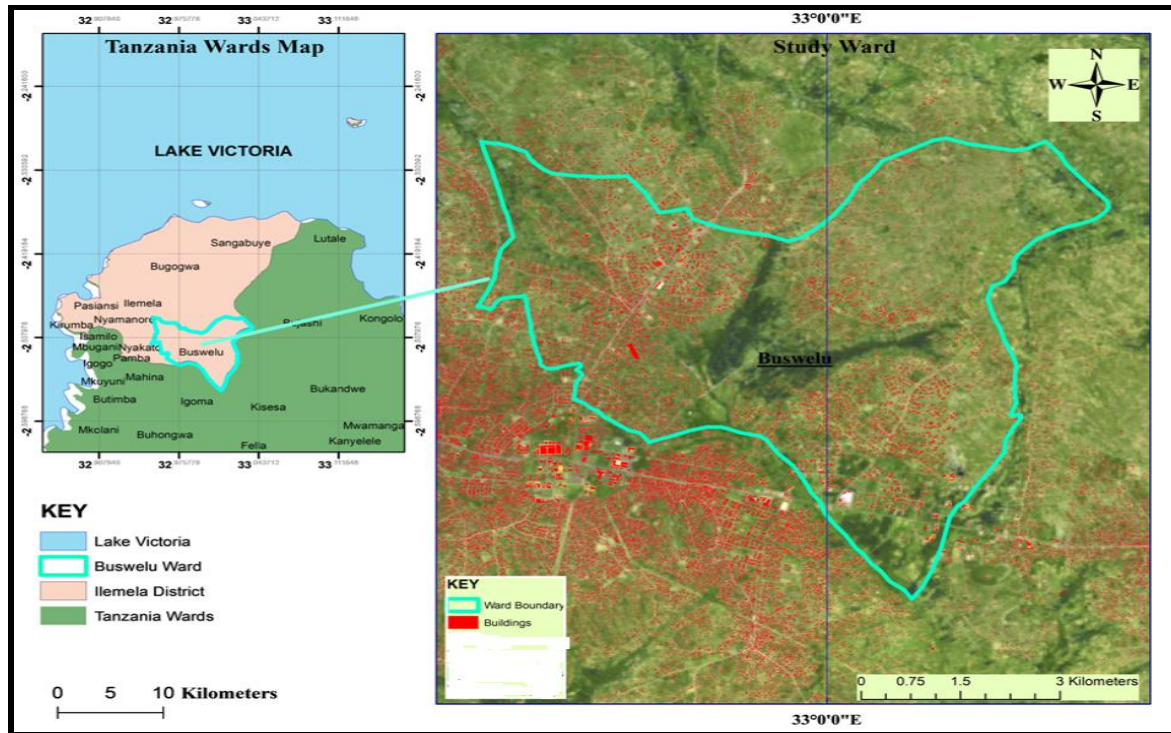
Figure 1: Location of the Study Ward

Sample Size and Sampling Procedures

Purposeful sampling was used in the study to choose the key informants (Ilemela Municipal Director and Sub-ward Chairpersons) and the Buswelu Ward in Mwanza City peri-urban. Heads of households from local residents were selected as sample units from the 19 sub-wards in the ward. Local residents entail persons who have lived in the ward for more than 20 years. These individuals were believed to have experienced the influence of urbanisation processes during their stay in the ward.

Those households served as the elements of the analysis. There were 254 total households (population) of local residents in the ward, of which 155 individuals comprised the sample size in the study ward. The formula of Israel (1992) was applied to compute the sample size;

$$n = \frac{N}{1 + N(e)^2}$$

Whereby, N is the total number of households (population) of local residents in the ward, 1 is the anticipated confidence level (95%), e is the level of accuracy, and n is the sample size. Thus;

$$155 = \frac{254}{1 + 254(0.05)^2}$$

Then the proportionate sample was obtained from each sub-ward;

$$n_i = \frac{N_i}{N} n$$

Whereby, N_i is the total number of households (local residents) in each sub-ward, n_i is the proportionate sample of each sub-ward, n is the sample size of the study population (local residents) in the ward, and N is the total number of households of local residents in the ward. The heads of households from local residents in each sub-ward were then chosen by simple random sampling technique.

Data Collection

In order to get quantitative data for this study, a quantitative research design was utilised, along with a qualitative research design to gather qualitative data. According to Creswell (2014), the utilisation of a mixed research approach is beneficial in terms of enhancing the study's credibility and validating the accuracy of other databases.

Thus, the Landsat 7 images of 2000 and 2010 as well as the Landsat 8 image for 2020 were used in the study to detect land use and cover change in order to evaluate the temporal and geographical dynamics and the consequent effects on the livelihoods of local residents. Other data were gathered by field observation, in-depth interviews, document reviews, and surveys of local households.

Data from the heads of households (local residents) was gathered through face-to-face interviews using semi-structured questions. The documents reviewed included the socioeconomic profile of Mwanza City, numerous reports from peri-urban studies, and census results from the National Bureau of Statistics. The Ilemela Municipal Director and the sub-ward chairpersons were interviewed using the semi-structured interview guides. Field observation was also applied in the field, which resulted in the production of field notes and photographs.

Data Analysis

ArcGIS software (version 10.3) was employed to conduct the supervised classification of satellite images. The land use and land cover classes produced consisted of woodlands, grasslands, built-up areas, and cultivated land. The analysis was done in order to detect change of land use and land cover from 2000 to 2020. This was achieved by quantifying land use/cover change over a period of ten-year intervals. The magnitude and the rate of change were computed in hectares and percentages, respectively.

$$\%\Delta = \frac{final - initial}{initial} \times 100$$

Whereas, *%Δ* is the percentage of change, *initial* is the initial year and *final* is the final year.

But also, the IBM Statistical Products and Service Solutions (IBM SPSS) software (version 23) was used to analyse the quantitative data collected through structured interviews. Whereby frequencies and percentages were generated while tables and figures were used to present data. On the other hand, a thematic approach was used to analyse the qualitative data, and the presentation was through explanations and photographs (plates).

Theoretical Framework

The UK Department for International Development (DFID)'s sustainable livelihood framework guided this study as it entails understanding of the livelihood of local populations in peri-urban contexts (DFID, 1999). The foundation of the paradigm was the idea that people live in an environment of vulnerability that is shaped by a variety of conditions, including longer-term trends, economic shocks, and changing seasonal limitations and opportunities. In order to achieve desired livelihood outcomes, it is necessary to understand how people draw on numerous livelihood assets in various combinations. These combinations are typically affected by the vulnerability context, a variety of institutions, procedures, and how they create a variety of living options based on their asset basis (DFID, 1999) (Figure 2).

The increase in the urban population as a result of migration from rural to urban areas and natural population growth results in heightened demand for land use in peri-urban areas, leading to urban expansion of cities. Meanwhile, urbanisation results in the loss of peri-urban people' means of subsistence; on the other hand, it opens up new urban opportunities for the locals living in the peri-urban area. The vulnerability context is the negative effects imposed by urbanisation on their livelihoods, including the conversion of agricultural land to urban

usage and the increased commercialisation of goods and services. Importantly, before urbanisation, peri-urban residents used to earn a livelihood by self-provisioning from natural-based resources. On the other hand, urbanisation creates new urban livelihood opportunities for local residents in the farm and non-farm sectors. However, these local residents take on various coping mechanisms to deal with the effects of urbanisation.

Thus, the framework for livelihood analysis is a paradigm that enable the understanding of the livelihood strategies of local residents. A livelihood is any of a variety of activities that individuals undertake for the pursuit of their existence and their well-being. The DFID (1999) defines livelihood as: "a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from shocks and stresses and maintain and enhance its capabilities and assets both now and in the future, whilst not undermining the natural resource base" (DFID, 1999).
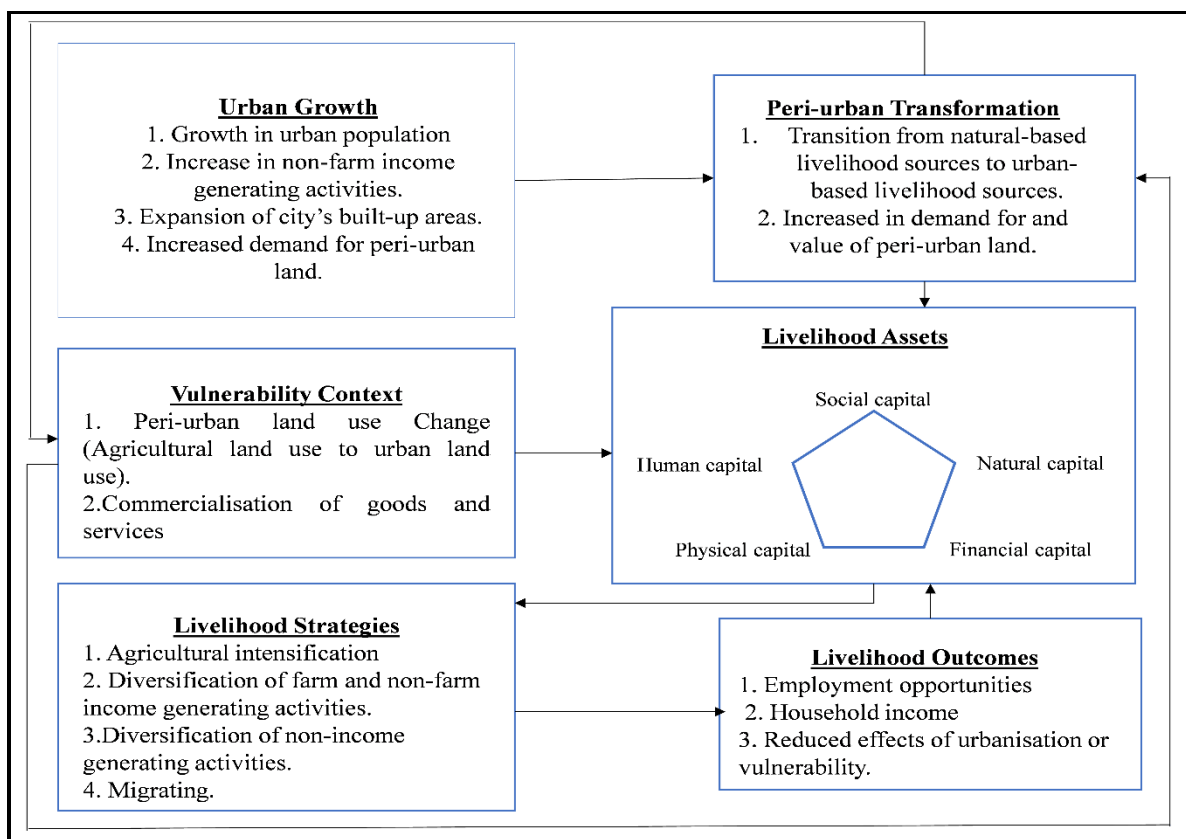

Figure 2: Conceptual Framework Adapted from Bonye & Yiridomoh (2020)

a) Livelihood assets are resources that individuals draw upon to build a livelihood. These resources could be material or non-material, financial or non-financial, and accessible at the family, community, or society levels. Additionally, stocks of capital that can be depleted, exchanged, kept, accumulated, or used to provide income or other benefits can be thought of as livelihood assets. According to DFID (1999), there are different categories of capital stocks, which include the social capital, human capital, natural capital, physical capital, and financial capital. The framework for livelihoods differentiates five fundamental asset classes or forms of capital that serve as the foundation for livelihoods. In order to support livelihoods and the eradication of poverty, DFID's top priority is to increase access to these assets, which come in the form of ownership or the right to use.

Human capital refers to "the skills, knowledge, ability to labour and good health important to the ability to pursue different" (DFID, 1999).
livelihood strategies;
Social capital refers to "the social resources upon which people draw in pursuit of livelihoods" (DFID, 1999).
Natural capital refers to "the natural resource stocks from which resource flows useful for livelihoods are derived (e.g., land, water, wildlife, biodiversity, environmental resources)" (DFID, 1999).
Physical capital refers to "the basic infrastructure (transport, shelter, water, energy and communications) and the production equipment and means that enable people to pursue livelihoods" (DFID, 1999).
Financial capital refers to "the financial resources which are available to people (whether savings, supplies of credit or regular remittances or pensions) and which provide them with different livelihood options" (DFID, 1999).

b) Vulnerability context implies "the trends, shocks, and seasonality factors that people are susceptible to as they pursue various livelihood options (for example, seasonal shifts in price, employment opportunities, food availability, sudden shocks such as disasters (floods or earthquakes), conflicts, et cetera). Trends, on the other hand, refer to differential access to land" (DFID, 1999).

c) Livelihood strategies is the term used to "denote the range and combination of activities and choices that people make or undertake in order to achieve their livelihood goals (including productive activities, investment strategies, reproductive choices, etc.)" (DFID, 1999). In response to the transformation of their livelihoods, the local residents opted to intensify agriculture, diversify both farm and non-farm livelihood activities, diversify on non-farm livelihood activities, and others opted to migrate elsewhere.

d) Livelihood outcomes are the achievements or outputs of livelihood strategies for the sustainability of livelihood. This can be seen in the increased income, improved well-being, and reduced vulnerability.

RESULTS AND DISCUSSION

The Effects of Urbanisation on the Livelihood of Local Residents
The findings indicate that urbanisation affected the livelihood of local residents by both destroying capital assets and creating new livelihood opportunities in the urban settings.

Negative Effects of Urbanisation on the Livelihood of Local Residents
Land Use Change in the Study Ward
Land was one of the crucial livelihood assets that was productive for the peri-urban people's livelihood in the study ward. However, to depict its dynamics, the trend analysis was done by differentiating land use from 2000, 2010, and 2020 between the rural land use and the urban land use. The results established that there were some significant changes in land use and cover between the years 2000, 2010, and 2020, as presented in the map in Figure 3 and the succeeding statistics in Table 1. However, huge increment in the built-up areas was detected, from 220 to 1957 hectares between the years 2000 and 2020, which is equivalent to 412% of the increase (Table 1). While cultivated land, grassland, and woodland decreased by 1,669 hectares (48%), 51 hectares (24%), and 16 hectares (63%), respectively, in the same time period (Table 1).
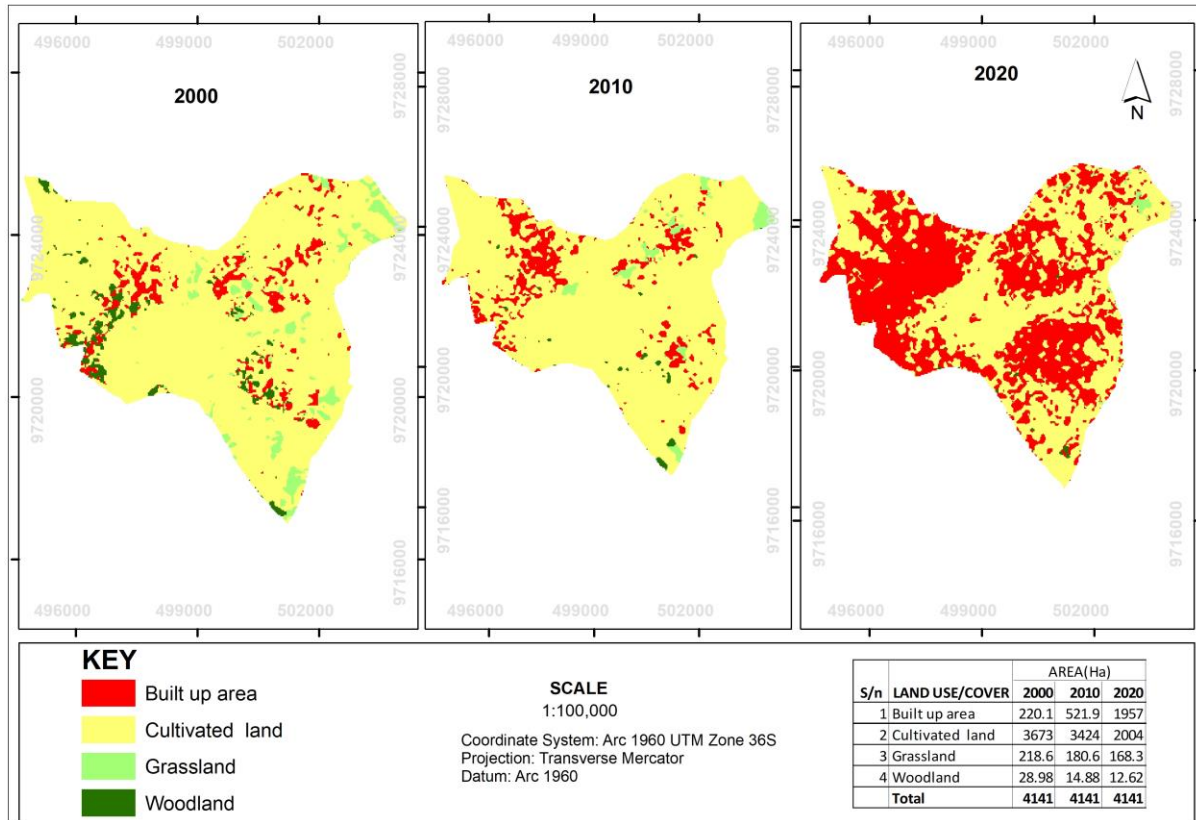
Figure 3: Land Use/Cover Maps of 2000, 2010 & 2020 of the Study Ward

Also, the interview accounts show that the increase in built-up area was due to the heightened demand after the shift of Ilemela District headquarters to the ward from Mwanza City centre in 2012. The subsequent impact was either the loss or transformation of livelihood for local residents, as they could not draw their livelihood from natural-based livelihood sources. Crop growers could no longer get enough land for cultivation. Similarly, most local residents lost forests and grasslands where they used to collect firewood and graze animals, respectively.

Table 1: Land Use Change in the Ward

Land use/ cover group	2000		2000-2010	2010		2010-2020	2020		2000-2020
	Area (ha)	Area (%)	Change rate (%)	Area (ha)	Area (%)	Change rate (%)	Area (ha)	Area (%)	Change rate (%)
Built-up area	220	5	137	522	13	275	1957	47	789
Cultivated land	3673	89	-7	3424	83	-41	2004	48	-45
Grassland	219	5	-17	181	4	-7	168	4	-23
Woodland	29	1	-48	15	0.4	-15	13	0.3	-56
Total	4141	100	-	4141	100	-	4141	100	-

Note: *ha=hectares

Source: Extracted from analysis of Landsat images of 2000, 2010 & 2020.

Based on the responses of the local residents to the loss of agricultural land to the expanding Mwanza City, the study reveals that 91% of the respondents viewed the expansion of Mwanza City resulted in the loss of agricultural land to urban use (Table 2). The study found that the loss of agricultural land impeded households from producing sufficient food. Rice, sorghum, corn (maize), cassava, sweet potatoes, and vegetables were among their traditional staple foods (Kaganga, 2023a) which they no longer could get in abundance. As narrated by one crop grower at Busenga Sub-ward:

> *"Our farmland, which spanned several hectares, was once sufficient to provide enough food to sustain a household for the entire year. Many "maluli" or "magologoto" (barns in the Sukuma language) filled with cereal-type food could belong to a family. But we currently produce very little food—not enough to last until the next harvest season—due to the inadequacy of farmlands".*

These results imply that vulnerability for local residents whose agriculture was their core livelihood source was sustained by the shift of agricultural land (assets) into urban usage.

Table 2: Responses on the Loss of Agricultural land to Expanding Mwanza City

			Loss of agricultural land to urban land use		
			Yes	No	Total
Respondents' age	0-30	Count	5	0	5
		% of Total	3%	0.0%	3%
	30-60	Count	76	11	87
		% of Total	49%	7%	56%
	60+	Count	60	3	63
		% of Total	39%	2%	41%
Total		Count	141	14	155
		% of Total	91%	9%	100%

Source: Field Survey, 2023.

Additionally, as local residents in peri-urban areas became more dependent on the market and cash for goods and services and as subsistence agriculture declined, they were forced to enter the cash urban economy through the process of urbanisation. The finding shows that 80% of the respondents viewed urbanisation as having increased the cost of living as now they were to rely on cash to get food, sanitation, water, and dispose of garbage (Figure 4). As put by a respondent at Buswelu "A" Sub-ward:

> *"To survive nowadays, we need monetary income. Money is needed to pay for food and other family expenditures as land has been lost to urban development. We used to rely on subsistence farming or payment in kind, and we had easy access to natural resources".*

The study indicates that the direct dependence on natural-based resources as a source of livelihood started to become less substantial for local residents' livelihoods in the ward. At the same time, urbanisation was pushing them into the cash urban economy, which led to insecurity and vulnerability.
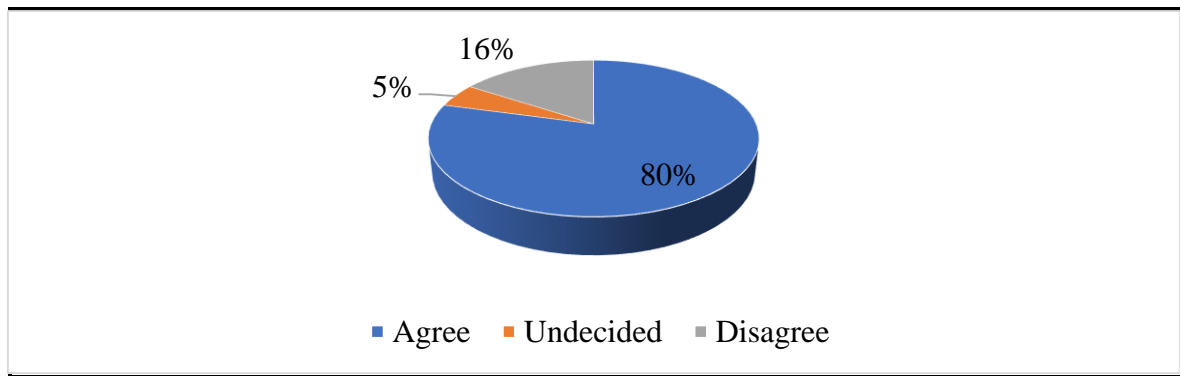
Figure 4: High Cost of Living Due to Commercialisation of Goods and Services
Source: Field Survey, 2023.

Positive Effects of Urbanisation on the Livelihood of Local Residents
Generally, urbanisation had profound positive effects in various ways on the livelihood of local people in the ward. Through multiple response analysis, the study indicated that the expansion of Mwanza City to the periphery areas enabled local residents to access infrastructure and services (22%), opportunities for enterprises and wage employment (21%), and access urban markets for agricultural produce (21%). Others were the increase in the value of land (20%) and access to information regarding prices, production and employment (17%) (Table 3).

Table 3: Positive Effects of Urbanisation on Local Residents

Positive effects of urbanisation	Responses	
	N	Percentage
Urban markets for agricultural produce	145	21%
Increased value of land	140	20%
Opportunities for enterprises and wage employment	148	21%
Access to infrastructure and services	151	22%
Access to information on prices, production and employment.	116	17%
Total	700	100%

Note: *Multiple Response Analysis
Source: Field Survey, 2023.

The participants linked urbanisation to enhanced availability of infrastructure and amenities such transportation, schools, energy, water supply, and medical facilities. According to this study, following the 2012 relocation of the Ilemela District headquarters from Mwanza City Centre to the Buswelu Ward, the area saw a dramatic increase in infrastructure development, including roads, power, and water supply (Plate 1).

Plate 1: Water Kiosk at Buswelu "A" Sub-ward that supplied clean and safe water
Source: Field Survey, 2023.

Also, the expansion of Mwanza City to the peri-urban area was linked to the emergency of new urban opportunities in wage employment and trading for the local residents. This was crucial for the pursuit of livelihood strategies among local residents as natural-based livelihoods became inaccessible in peri-urban areas and as commoditisation increased the dependency on cash income in urban settings. For instance, the study established that the influx of newcomers to the areas increased population, which eventually was a potential market for local residents (Plates 2 and 3). Respondents mentioned the employment activities that were opened up by urbanisation, like petty trading, food vending, masonry and plumbing, brick making, and sand and rock quarrying. Others were carpentry, catering, shopkeeping, and motorcycle transport service (*bodaboda*). This can be due to the peri-urban zone's growing population and density, which have raised overall demand for products and services (Wandl & Magoni, 2017).

The result supports the findings of Abdulai and Enu-Kwesi (2020), who found that peri-urban development offers opportunities for the establishment of business centres and enterprises in peri-urban areas, with the promise of lower investment requirements, easier access to markets, and higher earnings. This is consistent with the relationship presented in the conceptual framework that urbanisation enhances livelihood by creating livelihood assets.

Plate 2: Buswelu Centre. An informal market that emerged with the urbanisation of the area. A dependable livelihood activity as agriculture was continually waning out
Source: Field Survey, 2023.

Plate 3: Motorcycle transport service (*bodaboda*) at Buswelu Centre. An opportunity created by urbanisation as the area became populated that increased demand for transportation services
Source: Field Survey, 2023.

Additionally, the broadening of the market for agricultural produce was associated with urbanisation in two scenarios. First, local residents were able to transport their produce easily to urban markets. Second, the market for agricultural produce was created by the influx of

newcomers in peri-urban areas. Moreover, the findings indicate that the development of infrastructure in peri-urban areas, primarily road networks, electricity, water supplies, and sanitation services, attracted immigrants and other economic activities. As a result, there was a spike in demand for land to accommodate additional urban activities and residential buildings, which raised land prices for the landholders, who in most cases were the local residents.

Local Residents' Responses to the Transformation of Livelihood

The livelihoods of the residents, who had previously relied on natural resources for survival, had changed, and in order to survive, they developed a variety of livelihood strategies. According to this study, households combined activities from the rural and urban livelihood activities to pursue various livelihood strategies (Table 4). The results demonstrate that, in an attempt to increase local residents' resilience and enhance income, they either turned to intensifying agriculture (34%), diversifying non-farm livelihood activities (31%), diversifying farm and non-farm livelihood activities (30%), or migrating to elsewhere (6%) (Table 4).

Table 4: Livelihood Coping Strategies Adopted by Local Residents

Coping Strategies	Responses	
	N	Percentage
Agricultural intensification	90	34%
Diversify farm and non-farm livelihood activities	81	30%
Diversification of non-farm livelihood activities	83	31%
Migrate	15	6%
Total	**269**	**100%**

Note: *Multiple Response Analysis
Source: Field Survey, 2023.

Interview accounts show that the local residents who had secure access to land responded to the diminishing amount of agricultural land by intensifying crop production and shifting to faster-maturing, continuous cropping (year-round), and growing higher market demand-value crops. The aim was to maximise output from small agricultural spaces; the strategy appeared to increase crop yield per unit area of land. This was accomplished by applying pesticides and fertilisers to crops, among other technological improvements in agricultural management.

This concurs with Afriyie et al.'s (2020) and Thuo's (2020) findings in peri-urban areas of Ghana and Kenya, respectively, where the loss of agricultural land had given local farmers the chance to switch from extensive to intense farming methods. The findings clarify that, in an effort to boost yields and incomes, new agricultural management techniques were stimulated by the intensification of agriculture.

However, while agriculture remained the most significant natural resource-based livelihood activity in the ward, agricultural modernisation and intensification appear to have been hampered by the high costs of agricultural inputs and the inadequacy of agricultural extension services. As acknowledged by the Ilemela Municipal Director during the interview:

"The government prioritises agricultural extension services in rural villages since it considers agriculture to be a rural activity. Furthermore, the government has no control over the pricing of agricultural inputs as long as the market continues to operate in a free market economy".

This implies that, despite having a significant proportion of the population of local residents who intensified agriculture, the findings establishes that the government authorities

did not take any significant steps to advance peri-urban agriculture (Bonye et al., 2020). As a result, the views of respondents indicate that just a few of them had their livelihoods improved through the intensification process. This suggests that their livelihoods were not sustainable as they were unable to adapt to and recover from the changes in assets for a living brought about by urbanisation. As echoed in the sustainable livelihood framework (Karki, 2021).

Also, the household survey showed that many peri-urban local households diversified their sources of income by participating in a range of livelihood strategies within farm and non-farm activities in response to the depletion and loss of access to natural resources and the growing need for cash income (Table 5). The essence was to reduce risk from the dynamic peri-urban environment by stabilising income as livelihoods drawn from within the non-agricultural production system increased.

Table 5: Diversification of Farm and Non-farm Activities

Diversification of farm and non-farm activities		Farming (Crop and animal)
Houses for renting	Count	9
	% within Activity	11%
Civil employment	Count	6
	% within Activity	7%
Bricks making	Count	15
	% within Activity	19%
Masonry and plumbing	Count	8
	% within Activity	10%
Sand and rock quarrying	Count	10
	% within Activity	12%
Carpentry	Count	4
	% within Activity	5%
Remittances	Count	5
	% within Activity	6%
Catering service	Count	5
	% within Activity	6%
Shopkeeping	Count	7
	% within Activity	9%
Motorcycle transport service (*bodaboda*)	Count	4
	% within Activity	5%
Food vending	Count	8
	% within Activity	10%
Total	Count	81
	%	100%

Source: Field Survey, 2023

Farrington et al. (2002) characterise the peri-urban economies as having greater levels of commercialisation; hence, peri-urban residents require larger cash incomes to exist, where the basic necessities, including food, have to be purchased through the market. On the contrary, rural economies rely more heavily on subsistence farming or payment in kind, and people there

are more likely to have access to free or common property resources. When questioned about why they needed additional sources of income apart from agriculture, one participant from Zembwela Sub-ward responded by saying:

"Agriculture alone cannot support livelihoods due to low returns triggered by high input costs and the shortage of agricultural land. In turn, this growth in alternative income-generating activities has compelled people to seek out several sources of income".

The study established that diversification of livelihood activities was linked to an increase in income and eventually an improvement in the well-being of some of local residents (Loison, 2015). Therefore, the study's conclusions imply that the primary factor influencing the local residents' income levels was the urbanisation process. As reported by OECD/UN ECA/AfDB (2022) that urbanisation contributes to improved economic outcomes and leads to higher living standards in many African cities. Urbanisation is essential to any nation's economic development (Di Clemente et al., 2021). However, respondents mentioned the lack of skills and capital that excluded them from fully utilising the opportunities presented by urbanisation in the ward.

Human capital appeared to be among the most crucial livelihood assets in peri-urban areas, especially in identifying and accessing employment, as much of the livelihood sources were drawn from labour markets within the non-agricultural sector (Tufa & Megento, 2022). Though the findings from the key informant interviews revealed that local residents had not attended any trainings on income-generating activities organised by the local government, as reported by one of the Sub-wards' chairpersons in an interview:

"No training has been arranged by the municipal government on how to integrate local residents into the urban economy. As a result, most of the opportunities have been grabbed by immigrants who are already acclimatized to the urban environment."

Similarly, many local residents said they did not have enough financial capital to establish or expand businesses. This is because new businesses need substantial capital. This implies that only a few of the local residents in peri-urban areas were able to fully participate in the urban economy (Hutchings et al., 2022). As stated by the Ilemela Municipal Director during the interview when asked how the government was enhancing the local residents' livelihoods in the ward:

"They cannot access loans from commercial banks because the credit guarantee system for small and medium enterprises (SMEs), which was formed by the government to get financing from financial institutions, failed because the government did not have the acceptable collateral to secure their loans. Also, the local government authorities normally disburse loans to special groups, including youth, women, and people with disabilities; now if you do not fit into any of these categories, you are not eligible".

Thus, this study suggests that, in order to increase sustainability of livelihood of the local residents to transition to urban sources of income, is to enable them to profitably convert land-based livelihood assets to human and financial capital assets, which are increasingly becoming important in the urban setting (Hutchings et al., 2022). According to the sustainable livelihood approach, one of the responsibilities of local authorities can be to assist people and households in creating a stable asset base or in improving the environment in which livelihood activities are carried out (DFID, 1999).

Correspondingly, Plate 2 illustrates one of the informal markets at Buswelu Centre. There were informal businesses operating by the side of the road. Since the focus of livelihoods has shifted from agriculture to urban ones, a wide-ranging planning was required to establish formal sites as trading centres for businesses in the ward. This study revealed that, a large

number of businesspeople lacked formal places for conducting businesses (Thuo, 2020). As one male participant, whose primary source of income was the sale of second-hand clothing, gave the following explanation during the interview when asked why he chose to locate his business near a busy intersection for both foot and vehicle traffic:

"I chose this location for my business because it has clients who can purchase the products I sell. Although the city authorities have set aside specific locations for trading, these are situated in unoccupied zones where there are no prospective customers. This is the reason why no one would like to go there and do business there".

Lack of convenient trading places was the source of the sporadic evictions of businesspeople. Interview accounts indicate that often times, local residents were the victims of "city clean-up campaigns" operated by municipal security guards, who used to evict them from those informal markets (Thuo, 2020). Thus, this study suggests that there is a need for local government authorities to cater to the demands that are particular to local residents in the provision of public services, like market places that are located where there are potential customers.

Furthermore, local residents' livestock-keeping households overcame space constraints from the traditional free-range animal-raising system by some migrating with animals to more rural villages (28%), substituting for smaller animals, e.g., goats (22%), and grazing livestock in undeveloped spaces (19%) (Plate 4). Others opted to travel daily to more rural areas to graze livestock (17%), tie up animals with ropes to trees, confining animals in cages (9%), and keep small herds of livestock (9%) (Table 6).

Table 6: Responses of Livestock Keeping Households to Space Constraints

Livelihood Strategies	Responses	
	N	Percent
Migrating to more rural villages	15	28%
Substituted for smaller animals, e.g., goats	12	22%
Grazing livestock in undeveloped spaces	10	19%
Travel daily to more rural areas to graze livestock	7	13%
Tie up animals with ropes to trees and confining animals in cages	5	9%
Keep small herds of livestock	5	9%
Total	54	100%

Note: *Multiple response analysis
Source: Field Survey, 2023.

This study found that livestock were an important source of financial and physical capital for the livelihoods of many local residents (Sukuma ethnic groups) in the study ward. Livestock appeared to be the source of income through the sale of animals and milk (Zane & Pica-Ciamarra, 2021). But also, animals represented a form of savings that could be cashed in when a crisis occurs. Animal keeping also generated other physical capital for local residents in the form of manure, either for improving crop production or for sale (Zane & Pica-Ciamarra, 2021).

Plate 4: Grazing animals in undeveloped spaces at Majengo Mapya Sub-ward
Source: Field Survey, 2023.

However, the above findings show that many animal-keeping families adopted livelihood strategies that were viable economically in the short run but unsustainable in the long run. For instance, migrating with animals to more rural villages increased pressure on the receiving villages' pastures and water supplies for livestock. The results are consistent with the National Academy of Sciences' (2015) report, which found that growth in the population of animals increases the demand for more pasture land and water for the animals. This suggests that it can eventually lead to tensions and conflicts with the host villages.

But also, the livelihood sustainability of animal keeping families was questionable, as only 6% of the households had modernised farming in response to both taking advantage of the newly opened urban market for animal products and the diminishing of the grazing land (Figure 5). The study found that the low rate of adoption of modern animal farming systems was associated with lack of skills and financial capital. Respondents were of the view that exotic breeds were more vulnerable to diseases than traditional breeds, such that one needed to have enough money to buy medicines for the animals and pay for the veterinary services. As explained in the sustainable livelihood framework, capability and capacity are important ingredients for livelihoods to be sustainable in the course of responding to changes brought by urbanisation processes (DFID, 1999).
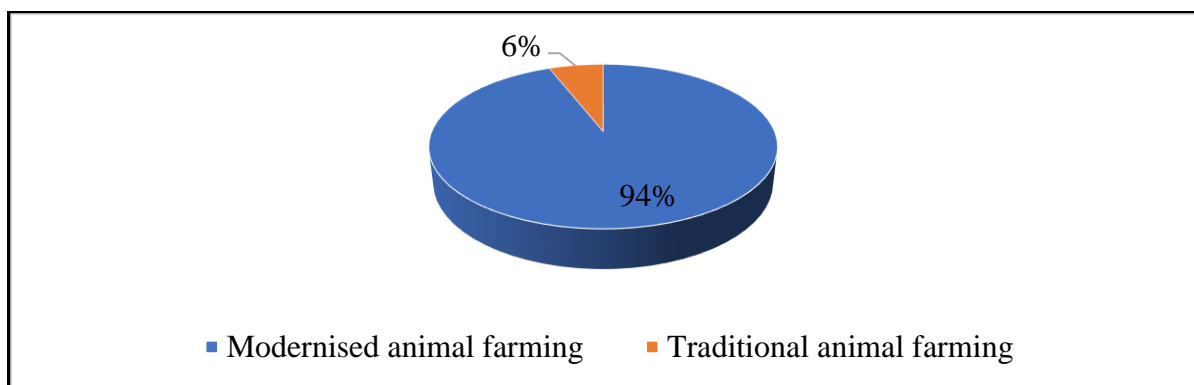

Figure 5: Extent of Adoption of Modern Animal Farming Practises

CONCLUSIONS

Urbanisation is becoming a game changer for the majority of emerging nations, especially when it is guided. This paper assessed the local residents' responses to the livelihood transformation brought by urbanisation in the peri-urban Mwanza City, Tanzania. The paper indicates that urbanisation constrained or enhanced the livelihood of local residents during the transition from rural to urban monetary economies. As a result, local residents responded with agricultural intensification, diversification of farm and non-farm livelihood activities, diversification of non-farm livelihood activities, and others. The livelihood strategies adopted appeared to help some and not to others. Lack of knowledge, skills, and financial capital hindered some from taking advantage of the opportunities created by urbanisation. Therefore, it is suggested that the Ilemela Municipal Authority come up with some initiatives, including training local residents on income-generating activities but also putting soft loans at their disposal so that they can intensify agriculture and have their businesses flourish for the inclusivity of all people in the city.

ACKNOWLEDGEMENT

REFERENCES

Abdulai, I.A., & Enu-Kwesi. F., & Agyenim, J.B. (2020). Peri-urbanisation: A Blessing or Scourge? *Journal of Planning and Land Management, 1*(2). https://doi.org/10.36005/jplm. v1i2.23

Abdulai, I.A., Ahmed, A., & Kuusaana, E. D. (2022). Secondary Cities Under Siege: Examining Peri-urbanisation and Farmer Households' Livelihood Diversifcation Practices in Ghana. *Heliyon, 8*, e10540. https://doi.org/10.1016/j.heliyon.2022.e10540

Afriyie, K., Abass, K & Adjei, P.O. (2020). Urban Sprawl and Agricultural Livelihood Response in Peri-urban Ghana. *International Journal of Urban Sustainable Development, 12*(2), 202–218. https://doi.org/10.1080/19463138.2019.1691560

Angel, S. (2023). Urban Expansion: Theory, Evidence and Practice. *Buildings and Cities, 4*(1), 124–138. https://doi.org/10.5334/bc.348

Ayele, A. & Tarekegn, K. (2020). The Impact of Uurbanisation Expansion on Agricultural Land in Ethiopia: A Review. *Environ. Socio.-Econ. Stud., 8*(4), 73-80. https://doi.org/10.2478/environ-2020-0024

Beckersa, V., Poelmansc, L., Rompaey, V., & Dendoncker, N. (2020). The Impact of Urbanisation on Agricultural Dynamics: A Case Study in Belgium. *Journal of Land Use Science, 15*(5), 626–643. https://doi.org/10.1080/1747423X.2020.176921

Bonye, S.Z., Aasoglenang, T.A. & Yiridomoh, G.Y. (2020). Urbanisation, Agricultural Land Use Change and Livelihood Adaptation Strategies in Peri-urban Wa, Ghana. *SN Soc Sci, 1*, 9. https://doi.org/10.1007/s43545-020-00017-1

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Approaches* (4th ed.). SAGE.

DFID (Development for International Development) (1999). *Sustainable Livelihoods Guidance Sheets.* The Department for International Development.

Di Clemente, R., Strano, E., & Batty, M. (2021). Urbanisation and Economic Complexity. *Natureportifolio Scientific Reports, 11*, 3952. https://doi.org/10.1038/s41598-021-83238-5

Farrington, J., Ramasut, T., & Walker, J. (2002). *Sustainable Livelihoods Approaches in Urban Areas: General Lessons, with Illustrations from Indian Case Studies*. Overseas Development Institute.

Guneralp, B., Lwasa, S., Masundire, H., Parnell, S., & Seto, K. C. (2018). Urbanisation in Africa: Challenges and Opportunities for Conservation. *Environ. Res. Lett., 13*, 015002. https://doi.org/10.1088/1748-9326/aa94fe

Hatcher, C. (2017). *Global Land Outlook, Working Paper, Rural-urban Linkages in the Context of Sustainable Development and Environmental Protection*. The United Nations Convention to Combat Desertification (UNCCD).

Hutchings, P., Willcock, S., Lynch, K., Bundhoo, D., Brewer, T., Sarah Cooper, S., Keech, D., Mekala, S., Mishra, P.P., Parker, A., Shackleton, C.M., Venkatesh, K., Vicario, D.R., & Welivita, I. (2022). Understanding Rural–urban Transitions in the Global South through Peri-urban Turbulence. *Nature Sustainability, 5*, 24–930. https://doi.org/10.1038/s41893-022-00920-w

Kaganga, L. S. (2023a). The Neglect of Local Residents' Livelihood Issues in the Urbanising Peri-Urban Mwanza City, Tanzania. *Current Urban Studies, 11*, 72-95. https://doi.org/10.4236/cus.2023.111005

Kaganga, L. S. (2023b). Data on Land Use Land Cover Changes of Urban and Peri-Urban Areas: The Case of Mwanza City in Tanzania. *Current Urban Studies, 11*, 604-618. https://doi.org/10.4236/cus.2023.114031

Karki, S. (2021). Sustainable Livelihood Framework: Monitoring and Evaluation. *Int. J. Soc. Sc. Manage., 8*(1), 266-271. https://doi.org/10.3126/ijssm. v8i1.33570

Korah, A., Koch, J.A.M., & Wimberly, M.C. (2024). Understanding Urban Growth Modelling in Africa: Dynamics, Drivers, and Challenges. *Cities, 146*, 104734. https://doi.org/10.1016/j.cities.2023.104734

Loison, S.A. (2015). Rural livelihood diversification in sub-Saharan Africa: a literature review. *The Journal of Development Studies, 51*(9), 1125-1138. https://doi.org/10.1080/00220388.2015.1046445

Mahtta, R., Fragkias, M., Güneralp, B., Mahendra, A., Reba, M., Wentz, E.A. & Seto, K.C. (2022). Urban Land Expansion: The Role of Population and Economic Growth for 300+ Cities. *NPJ Urban Sustain, 2*, 5. https://doi.org/10.1038/s42949-022-00048-y

Marcotullio P.J & Sorensen A (2023). Editorial: Future Urban Worlds: Theories, Models, Scenarios, and Observations of Urban Spatial Expansion. *Front. Built Environ., 9*, 1194813. https://doi.org/10.3389/fbuil.2023.1194813

OECD/UN ECA/AfDB (2022). Africa's Urbanisation Dynamics 2022: *The Economic Power of Africa's Cities, West African Studies.* OECD Publishing, Paris, https://doi.org/10.1787/3834ed5b-en

Sakketa, T. G. (2022). *Urbanisation and rural development in developing countries: A review of pathways and impacts* (No. 5/2022). Discussion Paper. https://doi.org/10.23661/dp5.2022

Sakketa, T.G. (2022). *Urbanisation and Rural Development in Developing Countries: A Review of Pathways and Impacts Research in Globalisation*

Tanzania Urbanisation Laboratory (TULab) (2019). *Harnessing Urbanisation for Development: Roadmap for Tanzania's Urban Development Policy.* Paper for the Coalition for Urban Transitions*, London and Washington DC. http://newclimateeconomy.net/content/cities-working-papers

The National Academy Sciences (2015). *Critical Role of Animal Science Research in Food Security and Sustainability.* Committee on Considerations for the Future of Animal Science Research. Science and Technology for Sustainability Programme. Policy and Global Affairs. Board on Agriculture and Natural Resources. Division on Earth and Life Studies. National Academies Press, 500 Fifth Street, NW, Keck 360, Washington, DC 20001; (800) 624-6242 or (202) 334-3313; http://www.nap.edu.

The United Republic of Tanzania (URT), Ministry of Finance and Planning, Tanzania National Bureau of Statistics and President's Office - Finance and Planning, Office of the Chief Government Statistician, Zanzibar. (2022). *The 2022 Population and Housing Census: Administrative Units Population Distribution Report;* Tanzania.

Thuo, A. D. M. (2020). A Study of Peri-Urban Areas as Sites for Understanding Urbanisation in Developing Countries: Using Nairobi Peri-Urban Areas as Base Case Study. *Developing Country Studies, 10*(10), 31-40. https://doi.org/10.7176/DCS/10-10-05

Tufa, D.E. & Megento, T.L. (2022). The Effects of Farmland Conversion on Livelihood Assets in Peri-urban Areas of Addis Ababa Metropolitan City, the Case of Akaki Kaliti Sub-city, Central Ethiopia. *Land Use Policy, 119.* https://doi.org/10.1016/j.landusepol.106197

UN (United Nations). (2023). *The Sustainable Development Goals Report 2023: Special edition. Towards a Rescue Plan for People and Planet.* United Nations Publications, 300 East 42nd Street, New York, NY, 10017, United States of America. https://unstats.un.org/sdgs

UN DESA (United Nations Department of Economic and Social Affairs) (2018). *World Urbanisation Prospects: The 2018 Revision.* United Nations Department of Economic and Social Affairs.

UN Habitat (2023). *Country Brief: Tanzania 2023. A better quality of life for all in an urbanising world. United Nations Settlements Programme.* Nairobi, Kenya. www.unhabitat.org

UN-Habitat (2022). World Cities Report 2022: Envisaging the Future of Cities. United Nations Human Settlements Programme (UN-Habitat). https://unhabitat.org/

United Nations Development Programme (UNDP) (2018). Development Advocate Pakistan. *Sustainable Urbanisation,* 5, 4. UNDP Pakistan.

Wandl, A. & Magoni, M. (2017). Sustainable Planning of Peri-Urban Areas: Introduction to the Special Issue, *Planning Practice & Research, 32*(1), 1-3. https://doi.org/10.1080/02697459.2017.1264191

Woltjer, J. (2014). A Global Review on Peri-Urban Development and Planning. *Jurnal Perencanaan Wilayah dan Kota, 25,* 1-16. https://doi.org/10.5614/jpwk.2014.25.1.1

Yussif, K., Dompreh, E.B. & Gasparatos, A. (2023). Sustainability of urban expansion in Africa: a systematic literature review using the Drivers–Pressures–State–Impact–Responses (DPSIR) framework. *Sustain Sci, 18,* 1459–1479. https://doi.org/10.1007/s11625-022-01260-6

Zane, G., & Pica-Ciamarra, U. (2021). The Contribution of Livestock to Household Llivelihoods in Tanzania and Uganda: Measuring Tradable and Non-tradable Livestock Outputs. *Trop Anim Health Prod, 53,* 304. https://doi.org/10.1007/s11250-021-02604-7