

Analysis of Urban Livelihood Components in the Context of Growing Cities: Evidence from Dodoma City, Tanzania

Calista Makacha, Yohana James Mgale , George Frank Kinyashi* 

Department of Rural Development and Regional Planning, Institute of Rural Development Planning, Dodoma, Tanzania

Email: *gkinyashi@irdp.ac.tz

How to cite this paper: Makacha, C., Mgale, Y. J., & Kinyashi, G. F. (2022). Analysis of Urban Livelihood Components in the Context of Growing Cities: Evidence from Dodoma City, Tanzania. *Current Urban Studies*, 10, 235-248.

<https://doi.org/10.4236/cus.2022.102014>

Received: January 20, 2022

Accepted: May 28, 2022

Published: May 31, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

This article analyses the components of urban household livelihoods in growing cities, using the city of Dodoma in Tanzania as a case study. This article applied trend analysis, principal component analysis and household vulnerability index to examine the trend of urbanisation, vulnerability profile of urban livelihoods, value of livelihood assets owned by urban households, as well as livelihood strategies and outcomes in urban settings. The study was framed within the sustainable livelihoods approach, in which data were collected from 215 households using both probability and non-probability sampling approaches. The results indicate that the average vulnerability profile of urban households is 2.06, which is positive and moderate. About 72.09% of households had a vulnerability index below the average. Wealth index scores revealed that 44% of households are below average in the study area. Urban households' livelihood strategies employed by most households were urban street vending followed by motorcycle taxi "bodaboda". On the other hand, the results on livelihoods indicated that 51.6% fall below the middle quintile. The study concludes that the number of urban plots owned, land for urban farming and diversification of income sources had the most significant impact on reducing the impact of the vulnerability. Thus, it is recommended that urban development interventions be more suited to people's livelihoods.

Keywords

Vulnerability, Sustainable Urban Livelihood, Assets, Growing Cities, Dodoma, Tanzania

1. Background

It is worth noting that new challenges emerge as people move to towns searching

for better opportunities. This is because more people in urban areas mean more food, more goods, more services, and more employment opportunities must be provided (FAO, 2019). The growing significance of urban livelihood systems and urban food prices has increased the importance of urban livelihood assessments. As urban centers expand, there is a need to understand the different livelihood groups and their needs. The problem of the poor city population is becoming more pressing. It includes issues of how the urban people earn their livelihoods and how this affects key indicators of human welfare, such as food security and nutrition, especially for children.

Even though analysis of livelihood components is essential to both urban and rural populations, for decades, this analysis has centered on rural areas making it central to rural development thinking and practice (Turin and Valdivia, 2012; Simane et al., 2016; Oluwaseun, 2019). So globally, government institutions and development agencies tend to focus on rural areas; as a result, livelihood studies and development interventions directed at urban areas rarely exist (DPU, 2001). For decades, livelihood studies have been focused on rural settings in Africa (SADC-RVAC, 2017). Of course, the issue of livelihood has been mainly viewed, if not entirely, as a rural problem (Alobo Loison, 2015). SADC region continues to conduct livelihood assessments on rural areas generating rural livelihood assessment reports (SADC-RVAC, 2017). Likewise, in Tanzania, livelihood studies guided by the Vulnerability Assessment Committee (VAC) have been directed or centered on rural settings (RVAA, 2019). Few empirical studies have undertaken comprehensive livelihood analysis in an urban context (Schütte, 2004; Firdaus & Ahmad, 2011; Potts, 2017).

As rural-urban migration continues, most populations are expected to be found in urban areas. Rural-urban migration is encouraged because urban areas provide much greater opportunity and fewer social restrictions on the livelihood possibilities open to the people. Without understanding urban livelihoods and how households in urban areas support themselves and their families, it is difficult to identify needs, know the most vulnerable, and develop effective interventions that can support and improve the most vulnerable's ability to secure healthy, dignified lives. For such realisation, an empirical study of the urban area was imperative.

This paper contributes to the literature by synthesising new knowledge about growing cities, their characteristics and how their growth affects the livelihood of the dwellers, especially the poor ones. The paper intends to provide a wider understanding of a new segment of urban livelihoods and determine whether there is a corresponding need for programs specific to urban areas.

2. The Livelihoods Framework

The livelihoods framework looks at the complexity of people's livelihoods, whether they are in rural or urban areas (Gichure et al., 2020). The framework

seeks to understand various dimensions of a person's livelihood; the strategies, objectives pursued, associated opportunities and constraints. It comprises five components: vulnerability context, assets, policies institutions and processes, strategies, and outcomes, as detailed below.

2.1. Sustainable Livelihood

A livelihood comprises the capabilities, assets (including material and social resources) and activities required for a living (Carney, 1998; Carney et al., 2000). Niehof (2004) confirmed that livelihood is a multi-faceted concept, being both what people do and what they accomplish by doing it, referring to activities and outcomes. The livelihood is seen as an open system, interfacing with other systems and using various resources and assets to produce livelihoods, with the households as the locus of livelihood generations.

The sustainable livelihoods framework is a way of looking at the complexity of the livelihood of people that seeks to understand various dimensions of a person's livelihood; the strategies, objectives pursued, associated opportunities and constraints (Gichure et al., 2020). It comprises five components: vulnerability context, assets, police institution and process, strategies, and outcomes (Figure 1). The paper adopted the Sustainable Livelihood Approach (SLA) to identify the main constraints and opportunities poor people face in urban areas. Therefore, the framework is neither a model that aims to incorporate all the key elements of people's livelihoods nor a universal solution.

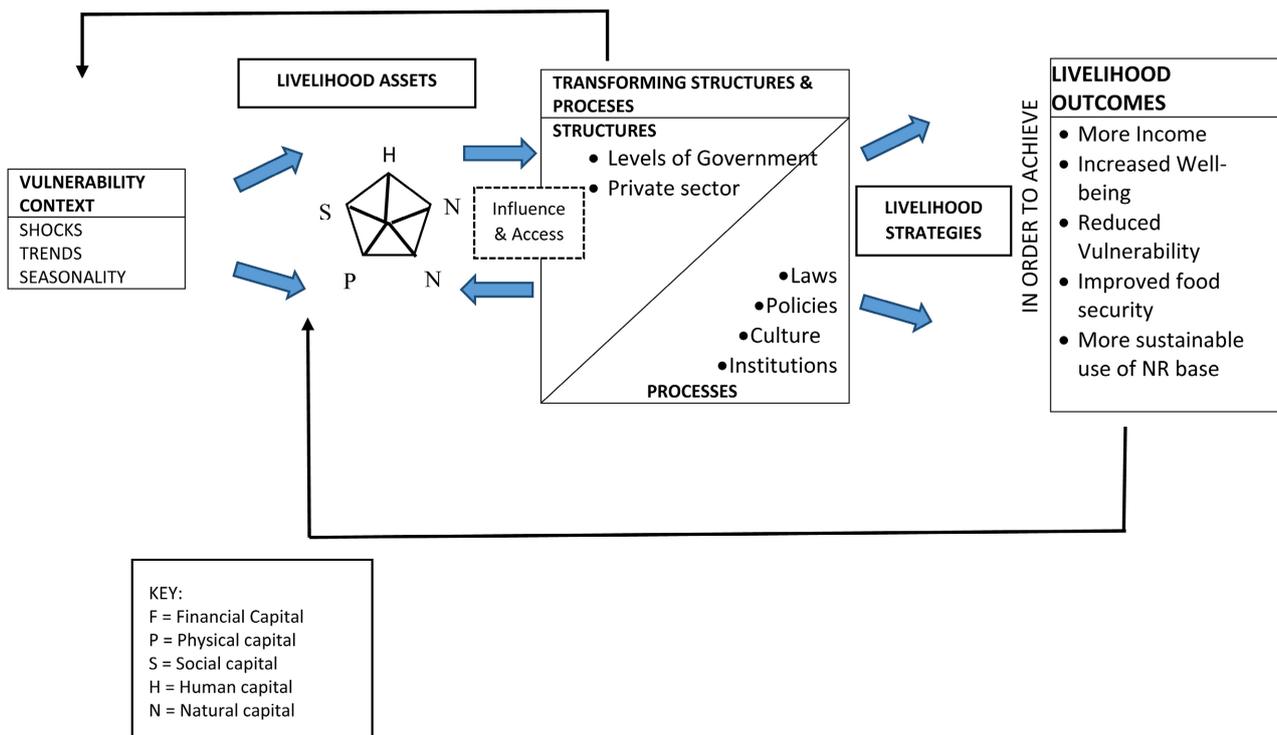


Figure 1. SLA framework for analysing urban livelihood in growing cities.

From **Figure 1** above, the Human resource or capital (H), Natural resource (N), Financial capital (F), Social capital (S) and Physical resource (P) are critical to the livelihood of the people. The framework places people, particularly the poor, at the centre of a web of inter-related influences that affect how these people create a livelihood for themselves and their households. Closest to the people at the centre of the framework are the resources and livelihood assets that they have access to and use. These can include natural resources, technologies, skills, knowledge and capacity, health, access to education, sources of credit, or their networks of social support.

The extent of their access to these assets is strongly influenced by their vulnerability context, which takes account of trends (for example, economic, political, and technological), shocks (for example, epidemics, natural disasters, civil strife) and seasonality (for example, prices, production, and employment opportunities). Access is also influenced by the prevailing policies, institutions, and processes, which affect how people combine and use their assets to achieve their goals or livelihood strategies (Gebbisa and Mulatu, 2020).

2.2. The Vulnerability Context

The vulnerability context refers to unpredictable events that can undermine livelihoods and cause households to fall into poverty. It is essential to distinguish between shocks originating from outside the community, which affect all people in the same locality, and individual shocks that principally affect only individual households (Ellis, 2000; Gebbisa and Mulatu, 2020). Examples of vulnerability contexts include drought, earthquakes, floods, pest and disease epidemics (insect attacks and diseases affecting crops, animals and people), economic shocks (price fluctuations, markets, employment and purchasing power), civil strife (war, armed conflict, displacement, destruction of lives and property) seasonal stresses (hungry season food insecurity) environmental stresses (land degradation, soil erosion, bush fires) and idiosyncratic shocks (illness or death in family, job loss or theft of personal property).

2.3. Livelihood Assets

Livelihood assets refer to the community's resource base and different categories of households (Inostroza et al., 2016). The DFID (2000) identified five assets (capital) of livelihood, all interrelated in the sustainable livelihood framework. These capital assets are Human capital, Natural capital, financial capital, Social capital and Physical capital. In order to determine the value of assets owned by the urban households, the paper used asset-based measures to compute a wealth index. The wealth index is a composite measure of a household's cumulative living standard. The wealth index was calculated using easy-to-collect data on a household's ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and water access and sanitation facilities (Rutstein & Kiersten, 2004; Anderson, 2012). The wealth index was generated by

a statistical procedure known as principal components analysis (PCA) and placed individual households on a continuous scale of relative wealth (Inostroza et al., 2016).

2.4. Livelihood Strategies

Carney (1998) defined livelihood strategies as “the range and combination of activities and choices that people make to achieve their livelihood goals”. Livelihood strategies include how people combine their income-generating activities, how they use their assets, what assets they choose to invest in, and how they preserve existing assets and income. In this paper, the strategies observed were urban street vending, urban cattle ranching, urban agriculture for crops, wage earners, and running a “bodaboda” motorcycle taxi.

2.5. Livelihood Outcomes

Livelihood outcomes are what household members achieve through their livelihood strategies, such as levels of food security, income security, health, well-being, accumulation of assets and high status in the community. Unsuccessful outcomes include food and income insecurity, high vulnerability to shocks, loss of assets and impoverishment (Ellis, 2000; Devereux et al., 2012). Outcomes that households claim to achieve include food security, paying social bills, increasing income, and purchasing assets like livestock and land.

3. Data and Methods

3.1. Data

The study applied a cross-section research design where both primary and secondary data were collected using questionnaire interviews, documentary reviews, and Key Informants Interview methods. Primary data were collected from the household of Kizota Ward (Dodoma city). In contrast, secondary data were obtained from Kizota Ward office, Dodoma City Council office and Dodoma Urban Water Supply and Sanitation (DUWASA). The documentary review involved the critical and comprehensive review of documents relating to urban livelihood in Dodoma. Documents include City Council population trends, City Council 5 years achievements report (2015-2019), City Council yearly Progress report and Dodoma City Council Profiles (2019). The key informants included Planning Officers, Rural Water Supply and Sanitation Officers, Trade officers, Town Planners, Ward Executive Officers and Mitaa Chairpersons in the study area.

3.2. Methods

Both descriptive and quantitative data analysis techniques were employed for data analysis. Descriptive analysis was used in those objectives intended to statistically describe, aggregate, and present the constructs of interest or associa-

tions between these constructs. This analysis helped summarise and support assertions of underlying facts in the specified objectives. On the other hand, the quantitative analysis involved logistic regression analysis, Household Vulnerability Index, Wealth Index, Quintiles and Principal Component Analysis (PCA). Besides, in cases that required understanding the relationship between categorical variables, a chi-square test was used, as shown in **Table 1**.

4. Results

4.1. Urbanisation Trend in Dodoma City

It was revealed that there had been a spurt in population growth for the past six years (2015-2021) with an average of 2.7 per annum and increasing other urbanisation indicators. This is a 15.8 percent increase in population, which greatly adds pressure on land, and other urban resources (**Table 2**). Within the same period, it was observed that deliberative efforts had been made to increase other services associated with population growth.

Table 1. Methods of data analysis.

Objective	Analytical Framework
To examine the trend of urbanization in Dodoma City	<ul style="list-style-type: none"> ✓ Descriptive Analysis ✓ Trend Analysis
To examine the vulnerability profile on urban livelihoods in the study area	<ul style="list-style-type: none"> ✓ Principal Component Analysis (PCA) ✓ Household Vulnerability Index VI = AC – (E + S)
To examine the value of livelihood assets that urban households possess in the study area	<ul style="list-style-type: none"> ✓ Principal Component Analysis (PCA) • Wealth Index • Quintiles
To examine the livelihood strategies and outcomes in the urban settings	<ul style="list-style-type: none"> ✓ Descriptive Analysis ✓ Chi-square Tests for Independence

Table 2. Trend of urbanisation in Dodoma city.

Urbanisation Indicator	Urbanisation Trend						Average Annual Growth (percent)
	2015	2016	2017	2018	2019	2020	
Population ^a	440,618	449,886	459,350	471,921	496,452	510,038	2.7
Health facilities ^b	62	65	70	73	85	97	9.5
Water supply (M ³) ^c	46,000	53,012	61,294	79,291	88,345	103,608	17.8
Housing permits ^b	304	792	2563	4328	7604	11,063	114.8
Sanitation (km) ^b	78	78	89	96	114	114	8.1
S, M & L Industries ^b	63	72	87	93	104	136	16.9
Business licenses ^b	5036	5586	7032	8539	10,162	9923	15

Source: a = National Bureau of Statistics (2013), b = Dodoma City Council (2020), c = Dodoma Urban Water Supply and Sanitation (DUWASA).

Statistically, on an average annual basis, health services were increased by 9.5%, water supply increased by 17.8, housing permit services increased by 114.8% and sanitation increased by 8.1%. Other services, including an increase in small and medium enterprises and increased business licenses, were 16.9% and 15%, respectively. It is iterated here that despite such efforts, further studies are needed to ascertain how many segments of the urban population have been reached with these services and explore the gap.

4.2. Vulnerability Profile among Urban Households

The vulnerability of Dodoma city households was meant to be assessed by the use of three variables, namely “Exposure”, “Sensitivity”, and “Adaptive capacity”. To obtain the values of the variables affecting vulnerability, each indicator from each variable was analysed using Principal Component Analysis (PCA). Out of 7 adaptive strategies, it was found that the number of owned urban plots and land for urban agriculture had higher values implying that owning land in urban areas had the greatest impact in increasing the adaptive capacity of urban households, reducing the impact of vulnerability (Table 3).

Regarding “exposure,” eight variables were used to generate factor scores (Table 3). It was revealed that household size, structure, distance to market, and access to lifelines carry more considerable weight in the model. This implies that the nucleation of households in terms of the number of members and potential supports required increases the urban household vulnerability. On the other hand, lower values of these variables reduce the risk of the vulnerability of households. Furthermore, dependency of household income solely on the street vending and salary was among the six sensitivity indicators having greater scores. This implies that these factors reduce the risk of vulnerability among urban households while low values increase the vulnerability risk.

Factor scores were further analysed to reveal the indices of adaptive capacity, exposure, and sensitivity to compute the vulnerability index. The index was computed using the formula [Vulnerability index (VI) = AC – (E + S)]. It was revealed that the average vulnerability index of urban households is 2.06, which is positive and moderate (Table 4).

This finding implies that efforts should be made to ensure that the adaptive capacity of urban households is enhanced to the level that will reduce their vulnerability. Areas of focus should, among others, by reducing the price of owning plots in the city, allocating land and promoting urban agriculture, promoting household livelihood diversification, promoting social and economic cooperative groups, easing access to loans, ensuring access to safe water and sanitation and improve street roads which affect the sustainability of human urban settlements. Further analysis reveals that 155 (72.09%) households had a vulnerability index below the mean, and only 60 (27.91%) had it above the mean.

4.3. Livelihood Assets among Urban Households

Principal Component Analysis (PCA) method was used to assess assets indicator

Table 3. Principal component of vulnerability assessment by variable indicator.

Variable Indicator	PC
Adaptive Capacity Indicators (AC)	
Number of owned urban plots	0.813
Land for urban agriculture	0.752
Household livelihood diversification	0.487
Own livestock	0.174
Owned motorcycle taxi “bodaboda”	0.340
Membership in cooperative groups	0.401
Earning wages or salaries	0.183
Exposure Indicators (E)	
Household size	0.699
Household structure	0.552
Distance to market	0.550
Access to lifelines	0.542
Age of household head	0.504
The educational level of the household head	0.472
Household economic status	0.188
Adaption to technological changes	0.314
Sensitivity Indicators (S)	
Dependency of household income on the street vending	0.783
Dependency of household income solely on salary	0.693
Occurrence of livestock diseases	-0.472
Increase of household size	-0.216
Floods	0.124
Poor health	0.022

Table 4. Vulnerability index of urban households in Kizota ward, 2020.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Adaptive Capacity Index	215	0.609	0.792	0.007	7.898
Exposure Index	215	-0.835	0.548	-2.971	0.215
Sensitivity Index	215	-0.616	0.787	-5.415	0.139
VI = A - (E + S)			2.060		

weight and household asset index to generate factor scores from 13 commonly owned household assets. The results indicate that most households owned television, music system, electricity, solar and table. Few households had vehicles,

motorcycles, bicycles, refrigerators, electric cookers or gas cookers. In sharp contrast, having a television and music system is weighted more heavily.

The findings exposed that the wealth index of households in the study area was 0.00549, which indicated that the majority of the households are at an above-average value of the Wealth Index. Further analysis indicated that the Wealth Index is skewed to the left with the highest positive value, implying that the wealth index distribution is much more concentrated on the right side than the normal distribution, as indicated in **Figure 2** below.

The quintiles of wealth were also computed based on the index to assess the characteristics of the poor and rich (**Table 5**).

The values between the lowest and second quintiles are negative, implying that the poor households have much less wealth than others in the study area. At the other end of the distribution, the values between the fourth and the highest quintiles are positive, indicating that households within this quintile possess more assets and are well off than those in the lowest and second quintiles.

For comparison of what people have in the study area, the assets used to construct the wealth index were tabulated according to the quintile of the wealth distribution. The percentages of urban households that have these assets by quintile are shown in **Table 6**.

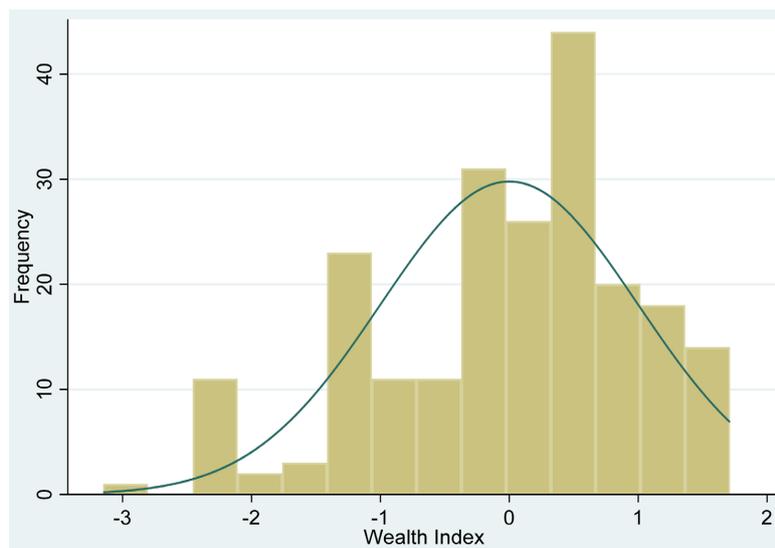


Figure 2. Distribution of household wealth index scores, Kizota Ward, 2020.

Table 5. Quintile cutoff values for the wealth index.

Wealth Quintile	Quintile Cutoff Values
Lowest and second	-3.15002
Second and middle	-0.87576
Middle and fourth	-0.20791
Fourth and highest	0.43787

Table 6. Percentage distribution of households possessing each selected asset by quintile of wealth index.

Asset	Quintile (percent)				
	Poorest	Lower middle	Middle	Upper middle	Wealthiest
Television	0.8	12.9	22.7	31.8	31.8
Music System	4.7	20.1	24.3	24.9	26.0
Electricity	12.9	21.1	21.1	22.2	22.7
Vehicle	0	24.0	40.0	16.0	20.0
Motorcycle	0	6.5	4.3	13	76.1
Bicycle	9.5	23	20.3	16.2	31.1
Solar	3.8	9.4	20.8	13.2	52.8
Refrigerator	0	28.2	35.9	17.9	17.9
Electric cooker	2.6	20.5	25.6	33.3	17.9
Gas cooker	9.1	12.1	27.3	27.3	24.2
Table	18.4	19.3	20.3	20.8	21.3
Torch	13.4	21.4	20.5	19.6	25.0
Livestock	11.4	42.9	25.7	11.4	8.6

It can be concluded that most households owned television, music system, motorcycle, bicycle, and solar assets, mostly owned by the wealthiest people in the study area. It is worth noting that the poorest people in the study area were not found to own vehicles, motorcycles, or refrigerators. Surprisingly, whether the household was found within the poorest or wealthiest quintiles, they were found to have electricity in their house, and few of them had an electric cooker and or gas cooker.

4.4. Livelihood Strategies and Outcomes in Urban Settings

4.4.1. Livelihood Strategies

The findings indicated that urban street vending is the most prevalent urban livelihood strategy (48%) employed in the study area, followed by motorcycle taxi “bodaboda” (21.4%), as shown in **Table 7**. This finding concurs with **Lyons et al. (2013)** studies, which revealed that street vending is an imperative livelihood strategy for survival and poverty reduction in the developing world.

4.4.2. Livelihood Outcomes

The analysis was carried out to identify the key livelihood strategies that play an important role in livelihood outcomes. The indicator representing livelihood outcomes was the mean of six selected components based on desired outcomes perceived by the interviewed urban households in the study area. The results indicate that the livelihood outcomes of establishing a business and improving household income carry bigger weights and therefore have a bigger impact on the livelihood of urban households (**Table 8**).

After computing livelihood index scores, the quintile estimation was employed to identify households with low livelihood outcomes in the study area (Table 9). It was found that 51.6 percent of households lie below the middle quintile. This could be attributed to the fact that the livelihood strategies employed by urban households to attain better livelihood have not had a significant effect. The policy implication of this finding is that urban development interventions should be improved to the livelihood aspirations of the people.

Further analysis was conducted to ascertain the relationship between livelihood strategies employed by urban household and their livelihood outcomes (Table 10).

The findings at a 10% significant level reveal that other livelihood strategies significantly impact urban livelihood outcomes except for the motorcycle taxi “bodaboda”. This finding implies that Dodoma City Council should recognise the role of street vending, urban trader and urban livestock keeping in the urban economy, as indicated in Table 10.

Table 7. Urban livelihood strategy in Kizota ward, Dodoma city.

Livelihood Strategy	Frequency	Percent
Motorcycle Taxi “bodaboda”	46	21.4
Urban street vending	105	48.8
Urban Agriculture for crops (UA)	11	5.1
Urban Livestock Keeping (ULK)	7	3.3
Salaried work	27	12.6
Permanent urban trader	25	11.6

Table 8. Principal components of livelihood outcomes assessment.

Indicator Variable (outcomes)	Factor Score (weight)
Household has established a business	0.5297
Household income has increased	0.7170
Household is food secure	-0.4331
Households can afford to pay for social services	0.4287
Bought livestock	-0.4150
Bought plot	0.0632

Table 9. Quintile of livelihood outcomes in urban households.

Quintile of Livelihood Outcomes	Frequency	Percent	Cum.
Lower	43	20.00	20.00
Lower Middle	68	31.63	51.63
Middle	24	11.16	62.79
Upper Middle	46	21.40	84.19
Upper	34	15.81	100.00

Table 10. Relationship between livelihood strategies and livelihood outcomes.

Urban Livelihood Strategy	Cross-tabulation between Livelihood Strategies and Livelihood Outcomes	
	Chi-square (χ^2)	<i>P</i> -value
Motorcycle Taxi “bodaboda”	5.750	0.219
Urban Street Vending (USV)	83.110	0.000
Urban Agriculture for crops (UA)	7.836	0.098
Urban Livestock Keeping (ULK)	28.942	0.000
Salaried Employees	13.510	0.009
Urban Trader	16.476	0.002

5. Conclusion

This paper analysed the livelihood components of urban households in growing cities considering Dodoma City in Tanzania as a case study. The study applied the Sustainable Livelihoods Approach (SLA) framework to understand the livelihoods of urban households, factors that affect livelihoods, and the way they interact within an urban setting. The analysis revealed that there had been a deliberate effort to increase the provision of various services such as water supply, plots allocation, housing permits and business lice for the period under study. However, the data do not provide sufficient evidence to prove the access to the improved water supply as recommended by WHO, which is “within 1 kilometre of their home”, in addition to that the study found no evidence to ascertain how many segments of the urban population has been reached with various other services provided such as plots allocation, housing permits and business licenses.

Further, the vulnerability of households was expressed as a function of exposure, sensitivity and adaptive capacity, whereby the amount of owned urban plots, land for urban farming, and household livelihood diversification had the greatest impact in increasing the adaptive capacity of urban households. The nature of household structure and access to safe water and sanitation were the factors that increased household exposure to vulnerability. The dependency of household income on street vending increases the risk of vulnerability among urban households.

Moreover, most households in the study area were above average wealth value. Only 44.0 percent of households have much less wealth. Such households possess few assets and are poor compared to others in the study area. Assets such as televisions, music systems, motorcycles, bicycles, and solar are mostly owned by wealthier households in the study area. However, both poor and wealthy households have electricity in their houses, but few households own an electric or gas cooker. Lastly, urban street vending is one of the mainstays of the household livelihood in Kizota Ward, followed by motorcycle taxi “bodaboda”.

Based on the results, the study recommends that urban city councils should

make deliberative efforts in developing countries to ensure that the adaptive capacity of urban households is enhanced to the level that will reduce their vulnerability; water supply and sanitation authorities should ensure continuous access to safe water and sanitation which is affecting the sustainability of human urban settlements; urban authorities should adopt street vending business operation models like constructing the D-centres and small markets in different wards; awareness creation activities for motorcycle taxi “bodaboda” riders about road rules and regulations should be undertaken quarterly. Also, future road designs should provide paths for motorcycle taxi “bodaboda” in order to reduce the vulnerability due to accidents.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Alobo Loison, S. (2015). Rural Livelihood Diversification in Sub-Saharan Africa: A Literature Review. *The Journal of Development Studies*, 51, 1125-1138.
- Anderson, B. (2012). Converting Asset Holdings into Livelihood: An Empirical Study on the Role of Household Agency in South Africa. *World Development*, 40, 1394-1406. <https://doi.org/10.1016/j.worlddev.2012.03.015>
- Carney, D. (1998). *Sustainable Rural Livelihoods: What Contribution Can We Make?* London: Department of International Development, 122 p.
- Carney, D., Drinkwater, M., Rusinow, T., Neefjes, K., Wanmali, S., & Singh, N. (2000). *Forum on Operationalizing Sustainable Livelihoods Approaches-Proceedings* (pp. 7-11). The Food and Agriculture Organization of the United Nations.
- Department for International Development (DFID) (2000). *Sustainable Livelihoods Guidance Sheets*. http://www.livelihoods.org/info/info_guidancesheets.html
- Development Planning Unit (DPU) (2001). *Living between Rural and Urban Areas: Shaping Change for Improved Livelihoods and a Better Environment*. Development Planning Unit, University College London.
- Devereux, S., Sabates-Wheeler, R., & Longhurst, R. (2012). *Seasonality, Rural Livelihoods and Development* (pp. 145-162). Earthscan. <https://doi.org/10.4324/9780203139820>
- Ellis, F. (2000). *Rural Livelihoods and Diversity in Developing Countries* (237 p). Oxford University Press.
- Firdaus, G., & Ahmad, A. (2011). Impact Analysis of Urbanisation on Rural Livelihood—An Empirical Study of an Urban Centre of Delhi, India. *International Journal of Urban Science*, 15, 147-160. <https://doi.org/10.1080/12265934.2011.626176>
- Food and Agriculture Organisation of the United Nations (FAO) (2019). *The Framework for the Urban Food Agenda: Leveraging Sub-National and Local Government Action to Ensure Sustainable Food Systems and Improved Nutrition* (44 p). Food and Agriculture Organization of the United Nations.
- Gebbisa, M. B., & Mulatu, G. (2020). Choice of Livelihood Strategies and Its Determinants in Pastoralist Area of Bale Zone: The Case of Sawena District, Oromia, South East Ethiopia. *Open Access Library Journal*, 7, e6737. <https://doi.org/10.4236/oalib.1106737>

- Gichure, J. N., Njeru, S. K., & Mathi, P. M. (2020). Sustainable Livelihood Approach for Assessing the Impacts of Slaughterhouses on Livelihood Strategies among Pastoralists in Kenya. *Pastoralism*, 10, Article No. 26. <https://doi.org/10.1186/s13570-020-00184-z>
- Inostroza, L., Palme, M., & Barrera, F. (2016). A Heat Vulnerability Index: Spatial Patterns of Exposure, Sensitivity and Adaptive Capacity for Santiago de Chile. *PLoS ONE*, 11, e0162464. <https://doi.org/10.1371/journal.pone.0162464>
- Lyons, M., Brown, A., & Msoka, C. (2013). Micro Enterprises Benefit from the “Doing Business” Reforms? The Case of Street-Vending in Tanzania. *Urban Studies*, 51, 1593-1612. <https://doi.org/10.1177/0042098013497412>
- Niehof, A. (2004). The Significance of Diversification for Rural Livelihood Systems. *Scientific Research*, 29, 321-338. <https://doi.org/10.1016/j.foodpol.2004.07.009>
- Oluwaseun, O. (2019). Analysis of Rural Livelihood Diversification Strategies among Maise Farmers in the Northwest Province of South Africa. *International Journal of Entrepreneurship*, 23, 1-11.
- Potts, D. (2017). Urban Data and Definitions in Sub-Saharan Africa: Mismatches between the Pace of Urbanisation and Employment and Livelihood Change. *Urban Studies*, 55, 965-986. <https://doi.org/10.1177/0042098017712689>
- Rutstein, S. O., & Kiersten, J. (2004). The DHS Wealth Index (77 p). Comparative Reports No. 6, Demographic Health Survey.
- RVAA (Regional Vulnerability Assessment and Analysis Programme) (2019). *Vulnerability Assessment Committee Report*. Regional Vulnerability Assessment and Analysis Programme.
- SADC Regional Vulnerability Assessment Committee (SADC-RVAC) (2017). *State of Food Security and Vulnerability in the Southern African Development Community*. Southern African Development Community.
- Schütte, S. (2004). *Urban Vulnerability in Afghanistan: Case Studies from Three Cities* (51 p). Afghanistan Research and Evaluation Unit.
- Simane, B., Zaitchik, B., & Foltz, J. (2016). Agroecosystem Specific Climate Vulnerability Analysis: Application of the Livelihood Vulnerability Index to a Tropical Highland Region. *Mitigation and Adaptation Strategies for Global Change*, 21, 39-65. <https://doi.org/10.1007/s11027-014-9568-1>
- Turin, C., & Valdivia, C. (2012). Off-Farm Work in the Peruvian Altiplano: Seasonal and Geographic Considerations for Agricultural and Development Policies. In C. Turin, & C. Valdivia (Eds.), *Seasonality, Rural Livelihood and Development* (pp. 143-160). Routledge. <https://doi.org/10.4324/9780203139820-18>