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Land Regularization and Its Impact on Household Livelihoods In Dar es Salaam and Mwanza Cities, Tanzania

Jane J. Mbilinyi,[*] Abiud L. Kaswamila[§] & Emiliana A. Assenga[‡]

Abstract

Land regularization is an emerging urban planning strategy for the improvement of livelihood outcomes. However, it has not been established if land regularization improves household livelihood outcomes in urban regularized settlements of Kimara and Buhongwa Wards in Dar es Salaam and Mwanza Cities, respectively, in Tanzania. This study assesses the impact of land regularization on livelihood outcomes in Kimara and Buhongwa wards. Specifically, it seeks to determine and compare levels of livelihood outcomes before and after land regularization. The study employed a cross sectional research design and involved a total of 441 land owners who were randomly selected. A livelihood index was used to measure levels of livelihood outcomes. Also, the Wilcoxon Signed Rank Test was used to compare levels of livelihood outcomes before and after land regularization. The results indicate that levels of livelihood outcome before and after land regularization portrayed spatial differences. In Buhongwa Ward, the level of livelihood outcomes before and after land regularization showed a significant result ($P<0.05$), while at Kimara Ward it was insignificant ($P>0.05$). Besides, it was observed that the improvement in the two cities was not the same in all households. To improve livelihood outcomes in regularized settlements, the study recommends that local government authorities and ministries responsible for land and promotion of investment on land should adopt an integrative and holistic approach that promote locational specific plans that capture socio-economic variables such as human capital and financial capital for improvement of livelihood outcomes at household levels.

Keywords: *land regularization, livelihood outcomes, settlement, Tanzania*

1. Introduction

More than 30% of the world's population lives in unplanned settlements. It is estimated that the number will double by 2030 (Panman, 2021; Panman & Gracia, 2021; 2022). These settlements are characterized by relatively less value, poor quality of life, insecure land tenure, overcrowded poor housing and poor access to basic services such as water, electricity and sanitation infrastructure (Schrecongost & Wong, 2015; Butera et al., 2016; Dachaga & de varies, 2022).

[*] Institute of Rural Development Planning, Dodoma Tanzania
[§] Department of Geography and Environmental Studies, University of Dodoma, Tanzania
[‡] Institute of Development Studies, University of Dodoma, Tanzania

Scholars such as Kaswamila (2006), Magina et al. (2020), Lupala (2021) and Hambati (2022) argue that poor quality of life in unplanned settlements in developing countries is closely linked to the increase in population in urban areas; and poor legal regulation enforcement caused by inadequate capacity of local authorities in providing secured and serviced land.

There is a global debate that land regularization in urban unplanned settlements has the potential to contribute to the improvement of livelihood outcomes due to the fact that land asset is a common denominator for livelihood outcomes[1] improvement in both rural and urban areas (Chambers & Conway, 1991; De Soto, 2000; DFID, 2001; Sen, 2003; URT, 2018b; Mwamlangala et al., 2019; Kaswamila & Mwakipesile, 2019; Holden & Tilahun, 2020). Empirical studies in rural areas by Mlowe and Urasa (2018), Mwamlangala et al. (2019), Holden and Tilahun (2020) found that though land titling has prominently reduced the perceived insecurity on land, it is proved to have fewer results in the improvement of land productivity and livelihood outcomes.

The chief proponents of the livelihood approach such as Chambers and Conway (1991), DFID (2001) and Scoones (2009), draw attention to the multiplicity of assets (human, physical, financial, natural and social assets) that people use when constructing their livelihood outcomes or land productivity by suggesting that household livelihood outcome depends much on human capability, and the ability to plan and make choices on how to transform their environment, including the choice on the use of available resources such as land.

To activate the improvement of livelihood outcomes in urban unplanned settlements, advocates of land tenure regularization (see, for example, De Soto, 2000; Collier, 2017) argue that realization of housing in unplanned urban settlements represents the ability of households to invest and accumulate assets and therefore, land regularization may increase the levels of livelihood outcomes in households. Deininger and Feder (2008), Payne and Durand-Lasserve (2012) and Collier (2017) assert that perceived security of tenure is widely accepted as a precondition for households to invest in land. These authors also emphasize that, in urban settings, the first indicator of the effectiveness of legal land titling programmes—or any land regularization programme—would be housing improvement and housing investment due to the increase in the security of tenure.

To maximize the benefits of land in unplanned settlements, developing countries like Peru and Mexico in Latin America; and Rwanda, Zimbabwe, Ghana, Ethiopia, Zambia and Tanzania in Africa, embarked on land reform programmes through redistribution and/or regularization (Kaswamila, 2006;

[1] Livelihood outcomes are the gains or achievements from activities performed by an individual or a household (Scoones, 2009; UNDP, 2017). Kironde (2006) and UN-HABITAT (2015) note that the major livelihood outcomes challenges in urban areas are quality housing for accommodation, assets and income to purchase food.

Schmidt & Zakayo, 2018; Dachaga & Timo de varies, 2022). However, the process is designed and implemented appropriately to serve the needs of the respective countries (Bizoza & Opio-Omonding, 2021). Nonetheless, the question of how far the benefits of land regularization programmes have been achieved has been a subject of a wide range of research and discussions.

To optimize the benefits of land in unplanned urban settlements, the Tanzanian government is implementing land regularization in towns and cities so as to support the improvement of livelihood outcomes to more than 70% of its population living in urban unplanned settlements (URT, 2012, 2013, 2015; Magina et al., 2020). The process of land regularization involves the issuance of Certificate of Rights of Occupancy (CRO) to land owners, and the provision of basic public services (water, energy, sewers) in consolidated unplanned settlements. The CRO is seen as the highest form of security of land rights, and has been noted to be a strategy to help households grow and improve livelihood outcomes.

Various authors (e.g., Kironde, 1995; Kombe, 2000; Kyessi, 2002 cited in Midheme, 2007) report that regularization has been implemented in Tanzania since the colonial era. The first regularization scheme was implemented in Kariakoo, Dar es Salaam in 1914; and later in Upanga and Shariff Shamba areas in the 1950s. Similar attempts were replicated by the state after independence, under slum upgrading in the 1970s and the early 1980s. However, scholars (e.g., Kyessi, 2002; Midheme, 2007; Magigi, 2013) note that securing land right has never been made explicitly a core objective of such projects.

Recent studies on land regularization in Tanzania by Magina et al. (2020) and Manja et al. (2020) have dwelt on challenges and the benefits of land regularization. These authors recommended that more research be done to provide evidence of the anticipated benefits from the ongoing land regularization programmes. Magina et al. (2020) further argue that owning land titles among households is likely to increase the value of land, confidence to activate investment on land, activate income-generating activities, generate more income, improve housing conditions and increase asset accumulation. Substantiation of these arguments, however, requires empirical evidence, which has unfortunately remained a grey area. The objective of this study is to (i) assess the levels of livelihood outcomes before and after land regularization in the study areas; and (ii) compare levels of livelihood before and after land regularization in the study areas. The study sought to test the hypothesis that livelihood outcomes before and after land regularization do not differ.

2. Literature Review

Land as a livelihood asset has been debated and conceptualized as one of the most important phenomena for the improvement of livelihood outcomes at household level in different contexts, including rural and urban areas (Kaswamila & Mwakipesile, 2019; Mlowe & Urassa, 2018; Panman, & Gracia,

2022). However, to justify this, emphasis has been on rural areas while studies in urban settings have received little attention (Durand-lasserve, 2007; Bizoza & Opio-omondi, 2021). The implications expected to arise from any intervention in urban areas are usually established in ideal situations as the real-world circumstances differ (Deininger & Feder, 2008).

Studies on land reforms and improvement of people's livelihood outcome in unplanned settlements of urban places and cities are limited. Equally, there is no study with an empirical evidence to reveal whether land regularization through land titling (CROs) in Tanzania's regularized urban settlements support the improvement of livelihood outcomes in terms of improved housing conditions and accumulation of assets.

2.1 Theoretical Review

The evolutionary theory of land rights (ETLR) and the sustainable livelihood approach (SLA) (DFID, 2001) were used to guide this study. Based on the ETLR, introduction of private rights or individual rights is designed following scarcity of resources. Land right, therefore, is designed in a way that each member is entitled to a separate land resource packet to ensure tenure security; and that land resources are expected to be allocated from low to high yield (Alchian & Demsetz, 1973; Rashid, 2021) to improve the levels of livelihood outcomes.

However, the actual arrangement on implementation of the ETLR theory depend on local legal contexts and, therefore, the theory predicts that any change in security status through titling leads to a change in livelihood outcomes (Selod & Durand-lasserve, 2007). In this context, land regularization in unplanned settlements changes land security status from informal to formal, secured through the issuance of CROs to landowners with the expectation of positive transformation to increase security in land ownership, and the ability of households to improve livelihood outcomes, including housing conditions and asset accumulation. The weakness of the theory is its emphasis on individual entitlement to a separate land resource packet to ensure tenure security with the expectation of high yields, and improved livelihood outcomes. Under the livelihood framework, land, human, social, financial and physical assets are among the variables that support the improvement of livelihood outcomes (Chambers & Conway, 1991; Sen, 2003).

The livelihood framework is founded upon the notion that the programme objective in any intervention must be based on an appreciation of what underpins livelihoods in a given locality. In this context, land asset is assumed to underpin livelihood outcomes in urban unplanned settlements; and therefore changing the status of land titles will lead to changes in households' levels of livelihood outcomes. The livelihood framework also recognizes that land security, through private ownership of land parcels as suggested by Demsetz (1967), may influence the level of investment in land to accumulate other assets.

The livelihood framework as well applies the principles of the theory of change that put emphasis on tracing the expected output and achievement/outcome after intervention/input. In this study, the input is land regularization; the output is certificates of rights of occupancy; and the expected outcome is the improvement of livelihood outcomes.

2.2 *Conceptual Framework*

The study was guided by the livelihood framework (DFID, 2001) with some modifications (Figure 1). The livelihood framework examines different elements that contribute to people's livelihood outcomes. The elements include assets (natural, human, physical, financial and social), institutions, policies and processes, ability and capability, strategies, and activities performed by an individual or a household to make a living (Chambers & Conway, 1991; Ellis, 1999; Scoones, 2009). From the framework, land undergoes regularization with an assumption that the provision of CROs will increase security on land, which can in turn enhance activation of income generating activities to improve household livelihood outcomes.

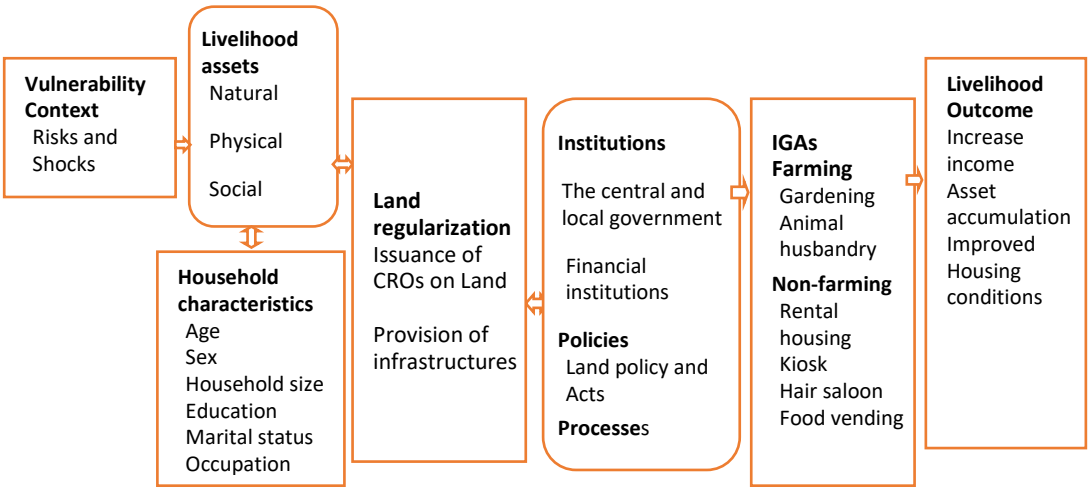


Figure 1: Impact of Land Regularization on Household Livelihood Outcomes
Source: Modified from DFID, (2001)

The changes in regulation governing land issues through the provision of CROs in urban unplanned settlement affects the registration of rights from informal to formal rights. It is expected that issuance of CROs to a plot of land can support the activation of the income-generating activities on land, access to credit from financial institutions, and ultimately support the improvement of livelihood outcomes.

3. Methodology

3.1 Description of the Study Area

This study was conducted in Kimara Ward (Ubungo District) and Buhongwa Ward (Nyamagana District), in Dar es Salaam and Mwanza cities, respectively (Figure 2). These two cities with different spatial locations have the highest population in Tanzania, and have been implementing land regularization programmes for more than five years (URT, 2012; Magina et al., 2020; URT, 2022). The cities have a high number of unplanned settlements in the country with 80% for Dar es Salaam and 70% for Mwanza (URT, 2015, 2016b, 2017). Also, the two cities are experiencing a chronic problem of poor housing in their unplanned settlements (Magina et al., 2020; URT, 2016b, 2018a).

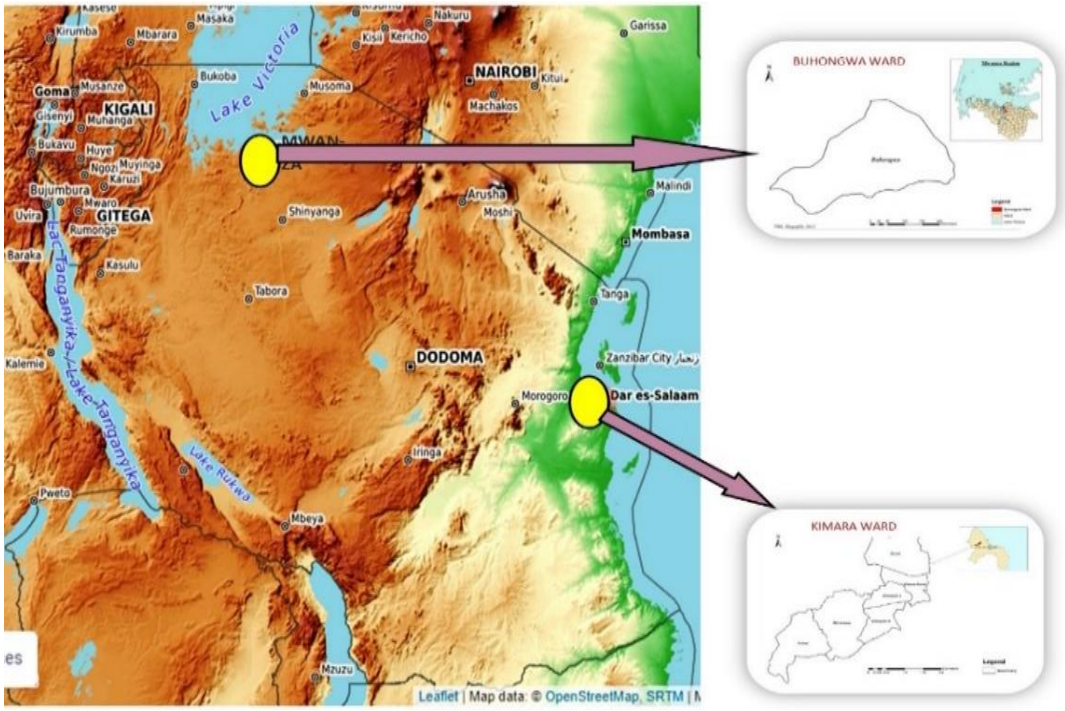


Figure 2: The Study Area
Source: Open Street Map

Ubungo District has the highest proportion of unplanned settlements in Dar es Salaam City (93%), followed by Kinondoni (85%), Temeke (83%), Kigamboni (77%) and Ilala 76% (URT, 2016b, 2018a). Nyamagana District in Mwanza City, on the other hand, has 18 wards with unplanned urban settlements compared to 9 wards in Ilemela District (URT, 2017).

3.2 Research Design, Sampling Procedure and Sample Size

A cross-sectional research design was adopted in this study and the sampling unit was land owners issued with certificates of right of occupancy. A total of 4,460 land holders were registered to the municipal urban planning offices, and had been issued with CROs from in the years 2014-2019 in the study areas. Out of this total, 250 households were from Kimara Ward, and 4,210 were from Buhongwa Ward. Land owners were the heads of household in the study area. A total of 441 land owners involved in this study with certificates of right of occupancy were randomly selected from registers in their respective district land offices. Simple random sampling was applied because it creates an equal chance for all units of analysis to be chosen (Benard, 2011).

A purposive sampling technique was used to select key informants. The key informants included two urban planners, two planning officers, and two ward executive officers. These were considered to have sufficient knowledge related to the study. Purposive sampling helps to get a representative sample that can provide rich information and an in-depth understanding of the phenomena being studied (Benard, 2011; Leavy, 2017).

3.3 Data Collection

The primary data for this study was collected through a questionnaire survey to gather data from 441 plot owners: 248 from Buhongwa Ward and 193 from Kimara Ward. This approach of data collection is thought to be an important approach of gathering data as it helps to understand the living conditions of household in urban areas (Panman, 2019). A retrospective baseline indicator was applied to map the situation before and after land regularization, as suggested by Posthumus and Wanitphon (2015) and Bekkers (2021). In the questionnaires, land owners were required to indicate their housing conditions and the assets they owned before and after land regularization.

A total of six in-depth interviews were also conducted with different key informants. During the interviews, emphasis was put on how one understood the implications of land regularization in the improvement of housing condition and asset accumulation in regularized areas. According to Leavy (2017), key informants are normally rich in qualitative information.

Non-participant observation was further conducted to detect household housing conditions. This was useful in supplementing data collected by other methods. Literature was also reviewed from published documents, including the Land Policy of 1995, Urban Planning Act No. 4 of 2007, urban planning regulations, journal papers, books and reports — such as the Tanzania Demographic and Health Survey Report of 2016, among others. Documentary review aimed at harnessing the already accumulated information to enrich the study. Documentary review normally provides already available and rich information of a phenomenon being studied (Leavy, 2017).

3.4 Data Processing and Analysis

Data was analysed using IBM SPSS Statistics Version 20 software and Microsoft Excel. The livelihood outcome index was computed from indicators, namely, household assets and housing conditions. These indicators were based on available literature, and were considered to be important livelihood outcomes in the study areas. Different reports—such as the National Programme for Regularization and Prevention of Unplanned Settlements (URT, 2012; 2013), Tanzania Demographic and Health Survey Report (URT, 2010; 2016a), National Budget Survey (URT, 2019) and the Tanzania Mainland Poverty Assessment (World Bank, 2019)—consider household physical assets and housing conditions as good indicators of household socio-economic status. In this study, 14 components of household assets were identified, including: car/van/truck, motorbike/scooter, bicycle, television, radio, cell phone, telephone, sewing machine, generator, tables and chairs, stove, fridge/freezer, poultry, and cattle. Moreover, 7 components of housing conditions were identified; and these included materials used to construct the walls of the main house, materials to roof the main house, main type of floor, bedrooms, utility services which include sources of fuel for cooking, sanitation facility, and source of drinking water. All these were used to compute the household livelihood outcome index before and after land regularization.

From the indicators, the principal component analysis (PCA)—which is a data reduction technique—was applied to support the computation of the livelihood outcome index (LOI). According to Filmer and Pritchett (2001), the PCA assigns weight (factor score) to different assets to capture as much information as possible from the data. The resulting scores were standardized in relation to a standard normal distribution with a mean of 0 and a standard deviation of 1. The principle has been applied by Gwatkin et al. (1996), and the Tanzania Demographic and Health Survey Report (URT, 2010; 2016a), when constructing household wealth indexes. From such weights (scores), a LOI per each household was computed. To compute the LOI, the assigned scores for each asset for a household were summed up as shown in the equation:

$$LOI = \sum_{j=1}^{N} \left(W_j \frac{x_j}{n_j} \right) \times 100$$

Where,

LOI is the Livelihood Outcomes Index
N is the total number of observations
W_j is the weight of jth livelihood outcome (i.e., household assets and housing condition), obtained using the PCA weighting method
x_j is the scored value of jth Livelihood outcome
n_j is the possible score value of the jth livelihood outcome.

To establish the levels of livelihood outcomes, the computed LOIs were then converted into ordinal categorical variables; the median livelihood outcome was computed to establish the medium level of livelihood. The quartile was established to get the three levels of livelihood outcomes: low, medium and high. The Wilcoxon Signed Rank Test was used to compare levels of livelihood outcomes before and after land regularization. Usually, the test is used to capture significance evidence and non-overlapping of ranked count data (Woolson, 2007; Fleiss et al., 2003).

4. Findings and Discussion

4.1. Housing Condition Before and After Land Regularization

The results in Table 1 indicate that before land regularization, 94.5% of the houses had exterior walls built of concrete blocks and cement. After land regularization, the number of houses with concrete blocks and cement-built walls slightly increased from 94.5–95.2%. More than 90% of these houses had concrete/tiles and iron sheet roofs, cement/concrete and ceramic/tiles flooring before and after land regularization. This is similar to the findings by the Tanzania Demographic Survey Report of 2010 and 2016, and the National Census of (2012) which reported that, in urban areas, almost nine in ten households use iron sheets for roofing. This is one of the aspects of a good quality house in an urban area (URT, 2010, 2013, 2016a). This implies that in Buhongwa and Kimara wards the condition of the main houses -- in terms of their exterior walls and their roofs -- was of good quality before and after land regularization.

As for the number of bedrooms in the dwellings, the responses indicates that, before land regularization, 94.7% of the houses had more than three bedrooms. After land regularization the number of houses with three bedrooms or more slightly increased from 94.7–95.7%. The results also indicate that more than 90% of all households used charcoal and electricity for cooking and lighting before and after land regularization; and more than half (50%) used gas before and after land regularization. This shows that the majority of houses in the regularized land used improved sources of fuel for lighting (electricity) before and after land regularization. Despite the fact that households used improved sources of fuel for lighting before and after land regularization, there were households that were still using solid fuel for cooking (charcoal). Butera et al. (2016) noted that poor households use charcoal as part of their cooking systems, which has a strong impact on family income. As a consequence, there are high levels of indoor smoke (biomass), causing health problems to house dwellers.

Charcoal as a source of fuel has been noted by the Tanzania Demographic and Health Survey Reports of 2010 and 2016 to be the main source of fuel in all urban areas of Tanzania. More than 62% of urban households use charcoal as the main source of fuel (URT, 2010, 2016a). Muzanila and Assenga (2022) also observe that more than 80% of vanilla and non-vanilla growing farmers in Bukoba Rural District use charcoal and firewood as the main source of energy for cooking.

Table 1: Housing Condition Before and After Land Regularization

Response Variable	Before Name of Ward			After Name of Ward		
	Kimara (n=193)	*Buhongwa (n=248)*	*Total (n=441)*	*Kimara (n=193)*	*Buhongwa (n=248)*	*Total (n=441)*
Main material of exterior walls of dwelling						
Poles/stick and Mud built	0 (0.0)	4 (1.6)	4 (0.9)	0 (0)	1 (0.4)	1 (0.2)
Iron Sheet	2 (1)	0 (0.0)	2 (0.5)	1 (0.5)	3 (1.2)	4 (0.9)
Burnt Bricks/cement	2 (1)	13 (5.2)	15 (3.4)	1 (0.5)	13 (5.2)	14 (3.2)
Concrete Blocks and cement	188 (97)	229 (92.3)	417 (94.5)	191 (99)	229 (92.3)	420 (95.2)
Other (e.g., sun-dries/burnt bricks – mud built)	1 (1)	2 (0.8)	3 (0.7)	0 (0)	2 (0.8)	2(0.5)
Rooms for sleeping						
1 room	3 (2)	14 (5.7)	17 (3.9)	3 (1.5)	11 (4.4)	14 (3.2)
2 rooms	2 (1)	4 (1.6)	6 (1.4)	1 (0.5)	4 (1.6)	5 (1.1)
3 rooms and above	188 (97)	230 (92.7)	418 (94.7)	189 (98)	233 (94)	422 (95.7)
Main material of roof of the dwelling						
Grass/ Thatch/Palm leaves	2 (1)	2 (0.8)	4 (0.9)	0 (0)	1(0.4)	1(0.2)
Concrete/ Tiles	16 (8)	6 (2.4)	22 (5)	21 (11)	10(4)	31(7)
Iron Sheet	174 (90)	238 (96)	412 (93.4)	171 (89)	235 (94.8)	406 (92.1)
Others	1 (1)	2 (0.8)	3 (0.7)	1 (1)	2(0.8)	3 (0.7)
Main material of floor of dwelling						
Earth/ Sand	1 (0.5)	6 (2.4)	7 (2)	1 (0.5)	2 (0.8)	3 (0.7)
Cement/ Concrete	122 (63.2)	194 (78.2)	316 (71)	99 (51.3)	178 (71.8)	277 (62.8)
Ceramic/ Tiles	69 (35.8)	46 (18.6)	115 (26)	92 (47.7)	66 (26.6)	158 (35.8)
Others	1 (0.5)	2 (0.8)	3 (1)	1 (0.5)	2 (0.8)	3 (0.7)
Sources of fuel for cooking						
Using battery - ***Yes***	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0(0)
Using paraffin - ***Yes***	8 (4)	5 (2)	13 (3)	8 (4.2)	4 (1.6)	12 (2.7)
Have electricity - ***Yes***	193(100)	222 (89.5)	415(94.10)	192 (99.5)	226 (91.1)	418 (94.8)
Using charcoal - ***Yes***	179 (92.75)	242 (97.6)	421 (95.5)	180 (93.3)	245(98.8)	425 (96.4)
Using gas - ***Yes***	118 (61.1)	122 (49.2)	240 (54.4)	151 (78.2)	141 (56.8)	292 (66.2)
Sanitation facilities						
No facility, bush, field	0 (0)	1 (0.4)	1 (0.2)	0 (0)	2 (0.8)	2 (0.5)
Traditional pit toilet	6 (3.1)	41 (16.6)	47 (10.7)	4 (2)	36 (14.5)	40 (9)
Ventilated improved pit latrine	2 (1)	17 (6.8)	19 (4.3)	2 (1)	20 (8.1)	22 (5)
Flush toilet	185 (95.9)	189 (76.2)	374 (84.8)	187 (97)	190 (76.6)	377 (85.5)
Sources of water						
Obtain water from piped water in dwelling						
Yes	155 (80.3)	191(77)	346 (78.5)	184(95.3)	202(81.4)	386(87.5)
Obtain water from public tap						
Yes	1 (1)	19 (7.7)	20 (4.5)	1 (1)	18 (7.3)	19 (4.3)
Obtain water from neighbour's open well						
Yes	15 (7.8)	1 (0.4)	16 (3.6)	0 (0)	1 (0.4)	1 (0.2)
Obtain water from public open well						
Yes	4 (2.1)	4 (1.6)	8 (1.8)	0(0)	2 (0.8)	2 (0.5)
Obtain water from protected well in dwelling						
Yes	5 (2.6)	0 (0)	5 (1.1)	0 (0)	0(0)	0(0)
Obtain water from public protected well						
Yes	0 (0)	6 (2.4)	6 (1.4)	0 (0)	0(0)	0(0)
Obtain water from spring						
Yes	0 (0)	1(0.4)	1(0.2)	0 (0)	0(0)	0(0)

Notes: Figures in brackets are percentages

Source: Field survey, (2021)

Water and sanitation services were found to be of good quality before and after land regularization to more than 75% of the households. This is contrary to the finding by Schrecongost and Wong (2015) who noted that utility investments in unplanned settlements in Pacific countries were hindered by internal, government and donor technical preferences, which tended to favour investments in piped water infrastructure systems to formal areas. Buhongwa and Kimara wards were found to have utility services before regularization.

The study findings also contradict those of Deininger and Feder (2008) who argued that the first indicator of the effectiveness of land registration programmes would be the improvement of housing. In this study, houses that had walls built with sun dries/burnt bricks, mud-built, poles/stick-mud-built, iron sheet built and brick-cement built remained to be more than 5% before and after land regularization. The possible reason for not renovating the houses could be that land owners had low-income before and after land regularization to support the renovation of their houses. The national programme for regularization guide (URT, 2012, 2013) noted that houses that are built using temporary building materials -- such as mud and thatch, or old tin sheets -- are associated with low purchasing power of the developers.

Nonetheless, the study results are similar to those of the studies by Kironde (1995, 2006, 2019), Midheme (2007), Magigi and Majani (2006) and Magina et al. (2020): all of which reported that those who were engaged in community regularization were from wealthier groups than poor groups. There is a possibility that poor households in Tanzania remain marginalized during the regularization process, as more than 90% of households issued with certificate of right of occupancy in Kimara and Bunhongwa wards were having good housing conditions before and after land regularization. Usually, formal land use plans exclude poor groups. Scholars such as Watson (2009), Briggs and Mwamfupe (2007), Payne and Durand-Lasserve (2012) and Kinyashi et al. (2018) argue that, in many cases, programmes for the poor are hijacked by better-off groups and, therefore, poor groups remain excluded from programmes that are objectively meant for them.

4.2 Possession of Assets by Households Before and After Land Regularization

The results in Table 2 indicate that the most common assets owned in the study area were radio and television sets. More than 70% of the population possessed these assets before and after land regularization. The majority of households (90%) owned cell-phones before and after land regularization. These results imply that the majority of households had improved communication services before and after land regularization. Signal towers for communication services to the households were available before and after land regularization in the study areas.

Table 2: Possession of Assets by Households before and after Land Regularization

Response's Variable	Before			After		
	Kimara (n=193)	*Buhongwa (n=248)*	*Total (n=441)*	*Kimara (n=193)*	*Buhongwa (n=248)*	*Total (n=441)*
Own car	28.5	10.5	18.4	29	12.5	19.7
Own motorbike	6.7	4.8	5.7	6.2	4	5
Own Bicycle	6.7	4.8	5.7	3.6	13.7	9.3
Own Television	90.7	60.1	73.5	93.3	63.3	76.4
Own Radio	82	71	75.7	79.8	73.4	76.2
Owned cell phone	87	93.5	90.7	91.7	94.4	93.2
Own Telephone	1	0.4	0.7	1	0.4	0.7
Owned Sewing Machine	3.1	3.2	3.2	2.6	2	2.3
Owned generator	2.6	2	2.3	3.1	0	1.4
Owned Table/Chairs	93.3	75	83	93.8	80.7	86.4
Owned Stove	25.4	14.1	19	26.4	12.5	18.6
Owned freezer	64.8	20.6	39.9	67.9	25	43.8
Owned Poultry	18.1	6.9	11.8	20.7	8.9	14.1
Owned cattle	0	2.8	1.6	0.5	1.6	1.1

Note: Figures in brackets are percentages

Source: Field survey, (2021)

Different studies, such as Sen (2003), Winters et al. (2009), Assenga et al. (2017), Akyoo et al. (2019), Kaswamila and Mwakipesile (2019), Raymond (2020) and Hambati, (2022) found that the semi-formal conditions of a local area, together with the socio-economic, demographic attributes and indigenous knowledge on what underpin livelihoods are important for the improvement of household livelihood outcomes. Socio-economic predictors increase household capability to make decisions on the use of resources to improve livelihood outcomes.

4.3 Levels of Livelihood Outcome Before and After Land Regularization

The data in Table 3 shows that before land regularization, Kimara Ward had (18.7%; n=193) of its households living in the low-level livelihood outcome category. The medium-level livelihood outcome category was 52.3%, and those categorized as high livelihood outcomes were 29%. After land regularization, low-level livelihood outcomes decreased by 97%, medium-level livelihood outcomes increased by 8.9% and high-level livelihood outcomes increased by 46.4%. These changes are statistically insignificant P>0.05. The results support the economic theory predicting that stronger property rights should lead to a higher rate of investment and improvement of livelihood outcomes than weak property rights (Demsetz, 1967; Platteau, 1996;). This means that the majority of households in the study area are not able to raise their ability to activate investment on land to improve their level of livelihood outcomes as per prediction.

On the other hand, Buhongwa Ward had (41.9%; n=248) low-level livelihood outcome, 44% medium-level livelihood outcome, and 14.1% high-level livelihood outcomes. After land regularization, the medium-level livelihood

outcomes increased from 44% to 62%, which is an increment of 42%. The high-level livelihood outcome category increased from 14.1% to 33.5%, which was an increment of 137%. The results imply that, after land regularization, some households in the ward experienced a positive change in the levels of livelihood outcomes as indicated by improved housing conditions and increased asset accumulation. The change was found to be statistically significant (P<0.05). The findings from Buhongwa Ward were similar to those from a study by Field (2005, cited in Deininger & Feder, 2008), who found that between the 1994/1995 and 1999/2000, increased titling commanded an increase in improvement in housing in Peru.

Table 3: Levels of Livelihood Outcomes before and after Land Regularization

Levels of Livelihood	Ward		Overall
	Kimara n=193	*Buhongwa n=248*	*Total (n=441)*
Outcome Before			
Low	18.7	41.9	31.8
Medium	52.3	44	47.6
High	29	14.1	20.6
Outcome After			
Low	0.5	4.	2.5
Medium	57	62.5	60.1
High	42.5	33.5	37.4
P-Value	**0.175**	**0.000**	**7.31E-06**

Notes: Pearson chi2 = 44.4713 Pr = 0.000
Ho: Levels of Livelihood Outcome after land regularization = Levels of livelihood outcome before Land regularization

Source: Field data (2021)

The Pearson chi-square test was run to confirm whether there was any association between levels of livelihood outcomes and spatial locations. Results in Table 3 reveal that the level of livelihood outcome is significantly associated with spatial location P<0.05. However, the Wilcoxon signed rank test from the overall data reveals a significant difference of all levels of livelihood outcomes before and after land regularization (P=7.31E-06, sig at P< 0.05), implying a significance change of overall livelihood outcomes in the wards after the land regularization programme.

The results suggest that generalizations during spatial planning should be avoided. Kaswamila (2006), Winters et al. (2009) and Payne and Durand-Lasserve (2012) stress the need to contextualize the planning process and understand the categories of land owners in different spatial areas to enhance the validity of expected results. The overall results in this study predict significant differences of levels of livelihood outcomes before and after land regularization. However, the

Pearson chi-square test confirms the existence of association between levels of livelihood outcomes and spatial locations. These authors argue that each unplanned settlement is unique, and so are the households in such areas due to the diversity of socio-economic conditions of residences, institutions and the infrastructures available in a given area, be it a city or town.

Households with changes in livelihood outcomes were able to observe abilities generated after land regularization. Among them was the increase in land tenure security and improvement in housing conditions. This was also well noted by a land officer from Kimara Ward who said:

> *…though with self-help, some households improved their housing conditions after receiving a certificate of right of occupancy; the certificate of right of occupancy increased land security to land owners…* (Land Officer, Kimara Ward, 2021).

Some households observed substantial improvement after land regularization to include the installation of electricity, provision of piped water, improvement of flooring and roofing types, increase in assets such as tables and chairs, and increase in the number of bedrooms in a house. The following is a quote from one land owner in Buhongwa:

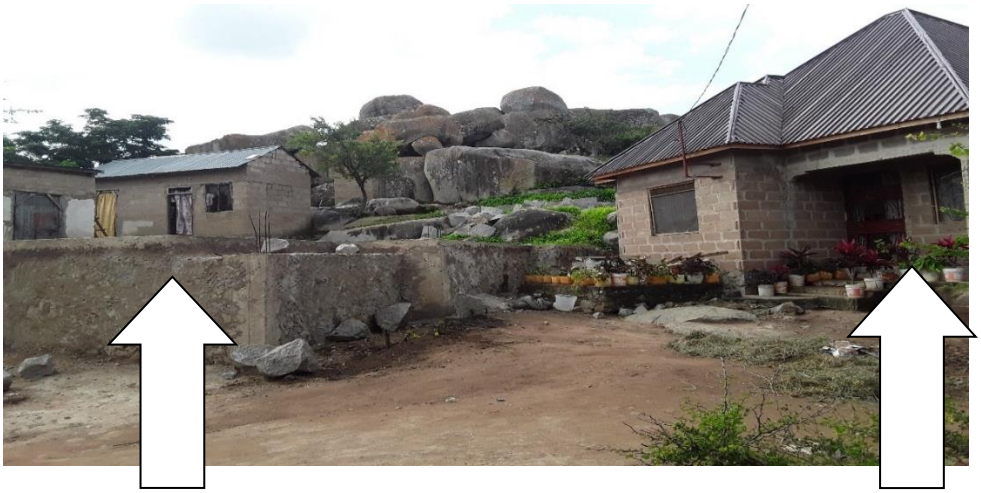
> *The formal issuance of a certificates of right of occupancy increased confidence on the ownership of my land. I constructed a good house and installed electricity and water. Before regularization, I had a small house (single room) without electricity and water facilities* (Land Owner, Buhongwa Ward, February, 2021)

This explanation expresses how some people felt about their housing and how land titling reduced insecurity on land. This further raised their confidence on self-support and investment in good housing. Plate 1 shows self-built houses by one landholder who was engaged in agriculture. The houses were built in the same plot on a rocky hill; one cost TZS 3 million and was built before the year 2016 (before land regularization), and the other house cost TZS 9 million and was built after the year 2016 (after land regularization). With self-help, land title increased security to land owners and had an implication on the quality of the property invested on land after issuance of certificate of rights of occupancy.

Supporting the clarification from the landowner, one Mtaa Executive Officer (MEO) of the area had this to say:

> *Prior to the titling process, the area under description had been prescribed by the City Council as reserved land (a rocky hill) and, therefore, some restrictions for settlement had been imposed* (Mtaa Executive Officers (MEO), Buhongwa, February, 2021).

The results are similar to those from studies by Turner and Fichter (1972), Varley (1987), and De Soto (2000), who contend that usually high security of tenure is associated with improved housing conditions in self-help settlements. In illegal settlements, the threat of eviction prevents some people from investing time and money in improving their housing conditions.



House built before (2016) ***House built after (2016)***

Photo 1: Housing Condition Before and After Land Regularization at Buhongwa Ward

Source: Field survey, (2021)

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This implies that there are other socio-demographic attributes that implicated livelihood outcome to these households. These attributes include the size of household, sex of the household head, age of the household head, local leadership, location, education level of the head of the household, marital status and semi-

formal nature of the area. These variables are confirmed by Sen (2003), Kaswamila (2006), Winters et al. (2009), Assenga et al. (2017), Schmidt and Zakayo (2018) and Raymond (2020) as some of the predictors of household livelihood outcomes.

5. Conclusion and Recommendations

Land regularization has been proved to have nothing to do with improving housing conditions and asset accumulation to the majority of households in the study areas. More than 90% of the land owners had improved housing conditions and accumulation of assets before and after land regularization. The levels of livelihood outcomes before and after land regularization portrayed locational differences. In Kimara Ward, the improvement of the levels of livelihood outcomes was insignificant, while it portrayed significant results in Buhongwa Ward. However, the improvement in the two wards was not homogeneous to all land owners. Hence, the study recommends that local government authorities and ministries responsible for land and promotion of investment on land should adopt a locational specific planning approach that considers socio-economic and demographic variables in promoting locational specific plans geared at the improvement of livelihood outcomes at household levels.

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