

RAPID LAND AUDIT

Livingstone
Urban District

DW DEVELOPMENT
WORKSHOP

Development Workshop Zambia, May 2024



Rapid Land Audit - Livingstone Urban District

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1 Executive Summary

Towns across Zambia struggle with informal settlement growth due to high levels of rural to urban migration, leading to a housing crisis. This housing crisis has become a priority for national government and local authorities. The challenge however is complex and local authorities often are faced with different issues, as for example:

1. Scope: There is often insufficient information to understand the scope of the challenge, for example how large the existing informal settlements are and how fast they are growing.
2. Funds: Budget allocations are often not sufficient to deal with the multiple challenges associated with informal settlements and their growth, for example planning, infrastructure and housing related activities.
3. Priorities: With multiple concurrent challenges, local authorities may struggle to identify priority interventions that would have the highest impact.
4. Project design and budgeting: Even when funds are available, they may not be fully utilised in some cases, because processes for project design, budgeting and implementation are too slow.

Rapid urban land audits can provide a valuable contribution to address these challenges. As shown here for Livingstone, a rapid land audit implemented within a period of a few weeks can provide information and maps that facilitate discussions, prioritisation and assessment of key challenges. Most importantly, such a land audit allows the presentation of a complex situation in a straightforward and structured way.

A structured analysis coupled with clear communication on informal settlement challenges and solutions has many advantages. It can assist when requesting for funds from central government, inviting donors to contribute to certain projects, and help internal discussions for prioritisation and project design.

Some of the findings of this rapid land audit in Livingstone include:

1. Approximately 500 new houses are erected in informal settlements every year. This means that an additional 500 low-income housing opportunities must be created on an annual basis to stop informal settlement growth. Such housing opportunities can include the provision of affordable plots.
2. There is sufficient land available to plan and service low-income residential areas. The maps produced following the audit provide an overview of empty spaces within the Livingstone district boundaries.
3. The provision of services to new residential areas is a major challenge. To ensure long-term sustainability and scalability, cost-recovering approaches are needed when planning and selling residential plots, as used in standard sites and services projects elsewhere in the region.
4. There is considerable potential to create partnerships with not-for-profit institutions. Informal settlement upgrading and servicing of low-income residential areas can be implemented through partnerships with such institutions, who are often able to raise additional funds.

The conclusions of the rapid land audit include:

1. **Focus on key development indicators:** By presenting specific development indicators such as informal settlement growth patterns in the form of detailed maps, the audit can be used by the council to discuss the way forward and to engage with potential development partners.
2. **Replicability:** This audit was completed within a short period of time and with limited resources. Consequently, such audits are affordable and implementable for other towns.
3. **Initiating a structured approach to address housing related challenges:** A land audit presenting in this format provides a simple and pragmatic tool to initiate a structured approach for housing challenges. This approach can also be communicated easily with potential development partners, facilitating the acquisition of funding.
4. **Potential for partnerships:** This land audit showed considerable potential for partnerships with not-for-profit organisations and private sector. Not-for-profit organisations can leverage additional funding and expertise for informal settlement upgrading and servicing of new low-income residential areas.

Acknowledgements:

This rapid land audit was made possible through the generous support of Livingstone Council. Their staff graciously provided their time, shared their expertise, and granted access to crucial information. DW Zambia extends its gratitude for their invaluable assistance.

2 Context

On 11 May 2021, the Zambian government launched a new Land Policy. The main objective of the policy is to improve land administration and management to provide for more sustainable land development that fosters national socio-economic progress. A key focus of the land policy is to make land accessible in a more systematic manner in order to improve land development. Ownership of land with secure land tenure on both customary and statutory land – given that the new land policy has affirmed the country’s dual land tenure system – is seen as a catalyst to increase investment in land and economic activities, thus increasing revenue at national and local levels.

With the new policy, the government has initiated a process to implement a national land audit, which aims to determine the amount of land that is currently held under state and customary tenure. This process will be implemented in parallel with the national land titling programme. However, due its sheer size and complexity, the national land audit is estimated to take several years to complete.

Town specific and rapid land audits are complementary to the national land audit, by providing towns with an overview of land use information for immediate use. In November 2023, Development Workshop (DW) discussed land audits with a delegation of the Ministry of Infrastructure, Housing and Urban Development during a conference on housing finance held in Windhoek, Namibia.¹ DW was encouraged to engage towns to implement pilot land audits and develop a standardised methodology for future audits.

DW subsequently engaged with Livingstone Council and mutually agreed to implement a rapid urban land audit on behalf of the Council. The audit was financed by DW and implemented between December 2023 and January 2024 in Livingstone.

The main aim of the rapid urban land audit was to provide an overview of land uses within the city boundaries, with a special focus on challenges and opportunities regarding low-income housing and informal settlements. With this audit, DW aimed to develop a simple and straightforward methodology that would provide a framework for similar audits in other towns. The special focus on low-income housing and informal settlements was chosen because the continued growth of informal settlements is arguably one of Zambia’s biggest development challenges.

¹ Development Workshop is a not-for-profit organisation, specialised in housing and urban development and with offices in Zambia, Namibia, Angola and Switzerland. For more information see: www.dw-switzerland.org

3 General approach and methods

3.1 Objectives and outcomes

The main aim of audit was to conduct a land use assessment in Livingstone, including:

1. Assessing formal and informal land use within the Livingstone city limits;
2. Assessment of urban growth over the last 10 years, including growth of informal settlements;
3. Identifying open spaces with potential for development;
4. Identifying challenges and opportunities to promote low-income housing, the development of existing informal settlements, and prevention of further informal settlement growth.

The main outcome of the land audit is this **report**, a proposal for a **standardised methodology** for rapid land audits, and **four thematic maps**, including:

1. Map 1 – Livingstone informal settlement growth: Informal settlement growth patterns from 2014 to 2023
2. Map 2 – Livingstone land use map: Overview of current land use typologies in Livingstone Urban District
3. Map 3 – Unoccupied spaces in Livingstone: Overview of unoccupied land within Livingstone Urban District
4. Map 4 – Map of urban expansion: Overview of urban expansion of Livingstone from 2014 to 2023

3.2 Data sources and collection

Three different sources of data and information were used for this assessment:

1. Information available from the Livingstone City Council

- Conversations and interviews with staff of the City Council;
- 2021 Livingstone Integrated Development Plan (IDP): showing city boundaries, land uses (actual and planned) and zoning information;
- Online resources from Ministry of Lands and Natural Resources; ²
- Various council reports.

2. Satellite imagery

Google Earth imagery for 2014 and 2023: Downloaded and georeferenced, allowing comparative analysis over different years to determine growth patterns.

3. Site visits for data collection

In-situ field verifications were instrumental in not only characterising settlements and land uses but also for identifying their boundaries and confirming settlement names. The team conducted extensive site visits to all informal settlements.

² <https://www.landportal.org/node/92504>

3.3 GIS mapping

GIS was the main research tool that was used for the audit. GIS mapping produced the following four main outputs:

1. Mapping of boundaries and zoning

Land uses as shown on the IDP were used to identify boundaries and then GIS mapped to generate relevant shapefiles that were used to create the land use map as one of the main outcomes of this audit.

2. Mapping of built-up areas

The mapping of built-up areas involved using visual interpretation and spatial tools in a GIS environment to identify and map unoccupied open spaces within Livingstone urban area. The mapping of built-up areas first extracted roof tops from the 2014 satellite image and then from the 2023 image to identify where the city had grown during that period of time, revealing the general growth patterns and trends.

3. Mapping of open spaces

Open spaces are of special interest in this rapid urban land audit, as they indicate what areas could possibly be available for future developments. Open spaces in the context of this audit are those pieces of land that do not have any building or other structure. Some of these spaces may have been allocated but not yet occupied. The mapped built-up areas revealed the extent of unoccupied land in central urban and peripheral residential areas in Livingstone.

4. Mapping of informal settlement growth

The informal settlements were mapped as follows:

1. Boundary establishment: All informal settlements in Livingstone were identified and boundaries confirmed by the council and then digitised on the image through GIS mapping;
2. 2014 satellite image: Used to capture points of the roof tops of all houses within these images;
3. 2023 satellite image: Used to capture rooftops of all additional houses that were erected between 2014 and 2023.

The roof top counts from 2014 were compared with those from 2023 to establish the number houses that were built in each informal settlement during that period.

5. Data presentation

Four thematic maps were then produced. These can be printed as large- or small-scale maps as one of the main deliverables of the rapid land audit.

3.4 Research Team

The research team consisted of a senior researcher (PhD in Geography) and three Geomatics graduates from University of Zambia (UNZA) with good GIS skills. The team spent ten days in Livingstone for field work, with data analysis, mapping and report writing completed in Lusaka. The research team was supported by senior DW management during the planning phase, data analysis and the preparation of reports and maps. Throughout the assessment, the team worked closely with relevant staff at the City Planning Department of Livingstone City Council. The final report and maps were reviewed and commented on by one of the City Planners.

4 Livingstone

4.1 Geography & administration

Livingstone is Zambia's southernmost city, 480 km from Lusaka and with an estimated population of 177,393 people. It is named after the Scottish explorer and missionary, Dr. David Livingstone, and served as the capital of Northern Rhodesia until 1935. This status influenced and continues to influence its development, both economically and in terms of planning. It lost its status as the provincial capital of the Southern Province to Choma but has retained its status as the tourist capital of Zambia, with the Victoria Falls (Mosi-O-Tunya) as the main attraction.

Livingstone lies in the greater Zambezi valley with an altitude of approximately 1000 m above sea level and an annual average rainfall of 600 mm. It sits in Zone I of Zambia's agro-climate zones, characterised by high temperatures in the hot dry season from September to November. Livingstone District has limited agriculture potential due to its semi-arid climate and relatively infertile sandy soils in many areas and stony eastern Zambezi escarpment. These conditions favour livestock farming more than crop farming, with limited irrigation potential in the river valleys and marsh areas. Irrigation activities are visible along the Maramba River (Kasiya Agricultural scheme) and Zambezi River (pivot irrigation for commercial agriculture).

Livingstone City Council is a one constituency district statutory body under the Local Government Act, No. 2 of 2019. The mayor is the political head while the Town Clerk is the Chief Executive Officer of the council. The Livingstone district has only one constituency, Livingstone Central, and is represented by one member of parliament, with 20 ward councillors and associated development committees.

There is only one traditional leader within the district, Chief Mukuni of the Toka-leya tribe. Officially, there is no traditional land within the district boundary, but the Chief exerts visible influence on development across the district, especially in Sakubita, Maloni and Mukuni village areas. Villages in Chief Mukuni's area have planned streets with names, which is unusual in many other chiefdoms across the country.

4.2 Land use management and planning

The Land Act (no. 20/26 1995) recognises two types of land tenure: customary land and statutory land. The former is managed by the traditional leaders, while the latter by the Ministry of Lands and Natural Resources (MLNR). The MLNR is mandated by law to administer land while local authorities such as Livingstone City Council (LCC) act as agents on behalf of the MLNR to identify, plan and allocate land.

The Urban and Regional Planning Act of 2015 regulates development planning and settlement establishment. Local authorities are responsible for preparing development plans and for the allocation of land. They are the planning authority within their respective district boundaries, which they execute in consultation with representatives of the ministries responsible for roads, electricity and other services. Such development plans are subject to public consultation and the Minister's approval. The local authority is required to submit any modification or revision once in every five years.

The guiding development master plan in Livingstone is the Integrated Development Plan (IDP). It is the principle strategic planning instrument that provides an overall development framework for the district and informs all planning, budgeting, management and decision-making processes across all sectors (IDP 2021-2031).

The council is mandated to develop urban layout plans and direct the implementation of such plans within its district boundaries. The process involves socio-economic surveys to confirm perceived need and desirability, consultations with various key stakeholders, completion of an EIA and development of the layout plan. The layout plan is submitted to the planning committee for endorsement before sending to the provincial planning authority for approval. This plan is later, upon approval, executed by a land surveyor to produce general plans

and diagrams, which aid in the land allocation and registration process. Basic services (access roads, water and electricity) are installed with the help of utility companies such as Southern Water and Sanitation Company (SWASSCO) and Zambia Electricity Supply Corporation (ZESCO). Sewerage systems are rarely installed due to very high costs associated with building such infrastructure.

Residential layouts also include institutional plots for social services such as schools, health centres, recreation centres, places of worship and police stations. Most of the work from planning to land surveying and registration is done by the Department of City Planning within the council, while engineering designs and construction works are usually outsourced. The Land Development Fund, as provided for under the Lands Act, provides resources to clear land for the development of new settlements, including commercial and industrial areas.

Once the layout is approved, an advert is placed to invite applicants for different residential types and zones within the planned areas. The application process includes payment of an application processing fee to the council before one can be considered for a piece of land.

The council committee responsible for land allocation recommends the applications to the full council meeting. The council approves allocation and council minutes act as proof of allocation decisions. Applicants are then issued with allocation letters with conditions and procedures to follow in terms of registration and occupancy. Upon payment of prescribed fees, successful applicants are offered plots and given a period to pay for service charges that are determined based on the size of the plot and its zoning. Applicants are then taken to the site and shown their plots.

In order to register a plot, the local authority submits the names of successful applicants with all the required documents for registration to the Ministry of Lands and Natural Resources. Usually, service charges include survey fees but often applicants end up engaging private surveyors to produce diagrams for processing certificates of title. Upon confirmation of allocation and payment of prescribed fees, most residents submit housing designs and once approved they start to build even before services are provided and the land registered in their names. The council has recognised this as a major challenge and plans to improve the process and avail more financial resources for developing new areas.

The local authority implements two types of land tenure documentation:

1. Certificate of title for up to 99 years (issued by the MLNR) in accordance with the Lands and Deeds Registry Act;
2. Certificate of Occupancy or Occupancy Licence (issued by the council according to the Town and Regional Planning Act, No. 13 of 2015).

Occupancy Licenses, which replaced the former land records, have a validity period of 30 years. Despite these provisions, not all land in the district has formal ownership. Reasons for this range from lack of awareness to over-stretched capacity to process documentation needed for formalisation of land ownership. In early 2024, Livingstone Council embarked on a mass titling project with MLNR to document occupied land, especially in the planned low-income areas.

5 Results and thematic maps

5.1 Informal settlement growth

Growth mapping

The first mapping exercise focused on informal settlement growth, as the continued expansion of these settlements is one of Livingstone's main developmental challenges. While in 2014 there were only 6 informal settlements in Livingstone, today there are 13 such settlements, as follows:

- | | | |
|------------|-------------------------------------|--------------|
| 1 Namatama | 6 Libuyu | 11 Mwandu |
| 2 Burton | 7 Zambezi Sawmills | 12 Nakatindi |
| 3 Zecco | 8 Dambwa Site and Service | 13 Kashitu |
| 4 Ngwenya | 9 Dambwa Site and Service Extension | |
| 5 Malota | 10 Dambwa Site View | |

From 2014 to 2023, the number of informal houses within these 13 settlements grew from 10,783 to 15,356. This means that 4,573 informal houses were built over a period of 9 years, an average of 508 informal houses per year.

Figure 1 provides an overview of the location of the informal settlements and growth between 2014 and 2023. The green dots on the map represent roof tops in informal settlements in 2012, and the red dots additional roof tops on a satellite image of 2023. A larger scale map is provided in Annex 1.

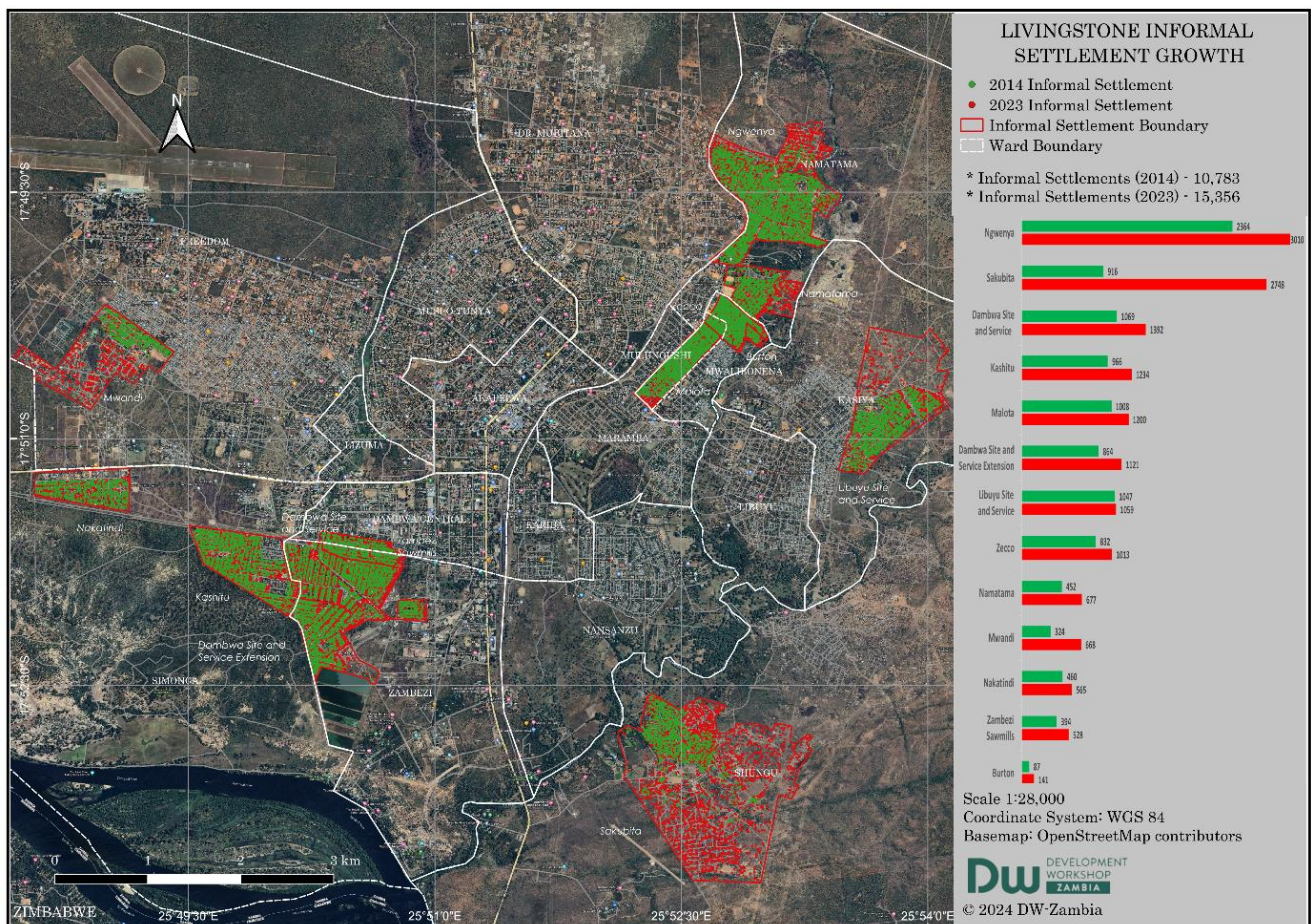


Figure 1: Livingstone informal settlement growth

Growth patterns of different informal settlements

The growth patterns of different informal settlements vary considerably (Figure 2). Sakubita informal settlement was the fastest growing settlement, expanding from just 916 dwellings to 2,748, while Libuyu Site and Service was the slowest growing, with only 12 new dwellings in this time period. Mwandi grew from 324 to 668 dwellings. The largest settlement in 2014, Ngwenya, grew relatively slower, with only 646 additional houses during the 9-year period. This is likely due to the lack of space available for new houses in this large settlement (see Figure 1).

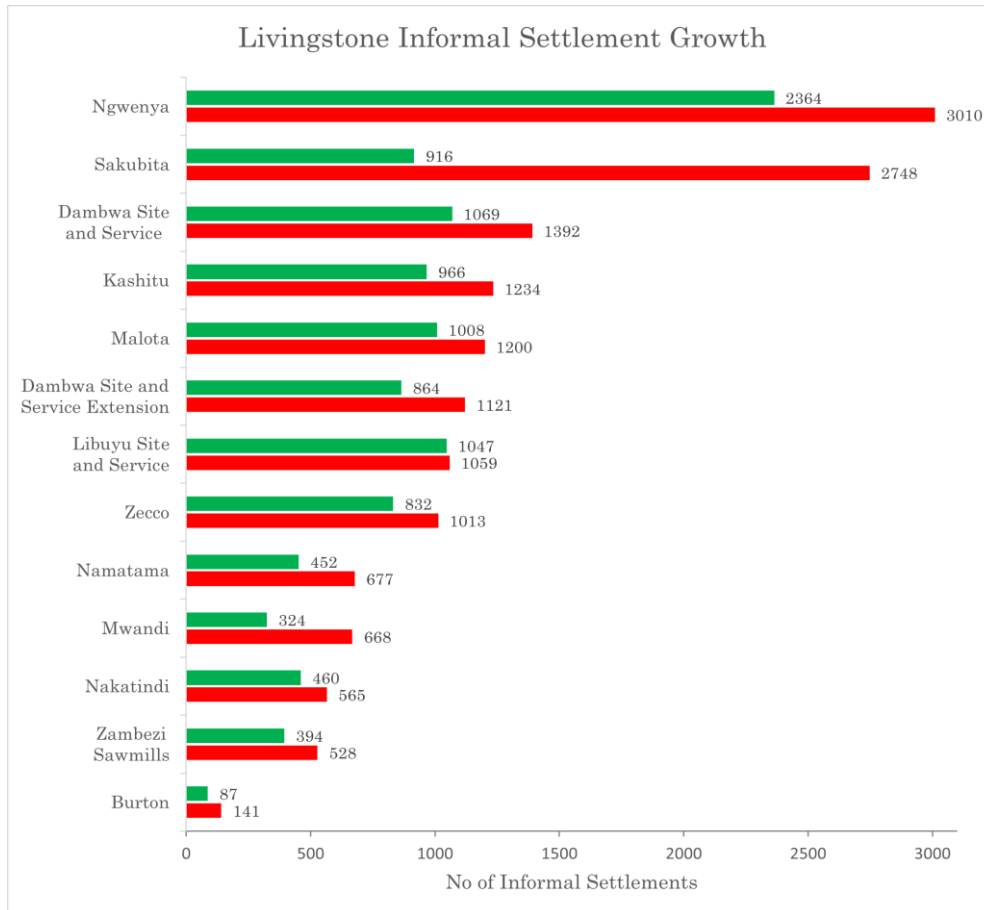


Figure 2: Growth of all informal settlements from 2014 to 2024

Informal settlement densification

As informal settlements grow, they not only expand but also densify. As more and more houses are being erected without planning and in confined areas, less space is available for public services or roads. Such informal settlement densification were observed in all 6 settlements that existed in 2012.

Informal settlement characteristics

Identification and classification of what is informal based on a satellite image alone is often difficult.³ This is because the nature of development within an informal settlement range from traditional mud and straw houses to more modern constructions using kiln-baked clay pan bricks and concrete blocks. Ngwenya for example includes some well-planned sections with proper basic services and good access roads, while other

³ Equally challenging is to find an accepted definition or description of informal settlements in Zambia. This is because informality is heterogeneous in nature. It can be informal in terms of tenure, type of houses, and/or how the settlement developed in the first place. Some initially unplanned settlements become accepted and declared by the local authority and then planning follows. Others begin as illegal settlement on planned land due to slow land delivery as people move in and start constructing (usually sub-standard) structures that have not been submitted to the local authority for compliance. All of these types of informality are prevalent within the urban district of Livingstone.

sections are unplanned, inaccessible and have no basic services. Sakubita, which has been disputed by the local chief as part of urban land, can be characterised as unplanned. However, the presence of well-designed and constructed medium cost houses creates an impression of a planned settlement.

In situ field visits during the audit increased the team's understanding of the unplanned and informal settlements, including the land uses, type of housing, and characteristics of open spaces in particular areas. Determining the level of development in the informal settlements involved paying attention to the construction materials used, the presence of infrastructure facilities such as soak-away, septic tanks, taps, and electricity.

Most of the economic activities in these areas involve informal trade, including the sale of essential domestic goods, barber shops, shebeens, fresh vegetable markets and charcoal. Some sell hardware items from containers and others use makeshift shelters and stands. In the evening, streets are full of merchandise sold to the returning residents from either formal or informal work in town. Young children of school age can also be seen selling along the street and into the late evenings.



Photos taken in different informal settlements in Livingstone

5.2 City-wide land use mapping

The city-wide mapping of land uses provided the main land use typologies in Livingstone. This mapping exercise was mostly based on the IDP. Land uses within the Livingstone City Council area were classified as follows:

1. Residential
2. Industrial
3. Hospitality
4. Commercial
5. Agricultural
6. Forestry

Most of the land in the district is under agriculture (49%), while the built-up areas in the urban district of Livingstone occupies a smaller portion (11%). Within the built-up area, the residential typology predominates.

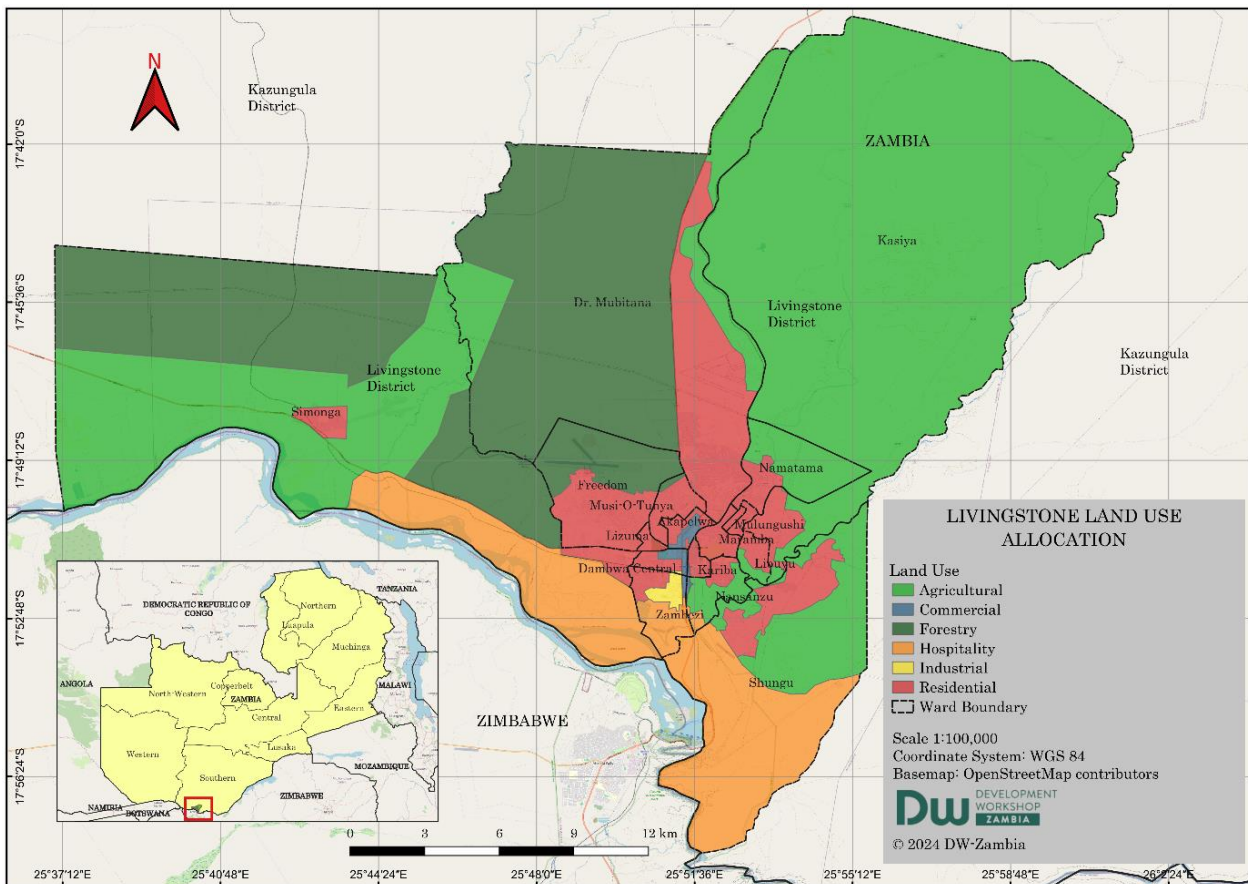


Figure 3: Livingstone land use map

5.3 Open Spaces

For this assessment, open spaces were defined as unoccupied areas without any physical structures in both unplanned and planned settlements.

Although agricultural land can be regarded as open spaces according to the adopted definition in the audit, it was not considered in the analysis. In addition, sport areas and recreational areas were not considered as open spaces since they are already occupied for specific use. Most of the land along the main transport corridors has been allocated, serviced and occupied. The high demand in these areas is attributed to the availability of services. Land south of Mwandu, east of Libuyu and east of Sakubita settlements is still unallocated and has limited services. There are also open spaces within the tourism areas, but these are strictly reserved for the expansion of hotels and lodges in these prime areas.

The city anticipates a demand for over 10,000 residential plots by 2031. The IDP has articulated plans to develop the unoccupied land in the planned and unplanned informal settlements with a view to improving service delivery in these areas. The city plans to approve five unplanned areas as settlements (Simonga, Sinde, Manjeleti, Mulala and Sakubita) so that they can be upgraded. Mwandu, Libuyu extension and Sakubita/Maloni informal settlements still have a lot of unplanned and undeveloped open spaces, which are already earmarked for residential housing development.

The total area in terms of unoccupied and open urban spaces is 33.7km² as shown in Figure 3. This presents a good opportunity to implement pro-active land development programmes in line with the IDP's aspirations.

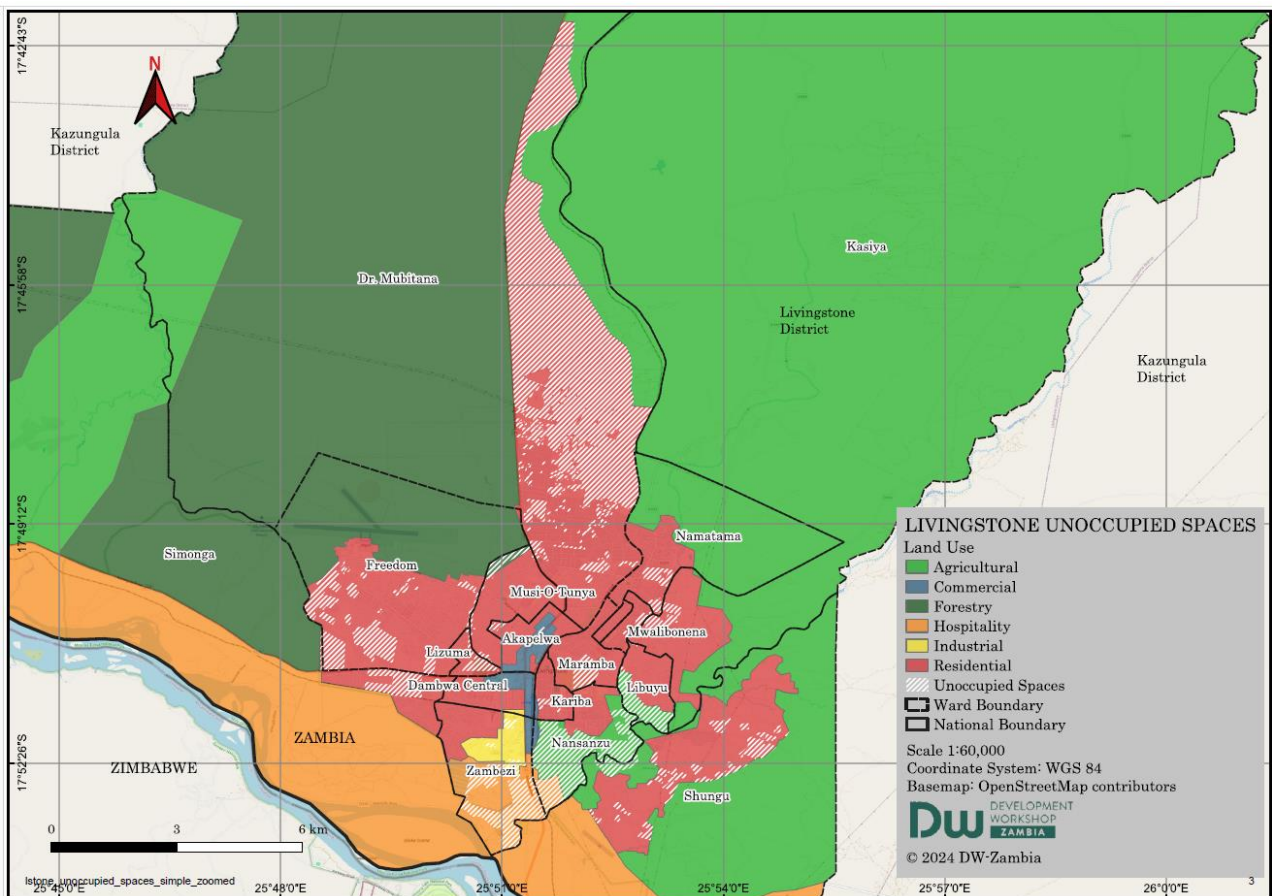


Figure 4: Map of unoccupied spaces in Livingstone

5.4 Overall urban growth

Another mapping exercise was done to determine the spatial expansion of built areas in Livingstone. The map in Figure 5 shows how the Livingstone city urban area has expanded in the last ten years.

Most urban development in Livingstone concentrates along the following major roads: the Lusaka road, the Nakatindi road leading to the Kazungula and Katima Mulilo borders with Botswana and Namibia, respectively, and the Mosi-o-Tunya road to Victoria Falls and Zimbabwe.

Despite the projected population growth of 2.7%, the city experienced a slowdown in growth because of the relocation of the provincial headquarters to Choma Town in 2012. Most provincial offices transferred their operations to Choma, which resulted in a temporary over-supply of housing, especially in high-cost areas. However, the influx of Zimbabweans in search of alternative livelihoods due to economic decline in Zimbabwe led to increased growth in recent years.

Apart from the new highlands residential area north of the city, most of the growth has occurred in the low-cost housing areas, especially in the informal settlements of Libuyu, Ngwenya, Mwandi and Sakubita/Maloni (Figure 5).

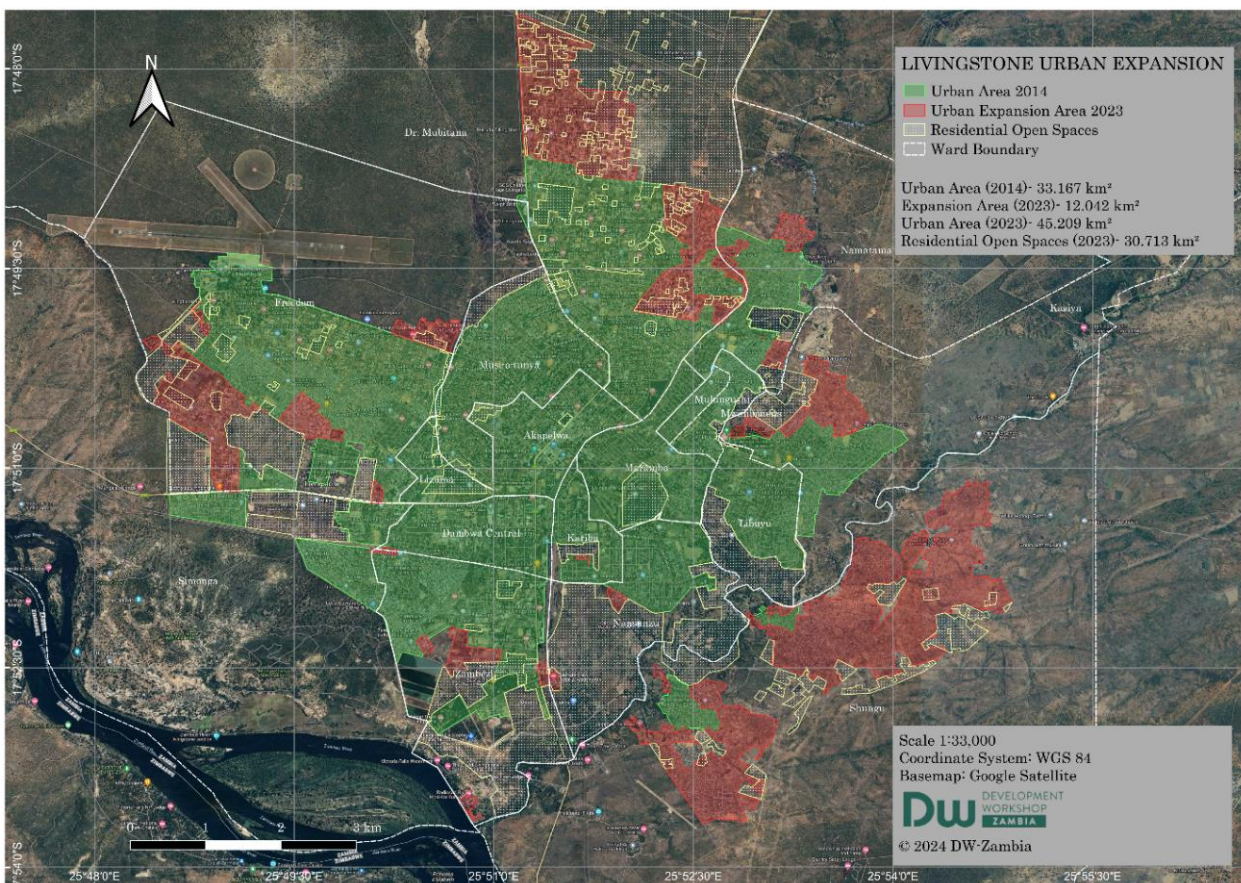


Figure 5: Map showing overall urban growth in Livingstone from 2014-2023

6 Challenges and opportunities

6.1 Main challenges

Informal settlement growth

Informal settlements in Livingstone are growing at a pace of approximately 500 informal houses per year. It can be expected that this growth rate will increase, adding to the already considerable size of Livingstone's informal settlements. The unplanned growth of these informal settlements contributes to poverty and exclusion.

Informal settlement densification

Informal settlements in Livingstone are densifying, which makes it more challenging and expensive to widen roads, create spaces for public services, and construct reticulation systems for water, sewer and electricity.

Sale of unserviced plots

Land allocation in the low- to medium-income areas has shifted from the old **'site and service'**⁴ procedure to **'site, allocate and service'**. The local authority is struggling to service the already allocated plots due to limited funds. Residents are therefore left to find alternatives for access roads, water and sanitation – posing a threat to decent and healthy living spaces. By selling unserviced plots, the council also loses the opportunity to recover servicing costs from the buyer. Once the buyers occupy their plots, it is much more difficult to make them pay for the construction of services.

Provision of services and availability of funding

Provision of services in informal areas has been limited due to lack of funds, although most of them have piped water accessed either through individual connections or communal taps. Lack of proper sanitation is another major challenge in most of the informal settlements: soak-away and pit latrines are common in almost all informal settlements. However, most of the settlements had electricity. Access roads in some areas (especially in Sakubita, Ngwenya, Zecco, Burton and parts of Malota) are too narrow for waste collection service vehicles to use.

Land use management

The land management process can possibly be further streamlined and integrated between different departments. While a project to integrate GIS data in LCC's operations is under way with the support of GIZ, this process has not yet concluded.

6.2 Opportunity 1 - "Site and service" to prevent informal settlement growth

Compared to other towns in Zambia, Livingstone's informal settlement growth is rather moderate. It can therefore be brought under control. To this end, a site, plan and service programme that provides affordable, planned residential land to low-income residents is recommended.

It would therefore be beneficial for both council and residents to revert to the "site and service" approach whereby sited areas are planned and the plots serviced before being sold. Using that approach, the development costs for the services can be calculated beforehand and included in the plot price. If additional development funds are available, the plot price can be subsidised.

⁴ The site and service approach was used in Zambia and across the continent up into the 1990s, with funds from major international financing institutions. After two decades relatively little interest in sites and services programmes, the approach is gaining momentum again, partly due to evaluations by the World Bank that show how successful these projects were. See for example: <https://documents1.worldbank.org/curated/en/099605406072226218/pdf/IDU034a6b6d100f1f0422b081340a8fd05130941.pdf>

6.3 Opportunity 2 - Upgrading of informal settlements

Livingstone council has put considerable effort into upgrading of informal settlements. This includes upgrading Kashitu and Nakatindi settlements, and the council's plans to formalise Simonga, Sinde, Sakubita, Mulala and Manjeleti. These processes can be further supported by development partners.

Informal settlement upgrading is a time intensive and costly process. It involves the proclamation of the settlement, topographical survey, design of a layout plan, design and costing of infrastructure, shifting of houses and creation of spaces for roads, services and infrastructure. To avoid resistance, residents need to be involved from the beginning, allowing them to see the benefits of the entire process.

The complexity of upgrading requires a considerable amount of planning and budgeting. Ideally, upgrading plans and budgets should be developed for all informal settlements in town, with a multi-year plan that allows the allocation of relevant budgets over several years.

6.4 Opportunity 3 - Infrastructure assessments and investments

Degraded or absent urban infrastructure is a major challenge for informal settlement upgrading and 'site and service' interventions. As new residential areas are developed, their internal reticulation systems (water, sewer, electricity) need to be connected to relevant bulk infrastructure. If such bulk infrastructure is not available, the settlements either cannot be connected, or the developers need to bear the cost of building such infrastructure.

City-wide infrastructure assessments are a useful tool to assess what exists and what is needed most urgently. The same way that a land audit provides an overview of land uses, an infrastructure assessment provides a full picture of the urban infrastructure. Through such an assessment, key projects can be identified, preliminary designs done and budgeted. Such a structured approach makes it easier to request funding from government and development partners.

6.5 Opportunity 4 - Development of partnerships

There is considerable scope for partnerships with specialized not-for-profit institutions. Such institutions can provide:

1. Technical expertise. For example, on cost-recovery approaches used for site and service programmes;
2. Network of donors with a potential to provide funding for specific projects that are identified as priorities;
3. Additional human resources to design and implement projects;
4. Access to private sector services at subsidised rates (e.g. town planners and engineers).

7 Conclusions

Focus on key development indicators

This rapid urban land audit for Livingstone provided a baseline of key information regarding informal settlements and related challenges to housing and infrastructure. By presenting specific development indicators such as informal settlement growth patterns in the form of detailed maps, the audit can be used by the council to discuss the way forward and to engage with potential development partners.

Replicability

This audit was completed within a short period of time and with limited resources. Consequently, such audits are affordable and implementable for other towns. The focus, methodology and structure of the outputs can easily be replicated for audits in other towns, speeding up the process even further.

Initiating a structured approach to address housing related challenges

A land audit presenting in this format provides a simple and pragmatic tool to initiate a structured approach for housing challenges. It can lead to further assessments (such as infrastructure assessments) and help to prioritise town development projects. This approach can also be communicated easily with potential development partners, facilitating the acquisition of funding.

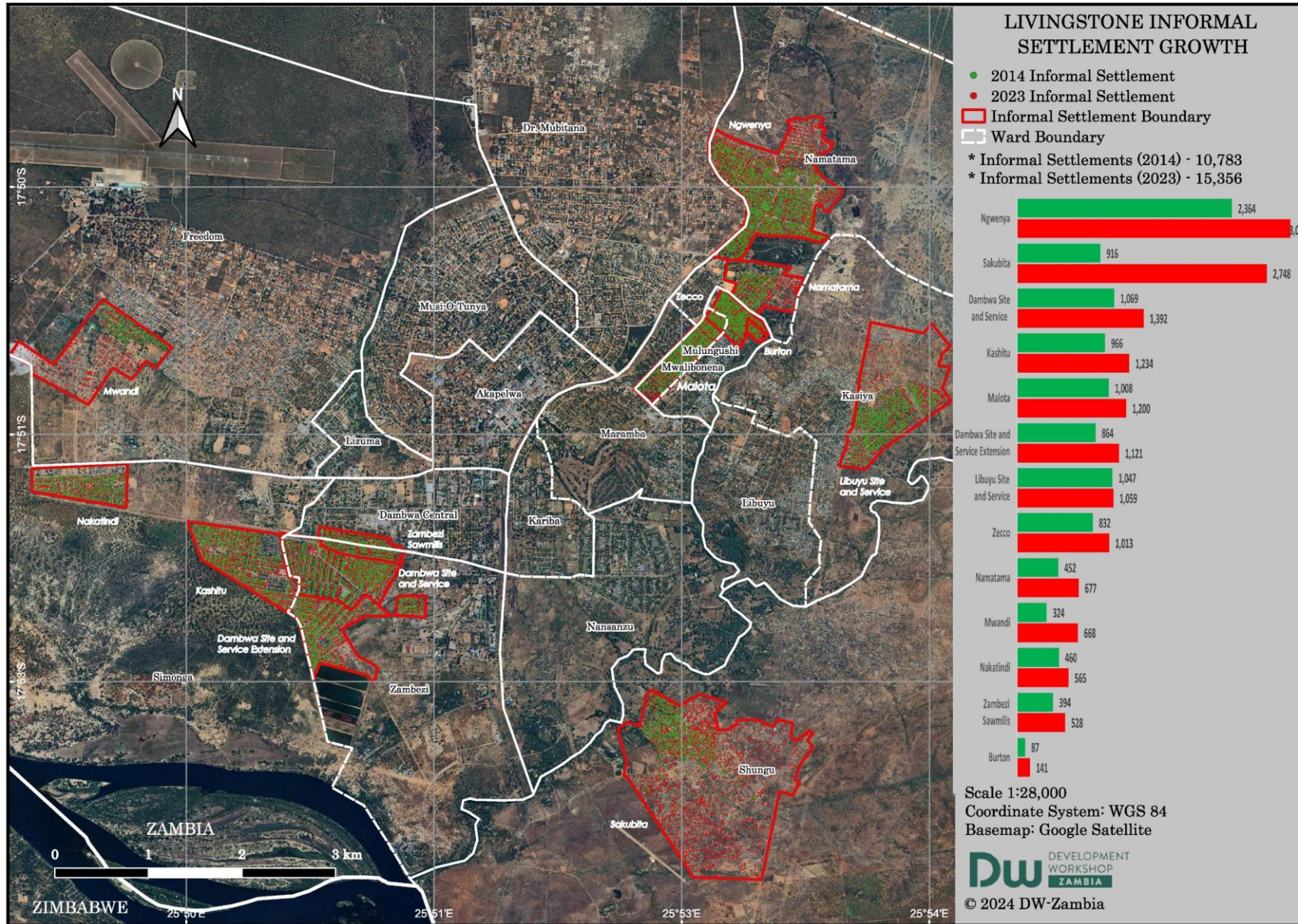
Potential for partnerships

The challenges and opportunities identified in this land audit showed considerable potential for partnerships with not-for-profit organisations and private sector. Not-for-profit organisations can leverage additional funding and expertise for informal settlement upgrading and servicing of new low-income residential areas by adopting proven, pragmatic social enterprise approaches to the delivery of low-cost serviced land.

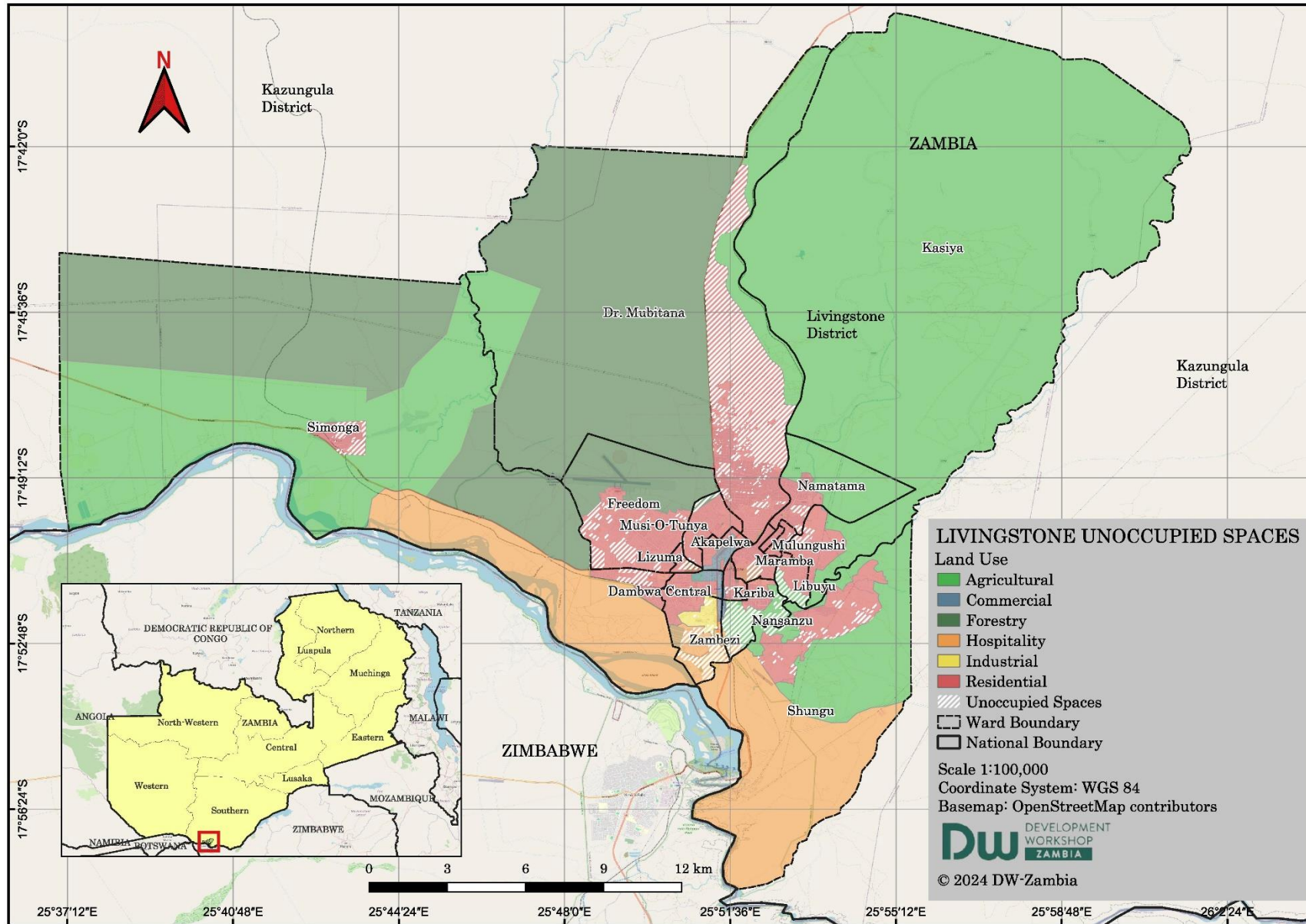
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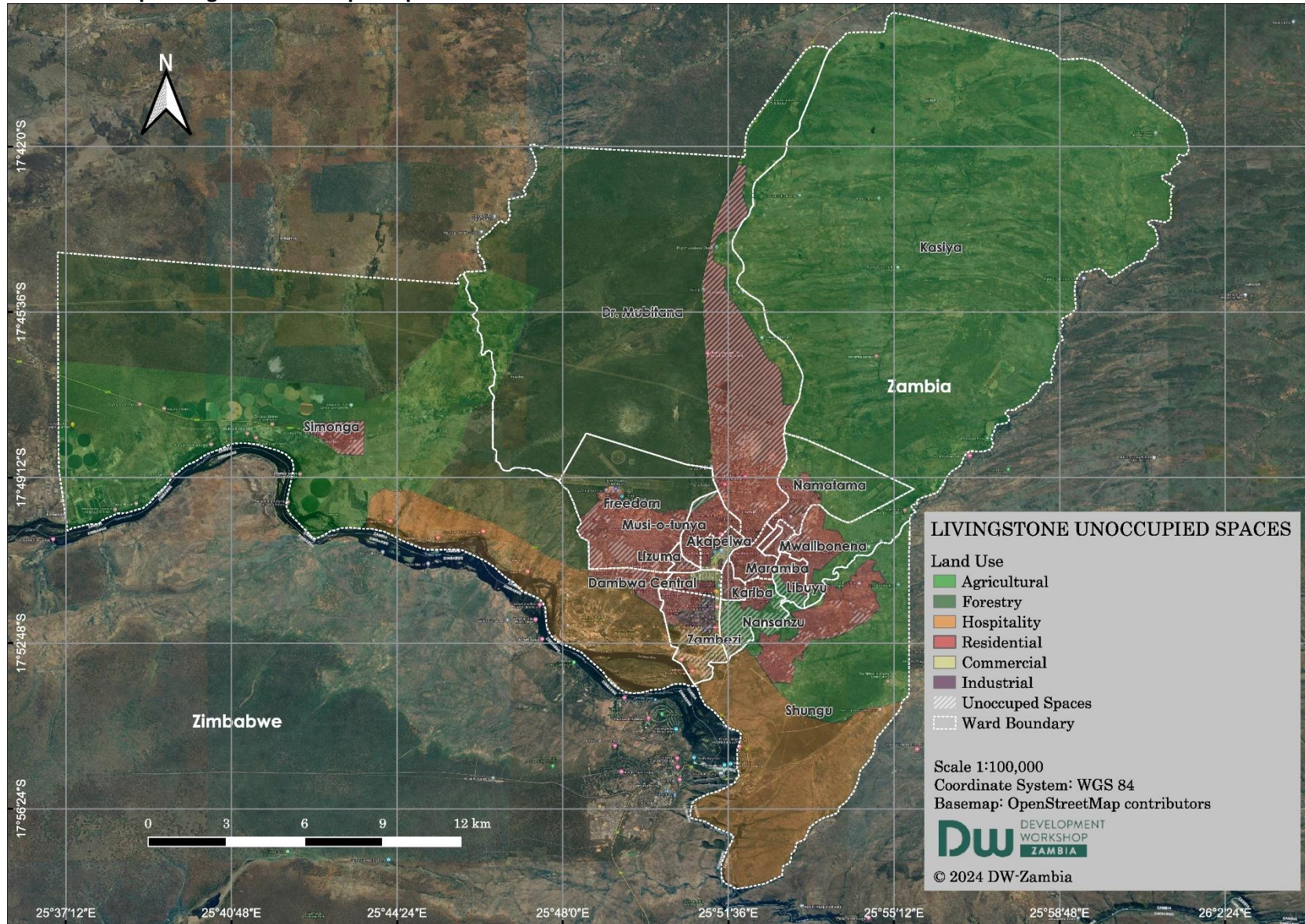
Annex 1 – Map: Livingstone Informal Settlement Growth



Annex 2 – Map: Livingstone Land Use



Annex 3 – Map: Livingstone Unoccupied Spaces



Annex 4 – Map: Overall Urban Growth in Livingstone

