This research analyses the internal structure and neighbourhood disparities in the capital city of Dodoma, Tanzania. Further, it provides a qualitative assessment of the balance of social, economic and environmental sustainability from the perspectives of residents within these neighbourhoods.

KEY FINDINGS

- Dodoma gained capital-city status in 1973 when the then government decided to transfer its seat from Dar es Salaam to a more central location. Consequently, Dodoma has experienced general urbanisation and intensified migration that has led to major changes in land use and spatial development. Built-up areas comprising residential, industrial, business and public spaces have increased across the city at the expense of farmland owned by Dodoma’s native citizens.

- In recent years Dodoma has seen rapid urbanisation and uneven population growth. The near-central business district, peri-urban and urban parts of the city have grown very fast as a result of intensified urban planning and surveying of land.

- Although the city is growing outwards, urban wards have become increasingly concentrated and dense over time following changes in development guidelines such as those on vertical development.

- There are wide disparities between rural and urban wards in access to, and provision and quality of services, with urban wards benefiting from better coverage. Consequently, residents from low-income and urban villages face risks around health and education deprivation and reduced life chances.
About the study

This study investigates the internal structure of Dodoma city to understand spatial changes, neighbourhood formation, population distribution and growth, and segregation and disparities.

Dodoma is a small city located in the middle of Tanzania with a population of 410,956 residents. The city was announced as the capital of the United Republic of Tanzania in 1973 during the early years of President Julius K. Nyerere’s governance. Prior to this decision, Dar es Salaam on the east coast of Tanzania was the capital city. Dodoma was chosen so the capital was located centrally within the country, to diversify social and economic development, and to establish a socialised city model instead of the colonial-designed Dar es Salaam. However, most government functions remained in Dar es Salaam until the official move in 2016. Since this time, Dodoma has experienced a rapid influx of people, not only of civil servants relocated from Dar es Salaam, but also from other parts of Tanzania in search of emerging economic opportunities.

The research places significance on how neighbourhood characteristics influence the health status and learning opportunities of Dodoma’s residents from the perspective of inclusive, safe, resilient and sustainable lives. Land-cover changes and urban sprawl at city level have been examined using remote sensing analysis of land cover status from 1978 to 2018. Census data from 2002 and 2012 have been used to analyse population distribution, growth and segregation, while cluster analysis has been used to categorise neighbourhoods on the basis of proxy indicators for income and wealth. Additionally, to capture qualitative data, we conducted focus group discussions in different neighbourhoods to explore factors relating to both physical and social development, including land use, building patterns and accessibility.

Research results

Land-cover changes and urban sprawl at city level

A large part of Dodoma city is yet to be developed.

The entire city’s built-up area increased from 5.4% in 1978 to just 15% in 2018. Land development is clustered around arterial and collector roads as well as in the central business district (CBD).

There was a minimal pace of physical development in Dodoma before the government decided to officially shift its functions from Dar-es-Salaam in 2016. However, the percentage land cover is estimated to have doubled following the government move due to an increase in the construction of public offices and private houses in peri-urban areas.

Quantitative and spatial analysis at ward level

Before the government officially moved to Dodoma, the city experienced a decline in population growth from 59% growth in 1988–2002 to 27% growth in 2002–2012. The population density increased from 117 people per km$^2$ in 2002 to 148 people per km$^2$ in 2012, however it has since escalated from 166 people per km$^2$ in 2017 to 187 people per km$^2$ in 2018.

The city had a total of 37 wards in the 2012 census, and our ward-level analysis indicates average populations of 24,046 in near-CBD wards, 12,927 in rural wards, 11,813 in peri-urban wards, and 8,954 in CBD wards. The majority of CBD wards experienced either a slowing down in population growth or negative growth between 2002 and 2012; positive growth ranged from between 5% and 13% and negative growth ranged between -4% and -40%. The average population growth was 5.2% in CBD wards, 13% in rural wards, 23% in peri-urban wards, and 90% in near-CBD wards. By 2012, most residents remained concentrated in the CBD wards (10,000–20,000 persons per km$^2$) and near-CBD wards (1,200–4,200 persons per km$^2$). Peri-urban areas had the lowest population concentration in 2012 (50–150 persons per km$^2$).

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Neighbourhood categorisation

Dodoma city is organised administratively from top to bottom by city, division (4), wards (37) and streets (118). In this study we define streets as neighbourhoods and use this as our unit of analysis. Within streets (and therefore neighbourhoods) there are substantial social interactions between residents and access to services such as schools, dispensaries, markets and places of worship, etc. The population size of streets conforms to standard neighbourhood population sizes of 5,000 to 7,000 people. Each street has one government employee and one democratically elected chairman plus five street council members (of whom two must be female). The street government is responsible for maintaining peace and order, linking residents to higher administrative authorities, identifying and implementing social and economic development projects, managing land use and acquisition, and managing and protecting the environment, among other things.

Rapid urbanisation and uncontrolled expansion of settlements has resulted in the formation of different types of neighbourhoods within Dodoma. These neighbourhoods have different social, economic and environmental needs and challenges, all of which require special attention to make the city inclusive, safe, resilient and sustainable. We used cluster analysis to categorise the 118 streets (neighbourhoods) into five neighbourhood types based on pre-defined wealth indicators. The categories are: low-income (n=13 or 11% of streets/neighbourhoods), mixed low- and medium-income (n=7 or 6%), medium-income (n=18 or 15%), mixed medium- and high-income (n=35 or 30%), and high-income (n=45 or 38%).

Low-income and mixed low- and medium-income populations largely comprise individuals who live in rural and peri-urban areas. With respect to social demographic characteristics, low-income neighbourhood residents are illiterate with low rates for secondary and university education, and low coverage for social security and civil and vital registration. Medium-income, mixed medium- and high-income, and high-income populations largely comprise individuals who live in CBD, near-CBD and rural wards. Residents from these neighbourhoods are characterised as having high rates of secondary and university education, high coverage for social security and civil and vital registration, and low illiteracy rates.

Education and health

Dodoma city has 124 primary schools with a total enrolment of 93,016 pupils.

Of these schools, 93 are owned by the government with 84,390 pupils enrolled. The remaining 31 schools are privately owned with 8,626 pupils enrolled. Nursery schools enrol a total of 8,262 children. The distribution of primary schools is largely proportionate to the population thresholds in respective wards. The pupil to teacher ratio (PTR) stands at 65:1, which is higher than the international standard of 40:1. The high PTR in Dodoma is likely the result of a shortage of classrooms rather than teachers, as teacher shortages are less likely in urban areas compared to rural ones.

One factor that contributes to Dodoma’s population growth is the presence of several higher education institutions in the city. Dodoma has seven universities, of which the University of Dodoma is the largest in Tanzania with an enrolment capacity of 40,000 students. Continuing education is also well established in Dodoma through the city’s 51 vocational training colleges.

In terms of health provision, Dodoma hosts the Benjamin Mkapa Hospital, which is a large tertiary facility that provides specialised treatment including kidney transplants. The city also hosts the Mirembe hospital, a national psychiatric referral facility that receives patients from all over the country. Dodoma city has a total of 76 health facilities, 51 of which are owned by the government and 25 are owned by the private sector including religious institutions. Nearly all wards have health facilities that are easily accessible to residents due to good infrastructure. The majority of services are provided by public health facilities, followed by private- and parastatal-owned facilities.

Neighbourhood characteristics

Our analysis shows that there are significant neighbourhood disparities in Dodoma in terms of location, population size, availability of social services, economic situation, neighbourhood history and particular government investments.
Most neighbourhoods – especially those in near-CBD and peri-urban wards – have experienced extraordinary growth in the construction of private and business property. General housing conditions are fair as the majority of houses expand horizontally, are made of cement block walls with corrugated iron roofs, and have big or moderate sized screened and unscreened windows.

There are considerable differences in access to and quality of water and sanitation services within neighbourhoods, however. Not all CBD households are connected to clean water and sanitation systems despite having a large share of high-income neighbourhoods. This is likely because a reasonable number of households have other sources of water (such as wells) and because there are low-income households in CBD wards too. Electricity is widely available to almost all residents in all neighbourhoods with only a few connection challenges found in rural low-income neighbourhoods. Solid waste management remains a great challenge to many city dwellers – high- and medium-income neighbourhoods in the CBD and its vicinity have proper systems and facilities such as sanitary landfill, in contrast to peri-urban neighbourhoods where open burning and local landfills are still used.

Although the city has a new Capital City Master Plan that spans 2019 to 2039, not every piece of land in Dodoma has been surveyed. Plot surveying activities are ongoing, however, with the city council aiming to plan and survey all areas. A particular challenge remains regarding the sustainability of the peri-urban, low-income communities who depend on urban agricultural land for their livelihoods. Unplanned land is traditionally owned by individuals, therefore acquiring private land for public use such as open spaces, markets, roads, schools and health facilities is a challenging task, especially with regard to compensation funds for landowners.

**The perceptions of residents**

As part of the neighbourhood audit of Dodoma city, we assessed the perception of residents across neighbourhoods in terms of their understanding of sustainability.

The general community understood that neighbourhood sustainability is associated with the quality and availability of infrastructure and social services such as roads, water and sanitation, education and health. However, some communities associated sustainability with other indicators such as city planning. In a number of neighbourhoods in peri-urban and rural wards, the expansion of settlements through planning and surveying was found to have destroyed people’s livelihoods through land-use transformation from agricultural activities to residential plots. Respondents reported that such scenarios had ruined their sense of belonging in their neighbourhood and had increased the likelihood of them moving to rural areas where they could acquire agriculture land.

Residents also associated neighbourhood sustainability with the availability of economic opportunities, which are less readily available compared to in Dar es Salaam due to Dodoma’s relative slow pace of industrialisation. Moreover, the quality of infrastructure also emerged as a theme in neighbourhood sustainability and was mentioned by both residents and neighbourhood leaders. It is worth noting that access to and coverage of education and health services was highly applauded; however, these indicators were outweighed by reports of inadequate quality for such services.
Way forward

Dodoma city has been growing steadily in terms of land cover and built-up areas. The formation of the Capital Development Authority soon after Dodoma was declared a capital city in 1973 and its successful first National Capital Master Plan in 1976 have been critical tools in guiding land development in the city. Although not fully realised as envisioned, the footprint of the original Master Plan can be seen in a large part of the cityscape, particularly in terms of the height of buildings which have been restricted to four storey until recently.

As the government shift from Dodoma to Dar es Salaam stabilises, it is likely that investments and rapid urbanisation will lead to a significant increase in the population which will consequently put pressure on existing infrastructure. However, the low population density and urbanisation in near-CBD, peri-urban and rural wards in the city provide an opportunity to plan the city’s development and expansion ahead of time.

The low population density and urbanisation in near-CBD, peri-urban and rural wards in the city provide an opportunity to plan the city’s development and expansion ahead of time.

Planning and survey activities have already been conducted – and continue – in many peri-urban parts of the city to identify areas for diverse land use including business investments and residential settlements to house the growing population. But, since all major national investments are directed at Dodoma currently, a sustainable approach is needed to ensure that the social, housing and infrastructure needs of residents are considered. This can be achieved through understanding the diversity of existing neighbourhoods and exercising development control mechanisms such as the recent Capital City Master Plan 2019–2039 to control spatial development of Dodoma and to ensure a well-planned and sustainable city.
This paper summarises key findings of a report on the city as part of an international comparative study coordinated by the Centre for Sustainable, Healthy and Learning Cities and Neighbourhoods (SHLC). The wider study examines urbanisation and sustainable development in 14 cities in Africa and Asia and this part explores patterns of neighbourhood distribution and changing socio-spatial structures in response to recent urban expansion and migration. Geographic information system (GIS) data and remote sensing image analysis have been used to explore land-use changes and urban sprawl at city level and official statistics such as the population census and other secondary data have been used to map internal structural changes.

Census data from 2002 and 2012 have been used to analyse population distribution, growth and segregation. See https://www.nbs.go.tz/index.php/en/census-surveys/population-and-housing-census


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Cover photo: Panoramic view of Dodoma city, Tanzania. Credit: Ifakara Health Institute

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SHLC aims to strengthen capacity to address urban, health and education challenges in fast growing cities across Africa and Asia. SHLC is an international consortium of nine research partners, as follows: University of Glasgow, Human Sciences Research Council, Khulna University, Nankai University, National Institute of Urban Affairs, University of the Philippines Diliman, University of Rwanda and the University of Witwatersrand.

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