



MANAGING RISKS FOR A SAFER BUILT ENVIRONMENT IN MALAWI

Building Regulatory Capacity Assessment

Building Regulation for Resilience Program

June 2019



WORLD BANK GROUP



GFDRR

ACP-EU Natural Disaster Risk Reduction Program
An initiative of the African, Caribbean and Pacific Group, funded by the European Union and managed by GFDRR



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1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

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Construction of Nkhosha Nursing College, Malawi, March 2015. Photo © Clinton Health Access Initiative, Inc.

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Blantyre Post Office, Photo: Marcus DeYoung

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The overall coordination of the report was provided by Ana Campos (Senior Disaster Risk Management Specialist, World Bank) and Francis Samson Nkoka (Senior Disaster Risk Management Specialist, World Bank).

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Acronyms

BCC	Blantyre City Council
BRCA	Building Regulations Capacity Assessment
BRR	Building Regulation for Resilience Program
DCCMS	Department of Climate Change and Meteorological Services
DoDMA	Department of Disaster Management Affairs
EU	European Union
GIS	Geographic Information System
GFDRR	Global Facility for Disaster Risk Reduction and Recovery
GoM	Government of Malawi
ICC	International Code Council
ICT	Information Communications Technology
IFC	International Finance Corporation
MAGIC	Malawi Geographic Information Council
MASDAP	Malawi Spatial Data Platform
MBS	Malawi Bureau of Standards
MABCATA	Malawi Building and Civil-Engineering Allied Traders Association
MECCM	Ministry of Environment and Climate Change Management
MGDS	Malawi Growth and Development Strategy
MHC	Malawi Housing Corporation
MIA	Malawi Institute of Architects
MIE	Malawi Institution of Engineers
MK	Malawian Kwacha
MoLHUD	Ministry of Lands, Housing and Urban Development
MoNREE	Ministry of Natural Resources, Energy and Environment
MoTPW	Ministry of Transport and Public Works
NCIC	National Construction Industry Council
NSDC	National Spatial Data Centre of Malawi
OPC	Office of the President and Cabinet
OSHD	Occupational Safety and Health Directorate
PPP	Purchasing Power Parity
TEVETA	Technical, Entrepreneurial and Vocational Education and Training Authority

Definitions

Building regulatory framework is the overarching structure of a building regulatory regime and includes three core components: a legal and administrative framework, a building code and implementation at the local level. Building regulatory frameworks rely on an ecosystem of supporting institutions and system elements such as the mortgage finance system, frameworks for secure tenure, property and tax regimes, professional societies and training institutions for the labour force.

Building codes create legal requirements in the construction process of any infrastructure or building development and must be enforced. Building codes must refer to appropriate building standards. They are promulgated by local Governments or national Governments and have an independent legal value. In Malawi, the building code is referred to as National Building Regulations.

Building standards define test methods to determine product performance. Standards and specifically 'building standards' do not have any independent legal status, but they provide an essential reference in any building process. There are around 4,000 building-related standards in the world.

Chronic risk is a risk distributed over time and space, such as individual building fires and individual spontaneous collapses. These risks do not stem from one isolated event but arise from continuous conditions, which accumulate over time.

Disaster risk is the potential loss of life, injury and destroyed or damaged assets which could occur to a system, society or a community in a specific period and can be defined through the combination of three terms: hazard, exposure and vulnerability.

Exposure is the situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas. Measures of exposure can include the number of people or types of assets in an area. These can be combined with

the specific vulnerability and capacity of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

Fire regulations are the set of rules, standards and recommendations intended to reduce to a minimum the destruction caused by fire. Fire regulations are intended to prevent the ignition of an uncontrolled fire and to limit the development and effects of a fire after it starts. The National Fire Protection Association (NFPA), for example, has developed more than 300 consensus codes and standards aimed at eliminating death, injury, property and economic loss due to fire, electrical and related hazards.

Hazard is defined by a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be natural, anthropogenic or socio-natural in origin. *Natural hazards* are predominantly associated with natural processes and phenomena. *Anthropogenic hazards*, or human-induced hazards, are induced entirely or predominantly by human activities and choices. Hazards may be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity or magnitude, frequency and probability.

Informal building is a building structure which does not benefit from regulatory attention or professional design or construction. An informal building does not comply with existing planning and building regulations and is often situated in geographically and environmentally hazardous areas, lacking the corresponding local permits for its development. Informal buildings can be occupied by all income levels of urban residents – both affluent and poor.

Land-use regulations are the ordinances of Government, including permits and codes, created to ensure that land resources are aligned with national

and local policy interests. Regulations are not restricted to controlling existing buildings and uses; in large part, they guide future development. Mapping and master plans are essential to land-use regulation, which can be conceived to determine land use at all territorial scales.

Mitigation refers to activities that lessen or minimize the adverse impacts of a hazardous event.

Non-engineered construction includes buildings that use traditional building practices without any or little intervention by qualified architects and engineers in their design.

Regulatory compliance is an adherence to laws, regulations, guidelines and specifications by individuals, associations, businesses or authorities, in this case relevant to building regulations. When

properly monitored, violations of building and land-use regulation often result in legal punishment, including fines or temporary suspension of the building process.

Structural loads are forces, deformations or accelerations applied to a structure or its components (e.g. wind loads and seismic loads). Imposed loads are defined as a load applied to a structure that is not permanent and can be variable, for example, due to changes in occupancy.

Vulnerability defines the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

Executive Summary

The Accumulation of Risk in the Built Environment

In a rapidly urbanising world, Malawi remains one of the least urbanised countries in Africa.¹ Approximately 16.7 percent of Malawi's population live in urban areas.² Nevertheless, the country is urbanising at a moderate rate of approximately 3.7–3.9 percent per year.³ If growth continues at this rate, by 2030, approximately 20 percent of the population will be city dwellers, reaching 30 percent in 2050.⁴

This urban growth has the potential to improve economic opportunities and living conditions across Malawi. This is particularly significant given that approximately 69 percent of the population are living under the international poverty line of US\$1.9/day in purchasing power parity terms.⁵

However, challenges are also associated with this shift and concentration of population.

With urbanisation comes a substantial amount of new construction. In Malawi, much of this new construction has occurred in cities and towns with limited capacity to ensure the structures in which people live, work and gather are safely sited and built to withstand chronic stresses (i.e. fire and spontaneous collapse) and disaster shocks (i.e. earthquakes and floods). In Lilongwe, for example, estimates indicate that 76 percent of residents live in informal settlements.⁶ These settlements are generally characterised by a lack of access to public services, tenure insecurity and inadequate housing.⁷

Malawi is impacted by a wide range of hazards, particularly droughts, floods, landslides, wildfires and earthquakes.⁸ Malawi is also vulnerable to recurrent and chronic risks. Large building fires in recent years include the LL and Mchinji Markets and the Mulanje Bus Depot in 2016 and the Area 13 and Zomba Market in 2018.⁹

¹ World Bank, 2016, [Malawi Urbanization Review](#).

² World Bank Data, 2017, [Malawi Urban Population](#).

³ Ibid.

⁴ National Statistics Office (NSO), Malawi, 2016, [Malawi in Figures](#).

⁵ World Bank, 2017, [Malawi Economic Monitor](#), Source: 2016 data, World Bank staff calculations based on MoFEPD, RMB and IMF data.

⁶ UN-Habitat, 2011, <https://www.zaragoza.es/contenidos/medioambiente/onu/issue06/1136-eng.pdf>.

⁷ Ibid.

⁸ Think Hazard, 2018, [Malawi](#).

⁹ Malawi Red Cross Society, 2015, [International Disaster Response](#)

In many ways, Malawi is at a crossroads: the regulatory decisions made now will significantly impact the long-term safety, productivity and resilience of the built environment in rural and urban areas. With its low base and moderate rate of urbanisation, Malawi is well-positioned to formulate plans to maximise the benefits and to manage the challenges of urban agglomeration.

Why Is an Effective Building Regulatory Framework Important?

To facilitate the construction of safe and resilient buildings, comprehensive and effective building regulatory frameworks are needed. The components of a building regulatory framework, including building and land-use regulations, enabling legislation and local compliance mechanisms, function together to ensure that a particular building, on a particular site, achieves minimum levels of performance and resilience.

Building regulatory frameworks can be cost-effective mechanisms for reducing risk and can support other societal objectives such as: accessibility and usability for persons with disabilities; climate change mitigation, through energy-efficient buildings; climate change adaptation, through promoting buildings resilient to hydrometeorological hazards; and, preserving national heritage sites.

An efficient and transparent building regulatory process can also incentivise economic investment in the construction sector by providing the market with a clear set of design and construction requirements and performance expectations.

In addition, sustained investment in effective building regulatory systems would support Malawi in meeting the objectives of its national development agenda (Malawi Growth and Development Strategy III) and its commitment to multilateral frameworks, including the Sendai Framework for Disaster Risk Reduction (2015), the Paris Agreement¹⁰ (2015) and the New Urban Agenda (2016).

[Law \(IDRL\) in Malawi](#).

¹⁰ Through Malawi's Nationally Determined Contribution (NDCs) submitted in 2015.

Report Approach

This report follows the Building Regulation for Resilience (BRR) Program's Building Regulatory Capacity Assessment (BRCA) methodology.¹¹

The Assessment covers three main components:

- 1) **National legal and institutional framework** focuses on identifying whether the necessary legal (acts, decrees and laws) and institutional structures are in place to enable the enforcement of land-use and building regulations. To be effective, the legal, administrative and institutional structures in place should include provisions for all steps of the life cycle of a building from the project's siting, design, construction, maintenance and retrofits to its demolition.
- 2) **Building code development and maintenance** examines the adequacy of the building code, referred to in Malawi as National Building Regulations, and how it is maintained over time. The Assessment focuses on the extent to which these regulations reflect an up-to-date scientific understanding of how buildings perform against chronic risks, disaster events and climate change. It also assesses how these regulations have been adapted to reflect local conditions and construction practices. Land-use regulations are examined to determine whether they include provisions for the safe and resilient siting of buildings.
- 3) **Local implementation** reviews the administration of building and land-use regulations at the Local Council level. The Assessment focuses on the capacity of the Planning, Building and Fire Departments to administer building and land-use regulations. In this Assessment, Lilongwe City Council is used as a case study.

Beyond these three components, building regulatory frameworks also rely on an ecosystem of supporting elements such as insurance markets, mortgage finance systems, frameworks for secure land tenure, and property and tax regimes. These elements are beyond the scope of this report since this report maintains its focus on the core aspects of land-use and construction regulation of specific relevance to new and existing buildings and their immediate environment.

¹¹ World Bank, GFDRR, 2017, [BRCA Level 2](#).

The Government of Malawi's Efforts to Strengthen the Building Regulatory Framework

The Government has taken steps to strengthen its building regulatory and land-use systems. These actions have been driven by, amongst others, a desire to increase the country's resilience to disasters and chronic stresses, to strengthen the profitability and safety of the construction sector and to manage the process of rural-urban migration.

Highlights include:

- **Initiating new draft National Building Regulations.** The Department of Buildings at the Ministry of Transport and Public Works is leading this initiative in coordination with the Department of Housing at the Ministry of Lands, Housing and Urban Development and the Department of Disaster Management Affairs at the Office of the President and Cabinet. The new National Building Regulations will be based on a draft developed in 1997.¹²
- **Developing Safer House Construction Guidelines.** Following a series of earthquakes in Karonga in December 2009, the Department of Housing initiated the development of Safer House Construction Guidelines in 2012.¹³ These guidelines provide an illustrated set of instructions for building a resilient two-room house in a rural area using local building techniques and materials.
- **Reforming land-related laws.** In recent years, four pieces of legislation have been passed. These include the Physical Planning Act (2016),¹⁴ the Customary Land Act (2016),¹⁵ the Land Act (2016)¹⁶

¹² This 1997 draft was developed by an international firm under the leadership of the MoTPW and MoLHUD.

¹³ The Guidelines were produced in collaboration with other Government Departments, UNHABITAT, Malawi Red Cross Society, TEVETA, CCODE, and the Malawi Institute of Engineers, with technical and financial assistance from the World Bank and DFID. They were later revised in 2014 with financial support from the World Bank.

¹⁴ Government of Malawi, [Physical Planning Act](#), 2016 (Date of promulgation, September 2016, Date of commencement May 2018).

¹⁵ Government of Malawi, [Customary Land Act](#), 2016 (Date of promulgation, September 2016, Date of commencement March 2018).

¹⁶ Government of Malawi, [Land Act](#), 2016 (Date of promulgation September 2016, Date of commencement on notice).

and the Registered Land (Amendment) Act (2017).¹⁷ Together, this legislation provides a comprehensive legal framework for the management of land across Malawi.

Key Challenges

A selection of the key challenges identified throughout the BRCA are outlined below. These challenges are explored in greater depth throughout the report and are linked to corresponding recommendations.

- **National Building Legislation is needed.** Malawi does not currently have national legislation that defines the Government's responsibility to regulate buildings and principles for local enforcement.
- **The draft National Building Regulations needs to be strengthened, finalised and promulgated.** Malawi does not have National Building Regulations. Instead, the country's largest cities (Lilongwe, Blantyre, Mzuzu and Zomba) rely on their own building bylaws.¹⁸ These bylaws are not consistent. To address this challenge, the Government of Malawi is in the process of developing National Building Regulations.¹⁹ It is critical to articulate the relationship between the National Building Regulations and the city bylaws to avoid overlapping and potentially contradictory provisions.
- **Local Council Development and Planning Departments require additional human and technical capacity to effectively administer building and land-use regulations.** For example, the Lilongwe City Council Development Control Section, responsible for processing development permit applications, has a total of three staff. Whilst, the Building Control Section, responsible for plan reviews and building inspections, only has two staff.²⁰

¹⁷ Government of Malawi, [Registered Land \(Amendment\) Act](#), 2017.

¹⁸ BRCA Interview, 2018, Representatives from the Building Department of the MoTPW and Department of Housing of the MoLHUD.

¹⁹ Ibid.

²⁰ Ibid.

Recommendations

The recommendations made in this report are summarised below. These recommendations are intended to support the Government of Malawi to launch comprehensive building regulatory reform.

Legislative and Institutional Framework

National Legislative Reforms

- Strengthen and pass the Buildings Control and Development Bill (2019) referencing the new National Building Regulations.
- Develop a national-level framework for fire prevention, including the development and passage of fire prevention legislation.

National Institutional Reforms and Capacity

- Support the establishment of the proposed Building Regulation Division of the Ministry of Transport and Public Works and build its institutional capacity.
- Strengthen Malawi's capacity to test construction products, materials and soil. Testing facilities should be available for both the public and private sector.
- Assist the Department of Physical Planning in developing guidance materials for Local Councils to help them develop risk-sensitive land-use and physical development plans.
- Strengthen the coordination between different Government Agencies and Departments for developing and sharing hazard maps. This includes the development of data-sharing standards and methodologies for hazard mapping.
- Support the Land Survey Department in the completion of Malawi's Geodetic Network.
- Provide technical and financial assistance to the Technical, Entrepreneurial and Vocational Education and Training Authority (TEVETA) to develop a market-oriented training curriculum for construction workers which incorporates building regulation requirements.

Building Regulation Development and Maintenance

Strengthening the Building Regulations

- Address the technical gaps in the draft National Building Regulations and ensure they are aligned with international best practice, including:
 - Referencing hazard maps with the determination of building structural requirements;
 - Integrating provisions for access and usability for persons with disabilities; and
 - Integrating provisions for green and energy efficient buildings.
- Determine the relationship between the city bylaws and the National Building Regulations.
- Initiate dialogue between the Building Regulation task team and a wide range of stakeholders to decide whether and how provisions and/or guidelines for non-engineered vernacular construction should be integrated or referenced in the new National Building Regulations.
- Finalise, legally mandate and disseminate the finalised National Building Regulations.

Building Regulation Maintenance

- Establish a systematic and inclusive technical process for the update, publication and distribution of the National Building Regulations. The process should be outlined in the Building Regulations themselves and in the Buildings Control and Development Bill (2019).

Local Implementation

Local Council Capacity

- Initiate human resource capacity needs assessments to inform staffing plans in Local Council Planning and Development Departments.
- Require minimum academic and professional qualifications for Local Government Building, Planning and Fire Regulators.
- Provide training for building regulatory staff in the Fire Brigades and Planning and Development

Departments of Lilongwe, Blantyre, Mzuzu and Zomba in building plan reviews and inspection.

- Explore the option of leveraging resources from the private sector to expand local capacity for plan reviews and inspections.

Construction Permitting

- Review Local Councils' processes for building permits and streamline where possible to improve efficiency and transparency.
- Consider introducing a web-based MIS software application for building permits and inspections modelled on the cost-effective solutions introduced in Nairobi and Kigali.
- Review the current fee policy of Local Councils to make it affordable for builders and home-owners to apply for a development permit.
- Accompany the local permitting reform process with a strategic communication campaign targeting stakeholders such as building professionals, building and planning regulators, contractors and the general public.

Building Inspections

- Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections.

Physical Planning

- Expand Local Councils' capacity to integrate hazard information into land-use regulations and urban planning, particularly for flood and landslide risks.
- Make risk-informed land-use maps available online to all citizens.

Land Access Reform

- Initiate steps to lower fees and costs associated with the registration of property rights and leasehold agreements. The cost is currently a deterrent for registration and formalisation.
- Lilongwe City Council should initiate steps to reduce the size of the minimum and maximum plot size.

Next Steps

This report provides an assessment of the building regulatory framework in Malawi. The report was developed by the World Bank with the strategic objective of supporting the Government to improve building safety and resilience across the country.

The analysis and recommendations outlined in the report provide inputs with which the Government of Malawi can launch a comprehensive process of building regulatory reform.

The recommendations build on the Government's previous achievements and reforms in this area.

1. Introduction

1.1. Why Is an Effective Building Regulatory Framework Important?

In a rapidly urbanising world, Malawi remains one of the least urbanised countries in Africa.²¹ Approximately 16.7 percent of Malawi's population live in urban areas.²² Nevertheless, while Malawi is at an early stage of urbanisation, the country is urbanising at a moderate rate of approximately 3.7–3.9 percent per year.²³ If growth continues at this rate, by 2030, approximately 20 percent of the population will be city dwellers, reaching 30 percent in 2050. In 2015, the capital city of Lilongwe broke the one million population mark. The city of Blantyre is projected to follow a similar growth trajectory.²⁴

This urban growth has the potential to improve economic opportunities and living conditions across Malawi. This is particularly significant given that approximately 69 percent of the population are living under the international poverty line of US\$1.9/day in purchasing power parity (PPP) terms.²⁵

Malawi's towns and cities have played an important role in recent economic growth patterns, including positive signs of structural change. The share of agriculture to gross domestic product (GDP) and to employment has been falling and that of more productive sectors such as industry and services has been increasing.²⁶ Projected urbanisation and economic growth rates for the period from 2010 to 2030 show that even a slightly increased rate of urbanisation could enhance Malawi's long-term economic prospects.²⁷

However, challenges are also associated with this shift and concentration of population. In Lilongwe, for example, 76 percent of residents are estimated to live in informal settlements.²⁸ These settlements are generally characterised by a lack of access to public services,

²¹ World Bank, 2016, [Malawi Urbanization Review](#).

²² World Bank Data, 2017, [Malawi Urban Population](#).

²³ Ibid.

²⁴ National Statistics Office (NSO), Malawi, 2016, [Malawi in Figures](#).

²⁵ World Bank, 2017, [Malawi Economic Monitor](#), Source: 2016 data, World Bank staff calculations based on MoFEPD, RMB and

IMF data.

²⁶ In 2016, Malawi's real GDP grew by 2.5 percent despite a significant contraction in the agriculture sector. Floods and droughts in early 2015, followed by another major drought in 2016, have had severe consequences on agricultural production, energy generation and poverty reduction. The agriculture sector, which contributes to around 30 percent of GDP, contracted by 2.3 percent in 2016. By contrast, the industrial and services sectors were both estimated to have recorded positive rates of growth of 2.4 percent and 4.4 percent, respectively. (Source: World Bank, 2017, [Malawi Economic Monitor](#).)

²⁷ World Bank, 2017, [Malawi Economic Monitor](#).

²⁸ UN-Habitat, 2011, [Malawi: Lilongwe Urban Profile](#).



Roadside markets and street life in Malawi. Photo: © Hecke01 | Dreamstime.com

tenure insecurity and inadequate housing.²⁹ This poses a challenge for city managers seeking to ensure current and future building stock are safely constructed.

With urbanisation comes a substantial amount of new construction. In Malawi, much of this new construction has occurred in cities and towns that have limited capacity to ensure the structures in which people live, work and gather are safely sited and built to withstand chronic stresses (i.e. fire and spontaneous collapse) and disaster shocks (i.e. earthquakes and floods). Without effective building and land-use guidance, urban development has extended to hazardous sites and resulted in the construction of unsafe, vulnerable settlements. This has led to an expansion of disaster and chronic risks in Malawi's built environment.

To facilitate the construction of safe and resilient buildings, comprehensive and effective building regulatory frameworks are needed. Components of a building regulatory framework, including building regulations, enabling legislation and local compliance mechanisms, function together to ensure that a particular building, on a particular site, achieves minimum levels of performance and safety. Building regulatory frameworks can be a cost-effective mechanism for optimising risk reduction.

Strengthening the country's building regulatory framework is aligned with the Government's objective to move from an ex post approach of disaster response to an ex ante approach that proactively manages and reduces disaster and climate risks. As will be discussed in the next chapter, Malawi is vulnerable to a wide range of hazards, both disaster shocks and chronic stresses. The Government has made several commitments to this agenda through international and regional frameworks, including the Africa Regional Strategy for Disaster Risk Reduction (2004) and the Sendai Framework for Disaster Risk Reduction (2015). Malawi's Disaster Risk Management Policy (2015) and Malawi's Growth and Development Strategy III (2017-2020)³⁰ both promote the mainstreaming of disaster risk management into development and planning processes at the national and local level.

²⁹ Ibid.

³⁰ The fourth and last medium-term strategy formulated to achieve Vision 2020.

Investing in building regulatory capacity can also support other societal objectives such as: accessibility for people with disabilities; climate change mitigation, through resource-efficient buildings; and, climate change adaptation, through promoting buildings resilient to hydrometeorological hazards. With changing climate patterns, many countries, including Malawi, will face the growing risks linked to more intense and lengthy droughts and extreme rainfall and flooding.³¹ Increasing the resilience of towns and cities to climate change requires a dynamic adjustment in building siting, design, construction and maintenance – this is a function that well-designed building regulatory regimes can provide.

An efficient and transparent building regulatory process can also incentivise economic investment in the construction sector by providing the market with a clear set of design and construction requirements, quality standards and performance expectations. The construction sector provides a strategic entry point for promoting building safety and resilience in Malawi. Over the last decade, the industrial sector has been the major driver of economic growth in Malawi, growing at an average annual rate of 5.4 percent mainly due to the expansion of manufacturing and construction.³²

In many ways, Malawi is at a crossroad: the regulatory decisions made now will have a significant impact on the long-term safety, productivity and resilience of the built environment in both rural and urban areas. With its low base and moderate rate of urbanisation, Malawi is well-positioned to formulate plans to maximise the benefits and manage the challenges of urban agglomeration in the future.

1.2. The Government's Recent Efforts to Strengthen the Building Regulatory Framework

The Government of Malawi has taken several steps to strengthen its building regulatory and land-use systems. These steps span the three main components of a

³¹ Overseas Development Institute (ODI), U.K. Met Office, and Risk Management Solutions (RMS), 2013, [The Geography of Poverty, Disasters and Climate Extremes in 2030](#).

³² World Bank, 2017, [Malawi Economic Monitor \(Annual Growth from 1998-2013\)](#).

building regulatory framework: (i) legal and institutional framework, (ii) building regulation development and maintenance and (iii) local implementation. These actions have been driven by several motivations, including a desire to increase the country's resilience to disasters and chronic stresses, to strengthen the profitability and safety of the construction sector and to manage the process of rural–urban migration. These actions include:

- *Initiating the development of National Building Regulations. Malawi does not have National Building Regulations, instead the country's largest cities rely on their own building and planning bylaws.*³³ These bylaws are not consistent across the country and do not always reflect an up-to-date understanding of building science and disaster risk.³⁴ Recognising this limitation, the Department of Buildings, under the Ministry of Transport and Public Works, is leading a task-team³⁵ to develop new National Building Regulations. This activity is being supported by the World Bank-funded Malawi Floods Emergency Recovery Project (MFERP).
- *Developing Safer House Construction Guidelines.* Following a series of earthquakes in Karonga in December 2009, the Department of Housing initiated the development of Safer House Construction Guidelines in 2012.³⁶ These guidelines provide an illustrated set of instructions for how to build a resilient two-room house using local building techniques and materials in rural and peri-urban areas. The guidelines were revised in 2014 with financial support from the World Bank.
- *Reforming land-related laws.* In recent years, four pieces of legislation have been passed to help reform

land laws. These include the Physical Planning Act (2016),³⁷ the Customary Land Act (2016),³⁸ the Land Act (2016)³⁹ and the Registered Land (Amendment) Act (2017).⁴⁰ Together, this legislation provides a comprehensive legal framework for the management of land across Malawi.

- *Developing the National Construction Industry Policy (2015).*⁴¹ This Policy, spearheaded by the National Construction Industry Council (NCIC), details the direction and intent of the Government in facilitating infrastructure development across the country. The policy aims at ensuring an enabling environment for the development of a vibrant, efficient, sustainable and risk-sensitive local construction industry, in line with Malawi's Vision 2020.

The Government can build on this momentum and undertake a comprehensive reform of the country's building regulatory framework. These reforms should target the limitations of the current building regulatory framework which will be outlined later in this report.

1.3. Why Act Now?

Since 2014, Malawi's decentralisation agenda has gained momentum. A wide range of administrative and political authority has been assigned to local Governments, including regulation and control of building structures.⁴² In the 1990s, the Government of Malawi initiated a far-reaching and ambitious decentralisation policy following the development of a new Constitution (1994), the passage of the National Decentralisation Policy (1998) and the Local Government Act (1998).⁴³ In its early years, progress on implementing the decentralisation policy was modest and came to a standstill from 2005 to 2013 when a

³³ BRCA Interview, 2018, Representatives from the Department of Buildings of the MoTPW and Department of Housing of the MoLHUD.

³⁴ For example, the Building Bylaws of Lilongwe were promulgated in 1961, based on the then British Building Bylaws.

³⁵ Other than the organisations already mentioned, this Task Team comprises core participants such as the Department of Disaster Management Affairs (DoDMA), the National Construction Industry Council of Malawi (NCIC), Malawi Institute of Architects (MIA), Malawi Institution of Engineers (MIE) and the Malawi Polytechnic.

³⁶ The Guidelines were produced in collaboration with other Government Departments, UNHABITAT, Malawi Red Cross Society, TEVETA, CCODE and the Malawi Institute of Engineers, with technical and financial assistance from the World Bank and DFID.

³⁷ Government of Malawi, [Physical Planning Act](#), 2016 (Date of promulgation, September 2016, Date of commencement May 2018).

³⁸ Government of Malawi, [Customary Land Act](#), 2016 (Date of promulgation, September 2016, Date of commencement March 2018).

³⁹ Government of Malawi, [Land Act](#), 2016 (Date of promulgation September 2016, Date of commencement on notice).

⁴⁰ Government of Malawi, [Registered Land \(Amendment\) Act](#), 2017.

⁴¹ Government of Malawi, 2015, [National Construction Industry Policy](#).

⁴² World Bank, 2016, Malawi Urbanization Review.

⁴³ Ibid.

process of re-centralisation was initiated: locally elected Councils were replaced by Consultative Committees appointed by the Central Government.⁴⁴ In 2014, new local elections were held; the functions and financing of local governments are currently under review.⁴⁵

This process provides an opportune moment for the Government of Malawi to initiate building regulatory reform as local governments have increased administrative and political authority and have had to establish institutions and processes to manage devolved functions. Assessing the effectiveness of these institutions early on provides an opportunity for capacity building and process re-mapping before systems become too entrenched. While decentralisation holds the prospect of improved local land and urban governance on development and building control, there are important questions about the availability of appropriate funding for local and city councils.

Furthermore, as outlined at the beginning of the chapter, at the current rate and pace of urbanisation, Malawi is well positioned to plan ahead to maximise the benefits of urban agglomeration while addressing the challenges.

Strengthening the building regulatory framework will support Malawi to achieve its urban and rural development agenda, articulated in MGDS III and Vision 2020. For example, MGDS III articulates the need to “undertake comprehensive disaster risk assessment and mapping covering all sectors and disseminate the results to enhance risk-informed development planning.”

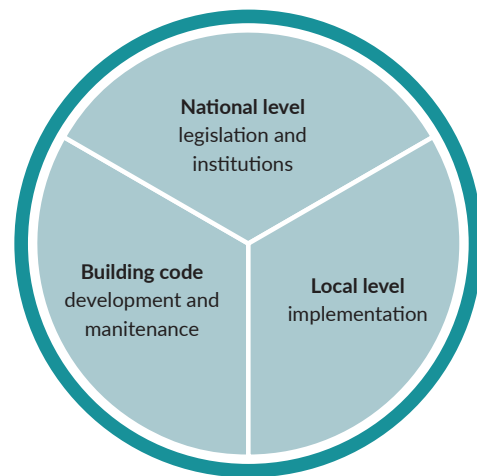
Finally, a sustained investment in an effective building regulatory system would support Malawi in meeting its commitments to multilateral frameworks, including: the Sendai Framework for Disaster Risk Reduction (2015), the Paris Agreement through Malawi’s National Determined Contribution (submitted in 2015) and the New Urban Agenda (2016).

1.4. Report Approach

With a view to strengthen the resilience of the built environment, including new and existing construction, this report provides an assessment of building regulatory capacity in Malawi, identifying critical gaps and developing a baseline to inform future reform activities.

The Assessment methodology is structured around the three major components of a building regulatory framework (see Figure 1):

FIGURE 1: Components of a Building Regulatory Framework



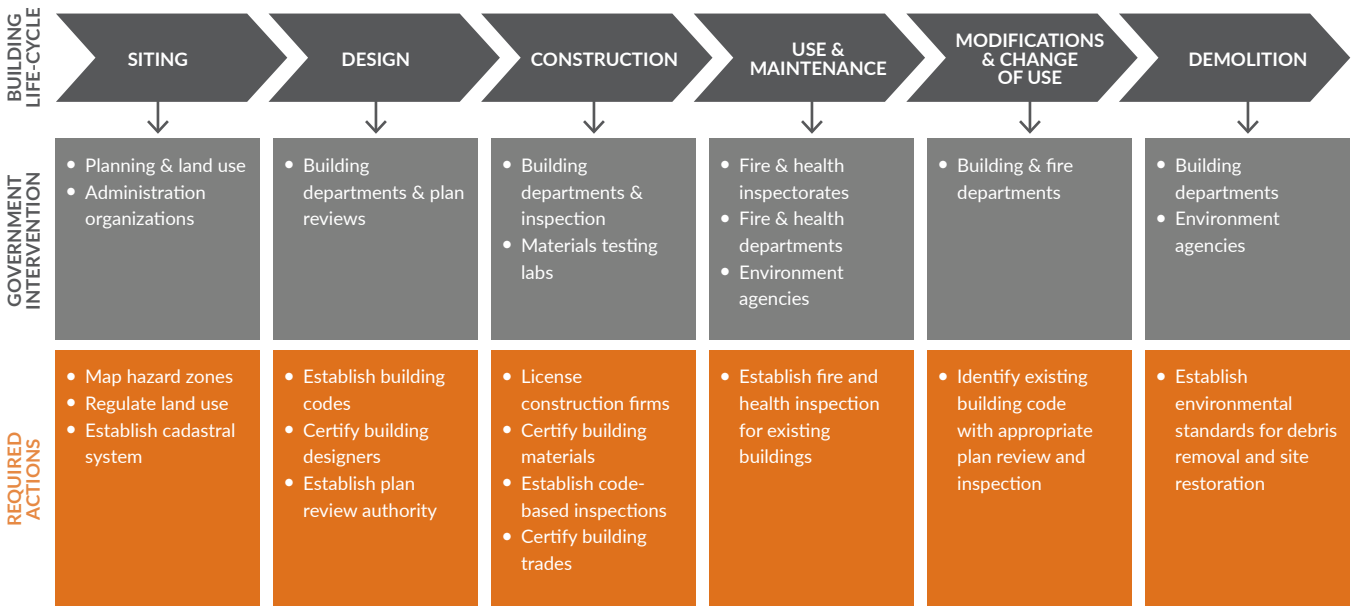
Source: World Bank, 2017, Building Regulation for Resilience Program.

- 1) **National legal and institutional framework** focuses on identifying whether the necessary legal (acts, decrees and laws) and institutional structures are in place to enable the enforcement of land-use and building regulations. To be effective, the legal, administrative and institutional structures should include provisions for all steps of the life cycle of a building from the project’s siting, design, construction, maintenance, retrofits and demolition (see Figure 2).
- 2) **Building regulation development and maintenance** examines the adequacy of the building regulations and how they are maintained over time. The Assessment focuses on the extent to which these regulations reflect an up-to-date scientific understanding of how buildings perform against chronic risks, disaster events and climate change.

⁴⁴ Ibid.

⁴⁵ Ibid.

FIGURE 2: Building Life Cycle



Source: World Bank, 2018, Building Regulation for Resilience Program.

It also assesses how these regulations have been adapted to reflect local conditions and construction practices. Land-use regulations are examined to determine whether they include provisions for the safe and resilient siting of buildings.

- 3) **Local implementation** reviews the implementation and management of building and land-use regulations at the Local Council level. The Assessment focuses on the capacity of the planning, building and fire departments to administer the building and land-use regulations.

For the local implementation component, the Assessment focused on the Lilongwe City Council. While Malawi’s cities and towns have different levels of capacity, organisational frameworks and building regulatory processes in place, achievements and challenges identified in Lilongwe have also been reported in other cities and towns across the country.

While there is an ecology of different factors and institutions that have an effect on safe and sustainable built environments (e.g. building finance, land valuation,

security of tenure, etc.), this report maintains focus on building control mechanisms in order to provide actionable recommendations.

It is important to note that a wide range of social, economic and political factors can lead to settlements in unsafe areas and unsafe building practices. For example, the functioning of land and housing markets, and the absence of inclusive construction and mortgage finance. These are beyond the scope of this Assessment.

This Assessment is consistent with the methodology of the Building Regulation for Resilience Program.⁴⁶The analysis in the report is based on:

- A desk review of legislation, policies, building regulations and land-use regulations.
- Interviews with key stakeholders and a national workshop facilitated by the World Bank in Lilongwe between February 11, 2018 and February 16, 2018.

⁴⁶ World Bank, GFDRR, 2017, [Building Regulatory Capacity Assessment: Level 2](#).

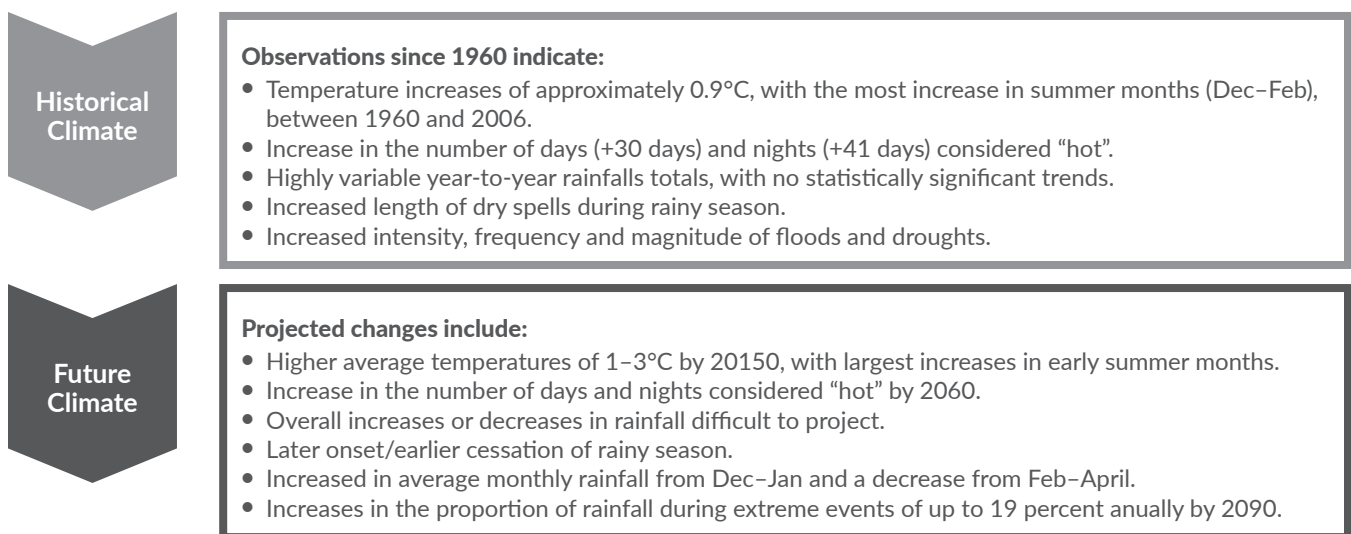
2. Drivers of Risk in the Built Environment

2.1. Natural and Chronic Hazards in Malawi

Malawi is impacted by many hazards, particularly droughts, floods, landslides, wildfires and earthquakes.⁴⁷ Evidence indicates that hydrometeorological hazards, namely droughts and

floods, have and will continue to increase in frequency, intensity and magnitude as a result of climate change. See Figure 3 for a summary of historical observations and projected changes to the climate in Malawi. These hazards have an adverse impact on sustainable livelihoods across many rural and urban communities.⁴⁸

FIGURE 3: Historical Climate and Future Climate



Source: USAID, 2017, [Climate Change Risk Profile, Malawi](#).

⁴⁷ Think Hazard, 2018, [Malawi](#).

⁴⁸ Department of Disaster Management Affairs, 2015, [Malawi Hazards and Vulnerability Atlas](#).

FIGURE 4: Destruction Caused by Flooding on the Outskirts of Blantyre, 2015



Source: The Guardian, 2015 (photo by Bonex Julius/AFP/Getty Images).

Hydrometeorological Hazards

While Malawi is vulnerable to flood risks across the country, Southern Malawi is most exposed to frequent and high-magnitude flood-events. Due to its topography, Malawi's Shire Valley is regularly hit by floods that repeatedly affect populations by causing loss of lives and assets.⁴⁹ Out of Malawi's total population of 18.7 million, the southern region has the highest population. The southern region has nearly 8.5 million inhabitants, including the 1.4 million households of a total of 3 million households in the country.⁵⁰

Between 1990 and 2018, floods cumulatively represented the most frequent and financially damaging of natural disasters on record.⁵¹ Between 1967 and 2003, 18 major floods were recorded; these have resulted in at least 570 casualties and 132,000 homeless or displaced people. They also have affected a total of 1.8 million inhabitants.⁵² Repeated flooding damages private and public property and infrastructure and causes major disruption in agricultural practices (see Figure 4).

⁴⁹ IFPRI, 2010, [Droughts and Floods in Malawi: Assessing the Economywide Effects](#).

⁵⁰ GFDRR, 2011, [Economic Vulnerability and Disaster Risk Assessment in Malawi and Mozambique](#).

⁵¹ Prevention Web, 2018, [Malawi Data](#).

⁵² GFDRR, 2011, [Economic Vulnerability and Disaster Risk Assessment in Malawi and Mozambique](#).

The financial impacts of natural disasters are further exacerbated by Malawi's economic dependence on agriculture. It is estimated the agriculture sector provides and generates approximately 80 percent of total export earnings and employment.⁵³ A 2010 study by the International Food Policy Research Institute (IFPRI) estimated that Malawi loses, on average, close to US\$22 million every year due to the combined effects of droughts and floods.⁵⁴ However, an extreme drought, such as the one experienced in 1991/92, can contract the GDP up to 10.4 percent.⁵⁵

Historically, the most critical floods on record are associated with the La Nina phenomenon. In January 2012, floods affected more than 10,000 people and caused US\$3 million worth of damage to households and infrastructure.⁵⁶ In 2015, Malawi suffered a period of intense flooding, which forced the displacement of around 230,000 people, with 276 reported dead or missing.⁵⁷ The flooding caused substantial damage and losses in the productive, public infrastructure and social service sectors, including private and community assets.⁵⁸ An assessment conducted soon after the flooding by the Government of Malawi, the World Bank, European Union (EU) and United Nations (UN) estimated the damage and losses at close to US\$335 million, while the recovery and reconstruction close to US\$494 million. The housing sub-sector's recovery and reconstruction needs were estimated at almost US\$180 million (see Figure 5).⁵⁹ The droughts in the following months, however, doubled these numbers.⁶⁰ The floods were followed by a protracted period of droughts, creating the country's worst food crisis in a decade.⁶¹ More recently, heavy rains in February 2018 caused floods across the country, damaging 894 households (approximately 2,200 people), while approximately 560 people were displaced.⁶²

⁵³ GFDRR, 2018, [Malawi Country Profile](#).

⁵⁴ IFPRI, 2010, [Droughts and Floods in Malawi: Assessing the Economywide Effects](#).

⁵⁵ GFDRR, 2011, [Economic Vulnerability and Disaster Risk Assessment in Malawi and Mozambique](#).

⁵⁶ World Bank, 2015, [Recent Floods in Malawi Hit the Poorest Areas: What This Implies](#).

⁵⁷ World Bank and Government of Malawi, 2015, [Floods Post Disaster Needs Assessment Report](#).

⁵⁸ Ibid.

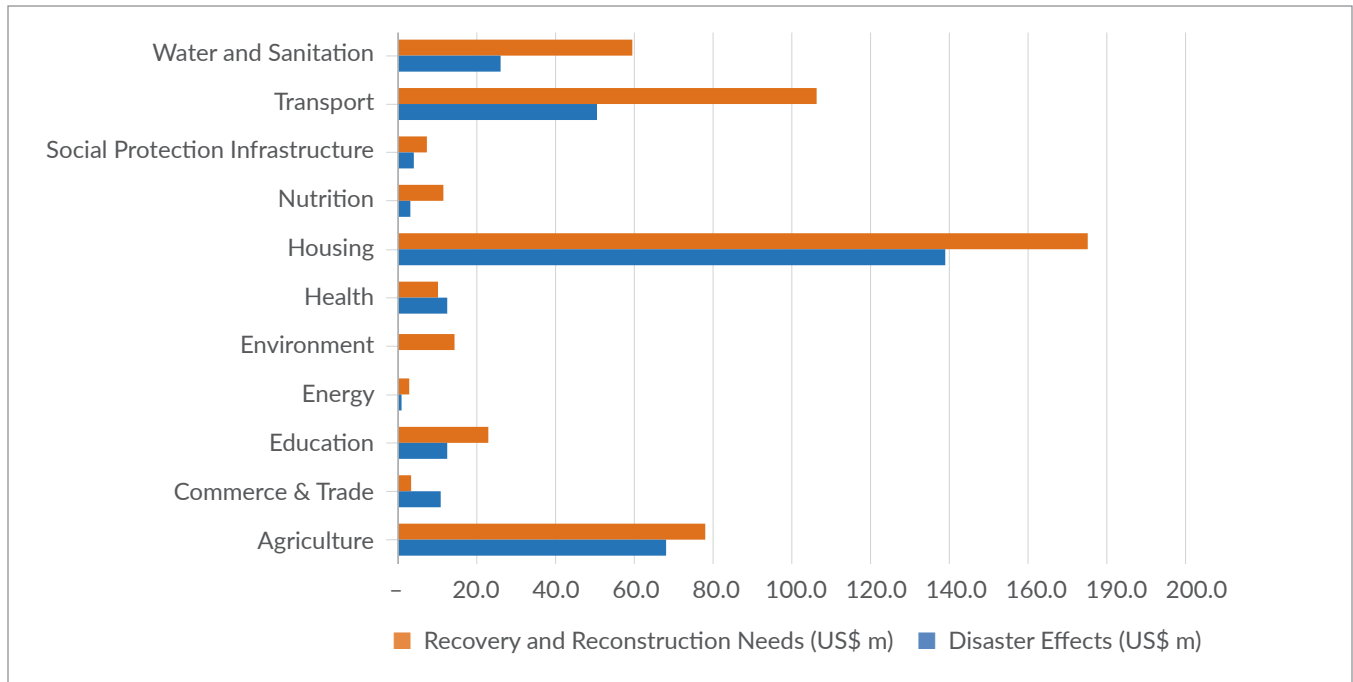
⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Floodlist, 2015, [2015 Floods Leave Malawi Facing Worst Food Crisis in 10 Years](#).

⁶² DoDMA and UN Office of the Resident Coordinator, 2018,

FIGURE 5. Total Damage, Loss, Recovery and Reconstruction Needs after the 2015 Floods



Source: GFDRR, 2015.

Geologic Hazards

Malawi is situated in the southern branch of the active East Africa Rift System, an area prone to earthquakes. The distribution of previous events shows northern Malawi as the most seismically active area, followed by the central region, whereas the South has historically shown little activity.⁶³ In the Malawi Rift, research indicates that several major geological faults could generate earthquakes up to a moment magnitude (Mw) of 7.0.⁶⁴

Although seismic events occur less frequently than other disasters, the impact and losses of earthquakes have been considerable. In 2009, a series of earthquakes in the northern district of Karonga damaged at least 24,000 households, killing four people, injuring at least 300 and affecting 145,000 others.⁶⁵ The direct costs of these earthquakes were estimated at over US\$14 million,⁶⁶ in a region with a largely low-income

population and non-engineered buildings.⁶⁷ In March 2018, a moderate earthquake near the border with Mozambique injured people and damaged houses around Nyasa.⁶⁸

The potential size of earthquakes in the Malawi Rift is significantly larger than the historically experienced events, including those in Karonga in 2009 and Salima-Dedza-Mchinji in 1989.⁶⁹ Furthermore, a pattern of unplanned and unregulated urbanisation is increasing the number of buildings vulnerable to seismic hazards.

The north basin of Lake Malawi lies below three volcanoes in Tanzanian territory, which form part of the East Africa Rift system.⁷⁰ While there has not been any recorded volcanic eruption in Malawi, the GFDRR tool ‘Think Hazard’ classifies volcanic risk as high in Malawi.⁷¹

[Malawi: Flood Situation Update.](#)

⁶³ Patrick Rafiki, 2016, [Seismic Observation and Seismicity of Malawi.](#)

⁶⁴ Katsuichiro Goda et al., 2016, [Seismic Risk Assessment of Urban and Rural Settlements around Lake Malawi.](#)

⁶⁵ Reliefweb, 2010, [Malawi grapples with aftermath of worst quakes in 50 years.](#)

⁶⁶ GFDRR, 2018, [Malawi Country Profile.](#)

⁶⁷ Katsuichiro Goda et al., 2016, [Seismic Risk Assessment of Urban and Rural Settlements around Lake Malawi.](#)

⁶⁸ Reliefweb, 2010, [Mozambique, Malawi – 5.6 M Earthquake.](#)

⁶⁹ Katsuichiro Goda et al., 2016, [Seismic Risk Assessment of Urban and Rural Settlements around Lake Malawi.](#)

⁷⁰ Think Hazard, 2018, [Malawi.](#)

⁷¹ Ibid.

FIGURE 6: Aftermath of Mulanje Bus Depot Fire, 2016

Source: Nyasa Times, 2016.

Chronic Hazards

Although underreported, Malawi is exposed to recurrent and chronic risks such as fire and the spontaneous collapse of buildings. Unplanned urbanisation and limited enforcement of the building bylaws⁷² have resulted in the spontaneous collapse of buildings. In 2011, the collapse of a restaurant situated in Blantyre, the focal point of the country's commercial activities, killed four people and injured 20 people.⁷³ The event produced an inquiry led by the Malawi Institution of Engineers (MIE) to raise awareness about building collapse risk.⁷⁴ The Inquiry concluded that the main cause of collapse was structural alterations⁷⁵ made without a registered engineer's endorsement.

Fire outbreaks are also common urban disasters, resulting from a lack of regulation, faulty electrical installations and the illegal storage and sale of liquid

fuel.⁷⁶ Large building fires in recent years include the Mzuzu and Tsoka Markets in 2014; the Lilongwe Main and Mchinji Markets and the Mulanje Bus Depot in 2016; and the Area 13 and Zomba Markets in 2018.⁷⁷ The ensuing building collapse is often caused by use of sub-standard materials and equipment, foundation failure and limited project monitoring.⁷⁸

Consistent with regional patterns in Africa, a large share of urban diseases, epidemics, shack fires and spontaneous structural collapse of buildings that occur in Malawi's urban centres are not recorded as a "disaster" in local or national data tracking systems. However, quantitative evidence suggests that the cumulative impacts of recurrent hazards resulting in small, isolated losses in Africa are greater than those of large disasters resulting from extreme events.⁷⁹

⁷² World Bank, 2017, [Malawi Urbanization Review](#).

⁷³ MIE, 2011, Report on Collapse of KIPS Restaurant.

⁷⁴ The Nation, 2012, [Engineers to focus on public safety in 2012](#).

⁷⁵ The inquiry concluded that collapse was caused by the removal of a brick pier which led to the slab to curve in.

⁷⁶ Mr. Kadaluka, (Acting Commissioner for Physical Planning in the Ministry of Lands and Housing across the Northern Region), quoted in <https://www.urbanafrica.net/news/urban-disasters-challenge-planning-malawi/>.

⁷⁷ Malawi Red Cross Society, 2015, [International Disaster Response](#).

⁷⁸ Urbanafrica.net, 2014, [Urban disasters: a challenge to planning in Malawi](#).

⁷⁹ UNDP, 2013, [From Everyday Hazards to Disasters: The Accumulation of Risk in Urban Areas](#).

Waste management remains an environmental, hygiene and fire-safety challenge. Nearly 55 percent of waste disposal comprises waste pits dug by households. A household survey in 2010–2011 showed the second highest means of disposal is public waste heaping, which is often burned without appropriate safety measures. About 17 percent of the households reported using no means of disposing their waste and 7.7 percent burn their waste at home on a regular basis.⁸⁰ Improper management of waste can lead to uncontrolled fires but also soil and water contamination, which can have a direct impact on the quality of food production and potability of water.⁸¹

As Malawi continues to urbanise, the growth of informal low-rise, high-density settlements and high-rise construction is expected to pose significant challenges to the limited fire-fighting capacity in major urban centres.⁸² Malawi's urban density is generally low-density, in part due to the continuing expansion of the urban footprint.⁸³ However, large swathes of this urban area are undeveloped (19.2 percent) or only utilised for agriculture (23.5 percent).⁸⁴ Urban informal settlements, on the contrary, show signs of concentrated, unplanned development; Malawi's slums are frequently characterised as high-density areas with thousands living in densely populated urban pockets.⁸⁵

In 2014, it was reported that as many as 76 percent of residents in Lilongwe were estimated to live in sub-standard housing and/or informal settlements.⁸⁶ Urban informal settlements in Malawi, as is common in many Sub-Saharan Africa cities, are affected by overcrowding, poverty, insecure housing tenure and limited water access.⁸⁷ A quarter of the city's residents

⁸⁰ Orevstedt, 2015, [Waste management and impact on people's health when cultivating on sites contaminated with heavy metals: Minor field study made in Zomba, Malawi](#).

⁸¹ Ibid.

⁸² BRCA Interview, February 2018, Chief Fire Officer of the Fire Brigade of Lilongwe.

⁸³ According to UN Habitat, high-density in urban areas is at a minimum of 15,000 people per square kilometre, a density found, for example, in Mexico City or Singapore (UN Habitat, 2014, A new strategy of sustainable neighbourhood planning: five principles).

⁸⁴ Ministry of Lands, Housing and Urban Development, 2013, Situation of Urbanisation in Malawi Report.

⁸⁵ UN-Habitat, 2011, [Malawi: Lilongwe Urban Profile](#).

⁸⁶ Ibid.

⁸⁷ Adams, 2018, Thirsty slums in African cities: household water insecurity.

are also estimated to live below the poverty line, with 9 percent considered ultra-poor.⁸⁸

FIGURE 7: Collapsed Restaurant in Blantyre



Source: UrbanAfrica.Net, 2011.

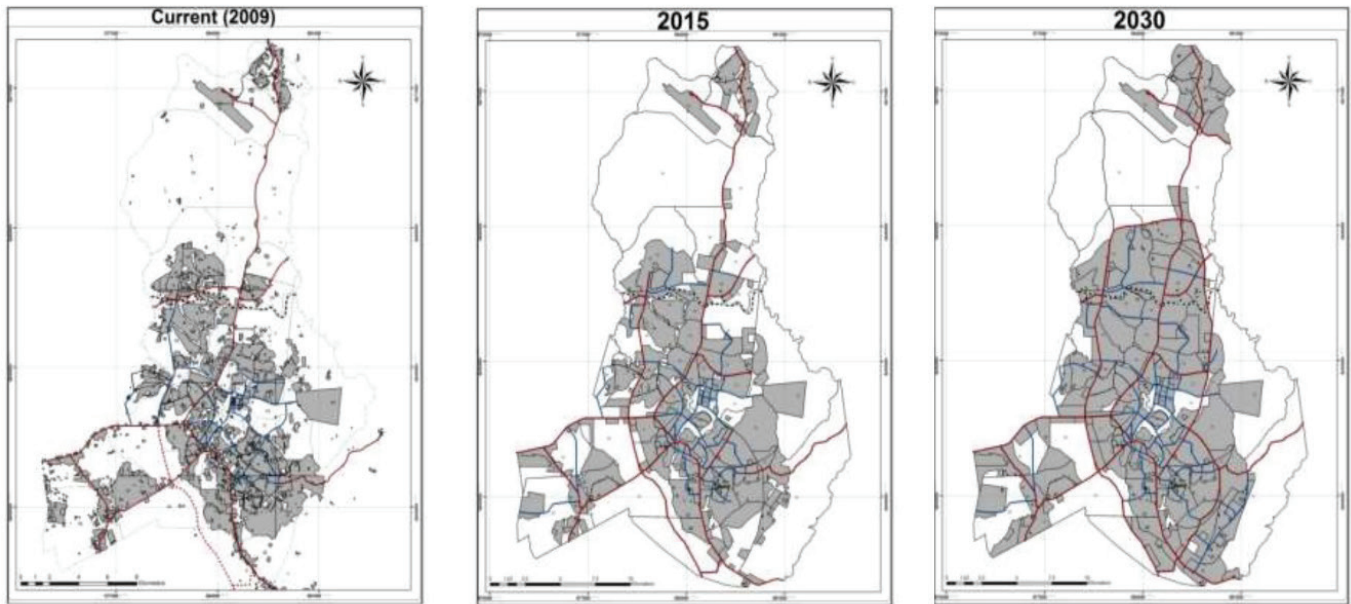
2.2 Key Drivers of Vulnerability in the Built Environment

Physical, economic, social and political factors determine the extent of people's capacity to resist, cope and recover from hazards. This section will provide an overview of the key factors and drivers of vulnerability linked to the built environment in Malawi.

If Malawi continues to urbanise at the same rate, this will mean that its towns and cities will need to accommodate an additional three million people by 2040.⁸⁹ Malawi's four main cities, Lilongwe, Blantyre, Mzuzu and Zomba, account for nearly 75 percent of the national urban population. Their increasing footprint, particularly in Lilongwe (see Figure 8) and Blantyre, reflects an expanding population density, which continues to increase demand on urban utilities,

⁸⁸ Luppen and ActionAid, 2014, [Survey of Urban Poor Settlements in Lilongwe 2014](#). According to Michael Lipton (1986) the "ultra-poor" include those living at less than half the \$1.25-a-day poverty line, and those who eat below 80 percent of their energy requirements despite spending at least 80 percent of their income on food. A 2007 IFPRI report defined ultra-poverty as those living with less than 50 cents a day.

⁸⁹ World Bank, 2016, [Malawi Urbanization Review](#).

FIGURE 8: Expansion of Lilongwe Built-up Area, Projected from 2009 to 2030

Source: Adapted from MoLHUD, 2013.

transport networks and land.⁹⁰ Without the appropriate planning measures, these growing needs can lead to higher informality rates and risks in building practices.

Key Vulnerability Factors

Informal Urbanisation

Malawi's socio-economic conditions are reflected in its built environment and its degree of vulnerability. In 2017, the estimated proportion of households living under the international poverty line was 69 percent.⁹¹ The country's total urban population is projected to increase to 20 percent by 2030 and reach 30 percent in 2050.⁹² This poses a challenge to the formal construction sector's growth and suggests that, unless effectively managed, informal housing alternatives will remain dominant.

Informal construction in urban regions is high. In Lilongwe, nearly three quarters of the population is estimated to live in informal settlements.⁹³ These unplanned areas are densely populated, representing

nearly 40 percent of the city's total land area (see Table 1).⁹⁴ Unplanned settlements result from a variety of factors, including: scarcity of serviced land for housing; limited supply of urban services and infrastructure; lack of affordable housing and housing finance; and, the lack of Government capacity to manage urbanisation.⁹⁵

Formal and Traditional Land-Tenure Systems

Provisions included in the Chiefs Act (1967) specify that traditional or customary authorities have no jurisdiction in urban areas.⁹⁶ Despite this, customary law is deeply rooted in land practices, to the extent that considerable tracts of urban Malawi are, in practice, managed by chiefs (village headmen or block leaders).⁹⁷ A significant amount of the land available for sale within urban jurisdiction, especially peri-urban areas, remains controlled under traditional law or by the local chiefs: approximately 10 percent in Blantyre and Lilongwe, 75 percent in Mzuzu and 90.5 percent in Zomba.⁹⁸

Under customary law, the chiefs or block leaders do not

⁹⁰ MoLHUD, 2013, The Urban Structure Plan of Lilongwe City.

⁹¹ World Bank, 2017, [Malawi Economic Monitor](#).

⁹² World Bank, 2016, [Malawi Urbanization Review](#).

⁹³ <http://www.afsun.org/wp-content/uploads/2017/09/AFSUN25.pdf>.

⁹⁴ JICA, 2010, [The Study on Urban Development Master Plan for Lilongwe, Final Report Summary](#).

⁹⁵ UN-Habitat, 2012, [Malawi: Lilongwe Urban Profile](#).

⁹⁶ World Bank, 2016, [Malawi Urbanization Review](#).

⁹⁷ UN-Habitat, 2010.

⁹⁸ Ibid.

TABLE 1: Breakdown of Residential Land Use, as of August 2009

Language Categories	Sub Categories	Area (hectares)	Percent
Residential	Low-density housing	1,338.42	14.4
	Medium-density housing	846.48	9.1
	High-density permanent housing	346.26	3.7
	High-density traditional housing	1,757.27	18.9
	Unplanned settlements	3,700.47	39.7
	Indigenous village	1,095.73	11.8
	Institutional housing	232.01	2.5
Total		9,316.64	100

Source: JICA, 2010, The Study on Urban Development Master Plan for Lilongwe.

sell land; rather, they can act as intermediaries between sellers and buyers, be witnesses in land transactions or preside over land disputes.⁹⁹ Customary lands are mainly used for agriculture, but the scarcity of low-cost land in urban areas has increased their demand and price for housing and business purposes. Similarly, the scarcity of low-income housing has forced people from urban areas to get land in unplanned settlements where customary practices are in place, limiting their options to obtain formal ownership documents.¹⁰⁰

Building on Hazardous Sites

Informal settlements are often sited on hazard-prone areas. In Lilongwe, settlements along the Mchesi River have reported frequent flooding, with significant impacts on the inhabitants. Floods in February 2012, for example, resulted in agricultural crops grown along the river being washed away, houses being destroyed and vegetation cover being severely damaged.¹⁰¹ Cities like Lilongwe and Blantyre have struggled to implement land tenure and environmental management policies and regulations.¹⁰²

A lack of regulations on waste-management and environmental degradation also have an impact on site safety. Indiscriminate liquid and solid waste discharges dispose into water catchment areas, rivers, forests and along roads.¹⁰³

Quality of Construction and Building Materials

Critical factors in building performance include the quality of design, construction practices and materials. In Malawi, the absence of National Building Regulations has led to unsupervised design and construction practices, with a high number of vulnerable semi-permanent and traditional structures susceptible to unhealthy living conditions, damage and collapse.¹⁰⁴ In the absence of National Building Regulations, select City Councils have chosen to regulate within their own jurisdictions, resulting in the absence of a comprehensive and effective risk mitigation at a national scale.

Some of the most commonly-used local materials include fire-cured bricks, unfired mud bricks, thatch grass, timber and, more recently, stabilised soil blocks.¹⁰⁵ The 2014 Welfare Monitoring Survey showed 66 percent of households in rural areas and 15 percent of the households in urban areas used grass for thatching their dwellings. Unfired mud bricks were used in 33 percent of households as their main wall material, and 72 percent of flooring was made with smoothed mud rather than concrete.¹⁰⁶ Rammed earth houses, unburnt brick-wall houses and fired-clay brick houses remain at risk, as they are usually built without any horizontal or vertical reinforcement. Wall strength is low and roof articulations weak, making these typologies extremely vulnerable to hazards such as earthquakes.¹⁰⁷

⁹⁹ UN-Habitat, 2012, [Malawi National Building Profile](#).

¹⁰⁰ UN-Habitat, 2010, [Malawi: Urban Housing Sector Profile](#).

¹⁰¹ Lilongwe City Council, 2013, [Biodiversity Report 2013](#).

¹⁰² UN-Habitat, 2012, [Malawi National Urban Profile](#).

¹⁰³ Ibid.

¹⁰⁴ Katsuichiro Goda et al., 2016, [Seismic Risk Assessment of Urban and Rural Settlements around Lake Malawi](#).

¹⁰⁵ Arup, 2017, [Malawi Schools: Low-Cost Prototype Could Be the Model for 17,000 New Schools](#).

¹⁰⁶ The Times, 2015, [58% Malawians live in grass-thatched houses](#).

¹⁰⁷ World Housing Encyclopaedia, 2014, [Reports 45, 46, 205](#).

Guidance for these types of buildings is important because they make up a large share of the country's building stock.

The lack of a strong industrial sector makes Malawi dependent on imports for essential construction materials, such as steel and cement, which consistently rank amongst the top annual imports by percentage of total expenditure.¹⁰⁸ Materials undergo partial quality control by the Malawi Bureau of Standards (MBS), which ensures material compliance with international standards. The MBS has an Imports Quality Monitoring Scheme (IQMS) that monitors the quality of imported products, ensuring they do not cause safety or health hazards to humans or animals or do not damage the environment. Import batch certificates are issued to complying consignments, and non-complying consignments are denied entry based on critical nature of the non-conformity.¹⁰⁹

In addition, the NCIC ensures that contractors, consultants, material manufactures, suppliers and other actors in the construction industry operate within rules set forth in the NCI Act (1996) and codes of ethics (2009). The NCIC publication, 'Use of Sustainable Construction Materials Regulations, 2018,' provides a new set of regulations aimed at promoting the use of sustainable and environmentally friendly construction materials. This includes approved, energy-efficient and sustainable technologies.¹¹⁰

Affordable Land and Housing

Urban areas suffer the challenge of underdevelopment. Malawi's moderate rate of urbanisation has produced a steady migration from rural to urban areas, mainly to the cities of Lilongwe, Blantyre, Mzuzu and Zomba.¹¹¹ Approximately 14,000 new working-age migrants have arrived in Malawi's towns and cities each year since 2006. Urban areas have struggled to accommodate in-migrants with adequate housing, infrastructure and services, producing widespread informal solutions in the built environment.¹¹² The demand for new urban housing outpaces the supply capacity of developers.

¹⁰⁸ Observatory of Economic Complexity (OEC), 2019, [Malawi Data](#).

¹⁰⁹ Malawi Bureau of Standards, 2019, [Imports Quality Monitoring Scheme](#).

¹¹⁰ National Construction Industry Council of Malawi (NCIC), 2018, [Use of Sustainable Construction Materials Regulations](#).

¹¹¹ UN-Habitat, 2012, [Malawi National Urban Profile](#).

¹¹² World Bank, 2016, [Malawi Urbanization Review](#).

Malawi's cities have limited housing options for its residents, more so for dwellers living in informal or unplanned settlements. In Lilongwe, for example, over 50 percent of the population living in informal settlements are estimated to rent their homes.¹¹³ This sub-standard housing in unplanned settlements is characterised by poor access to public services, tenure insecurity and inadequate construction practices.¹¹⁴

The Malawi Housing Corporation (MHC) is one Government actor aiming to increase the supply of housing in the country. The MHC, as a statutory body, undertakes the development and construction of serviced plots and houses for sale or rent. However, despite owning large areas of land across the country, the MHC has not yet been able to meet the housing targets that it has set. MHC has a waiting list of over 85,000.¹¹⁵

Housing affordability, even for cheapest newly built house, is extremely low: less than one percent of Malawians can afford a mortgage to buy an entry-level house (valued at US\$14,000).¹¹⁶ Due to insufficient revenues, construction and mortgage financing are still hard to access for most citizens. This limits the available resources to invest in safe construction.

For this reason, affordable housing is mostly informal: even the cheapest formal housing unit can be 57 times more expensive than a typical informal shelter alternative.¹¹⁷ Commercial banks require potential borrowers to have a monthly salary of at least US\$360; considering almost 70 percent of the population live below the poverty line, only the highest income earners can access formal housing.¹¹⁸

Awareness and Education

The effectiveness of building regulations relies on an inclusive framework that educates a wide range of stakeholders on the need to develop safe and resilient

¹¹³ Luppen and ActionAid, 2014, [Survey of Urban Poor Settlements in Lilongwe 2014](#).

¹¹⁴ Ibid.

¹¹⁵ Foundation, 2019, [Political Economy Analysis of Urban Governance and Management in Malawi: An Updated Version](#).

¹¹⁶ Ibid.

¹¹⁷ World Bank, 2015, [Stocktaking of the Housing Sector in Sub-Saharan Africa](#).

¹¹⁸ Centre for Affordable Housing Finance in Africa, 2016, [Understanding Malawi's Housing Finance Market](#).

construction practices. These stakeholders include citizens, building professionals, builders, government officials and others linked to the construction sector. Limited educational and training systems for construction workers and trades workers (e.g. welders, masons and carpenters) contribute to sustained and entrenched unsafe building practices. Based on a report by the International Labour Organisation (ILO) in Malawi, at least 90 percent of the population earn their livelihood in the informal sector.¹¹⁹

Most young workers acquire skills through informal apprenticeships, as the formal training system has very limited capacity. Technical and vocational education and training (TVET) is not accessible to most of the population because of unaffordable fees, illiteracy and disabilities. This perpetuates informal practices.¹²⁰

Local Enforcement

Planning authorities in Malawi face the complex challenge of managing and regulating informal growth with limited resources. The central and local levels of Government lack systematic and efficient platforms for building regulations and land-use administration. This is one underlying driver of unsafe construction.

In Lilongwe, the lack of digitalised property taxation and revenue collection systems, combined with limited resource capacity, prevents a sustained collection of revenue by the City Council.¹²¹ The institutional and legal framework regulating property taxation is outdated and insufficient to effectively set realistic property valuations. Furthermore, the number of registered, taxable properties is underestimated in urban jurisdictions: only 45 percent of the real

¹¹⁹ ILO, 2010, [A Study on Informal Apprenticeship in Malawi](#).

¹²⁰ Ibid.

¹²¹ UN-Habitat (2011). [Malawi: Lilongwe Urban Profile](#).

property stock is estimated in Lilongwe and less than one-third is estimated in Blantyre.¹²² This gap reduces City and District Councils' revenues and limits their capacity, including the capacity of planning and urban development departments to oversee safe and resilient construction and urbanisation.

In turn, the limited financial resources of local Government and planning jurisdictions weaken the implementation and enforcement of basic planning strategies. Lack of Council investment also affects the engagement of private developers, who are reticent to provide water connections, new or rehabilitated roads, or electricity distribution.¹²³

Excessive bureaucracy and inefficient permitting processes also act as disincentive for regulatory compliance.¹²⁴ Construction permits, for example, take nearly 140 days and require at least 10 different procedures; payments are also made at different stages and not consolidated into an integrated process.¹²⁵ This context has resulted in "gifting practices" for taxation purposes, Government contracts, building permits and electricity supply: 34.5 percent of firms in Malawi are expected to give "gifts" to get a construction permit.¹²⁶ Local enforcement capacity will be explored in greater detail in Chapter 5.

¹²² World Bank, 2017, [Malawi Urbanization Review](#).

¹²³ Ibid.

¹²⁴ Transparency International, 2014, [Overview of Corruption in Malawi](#).

¹²⁵ World Bank, 2018, Doing Business: Economic Profile Malawi - This information comes from the "Dealing with Construction Permitting Indicator." The methodology includes recording all procedures required for a business in the construction industry to build a warehouse along with the time and cost to complete each procedure. A series of standardized parameters have been set for the warehouse, such as usage, size, necessary road access (See the Dealing with Construction Permitting Indicator methodology for more information: <http://www.doingbusiness.org/en/methodology/dealing-with-construction-permits>)

¹²⁶ World Bank, 2014, [Enterprise Survey](#).



Plantyrc - Malawi Stock Market - Photo: Intense

3. National Capacity and Legislative Framework

This chapter examines the national legislation and institutions that govern building regulation and land use in Malawi. It provides an overview of the legal and institutional framework currently in place, identifies critical gaps and challenges, and provides recommendations.

3.1. Legislative Framework

3.1.1. Overview

In Malawi, laws have been passed to enable the regulation of buildings, from their siting through to demolition. As part of the Assessment, a review of this legislation was conducted (see Annex 1).

In terms of building regulations, the country's largest cities currently rely on their own building bylaws. For example, Malawi's first bylaws for building regulation were introduced in Lilongwe in 1961.¹²⁷ They were based on the then British Building Regulations.¹²⁸ Mzuzu and Blantyre more recently updated and finalised their building bylaws in 2017 and 2018 respectively.¹²⁹

¹²⁷ JICA, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi – Final Report](#).

¹²⁸ Ibid.

¹²⁹ BRCA desk research, November 2018.

In recent years, the Government has initiated the development of new National Building Regulations (see Chapter 4 for a detailed discussion).¹³⁰ The Department of Buildings, under the MoTPW, is leading this work, in coordination with the Department of Housing, under the MoLHUD, and the DoDMA, under the Office of the President and Cabinet. A task team has also been formed to oversee this process.¹³¹ This activity is being supported by the World Bank-funded Malawi Floods Emergency Recovery Project (MFERP). These new National Building Regulations have to be referenced in national legislation to be legally mandated.

The Physical Planning Act (2016) lays the foundation for physical planning across Malawi. This Act, with a date of commencement in April 2018, replaces the previous legislative framework for physical planning which constituted the Town and Country Planning Act (1998) and the Town and Country Planning Standards and Guidelines (1987).

¹³⁰ World Bank, 2015, [Malawi Emergency Recovery Project Appraisal Document](#).

¹³¹ Other than the organisations already mentioned, this Task Team comprises core participants such as the Department of Disaster Management Affairs (DoDMA), National Construction Industry Council of Malawi (NCIC), Malawi Institute of Architects (MIA), Malawi Institution of Engineers (MIE) and Malawi Polytechnic.

Over the last few decades, the Government of Malawi has led a sustained reform of land-related laws. This has resulted in a comprehensive legal framework for the management of land across Malawi. This process was initiated by a Presidential Commission on Land Reform in 1996. In 2002, the Malawi National Land Policy was approved, and the following year a Special Land Commission was constituted to examine all land-related laws.¹³² The recommendations of the Commission culminated in the passage of four pieces of legislation, these include the Physical Planning Act (2016),¹³³ the Customary Land Act (2016), the Land Act (2016) and the Registered Land (Amendment) Act (2017).

The Customary Land Act (2016), the Land Act (2016) and the Physical Planning Act (2016) are already under implementation. The Physical Planning Act is a critical piece of legislation; it declares the whole of Malawi as a planning area and includes provisions for national and local development planning and for granting development permits.

Laws also are in place to address fire safety in the built environment. The Occupational Safety, Health and Welfare Act (1997) includes provisions for fire preparedness (i.e. evacuation routes and fire extinguishers) and some provisions for fire prevention

(i.e. ventilation) in the work place. City-level building bylaws, such as the 1961 Lilongwe Building bylaws, also include fire prevention provisions for public and private buildings, including regulations for materials and structural elements. However, these are not consistent and applicable across the country. (These regulations are discussed in detail in Chapter 4.)

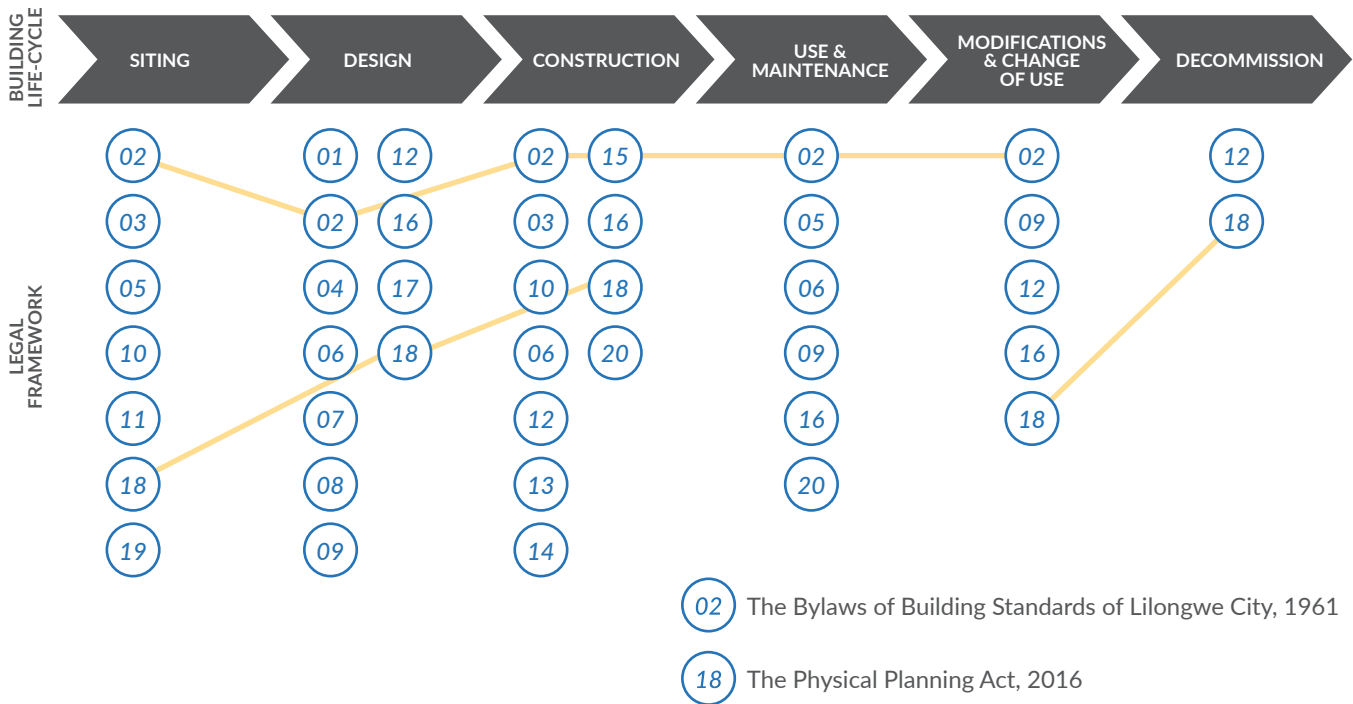
Malawi has also taken steps to govern the practices of engineering, architecture, quantity surveying, construction and physical planning. In 1971, Malawi started to mandate registration and proof of qualification for engineers through the Engineering Act (1971). Similar legislation was established for architects and quantity surveyors, through the Architects and Quantity Surveyors Act (1992) and for construction workers and contractors through the National Construction Industry Act (1996). More recently, the Physical Planning Act (2016) established provisions for the creation of a Physical Planners Board to register and regulate physical planners across the country.

Several other statutes have a bearing on the built environment in Malawi (see Figure 9). Annex 1 provides a detailed mapping of how specific components of these legal and regulatory instruments relate to the different steps of the building cycle in Malawi.

¹³² Cities Alliance, 2013, [Land Administration in Malawi](#), Presentation at the Urban Landmark Workshop in Lilongwe.

¹³³ Ibid.

FIGURE 9: Legal Mapping of Malawi's Building and Development Control



Nr.	Name	Nr.	Name
01	The Architects and Quantity Surveyor Act, 1992	11	The Lilongwe Urban Development Master Plan, 2010
02	The By-Laws of Building Standards of Lilongwe, 1961	12	The Monuments and Relics Act, 1991
03	The Customary Land Act, 2016	13	The National Construction Industry Act, 1995
04	The Disability Act, 2012	14	The National Construction Industry (application fees) Regulations, 1998
05	The Disaster Risk Management Act, 2017	15	The National Construction Industry (fees and forms) Regulations, 1998
06	The Electricity Act, 2004 (Electricity Amendment Act, 2006)	16	The Occupational Safety, Health and Welfare Act, 1997
07	The Electricity Bylaws, 2012	17	The Public Health (Minimum building standards for traditional housing areas) Rule, 1997
08	The Engineers Act, 1972	18	The Physical Planning Act, 2016
09	The Environmental Management Act, 1996	19	The Public Roads Act, 1962
10	The Land Act, 2016	20	The Tourism and Hotels (Minimum Standards) Regulations, 2005

* The Bylaws of Building Standards of Lilongwe (1961) are only applicable to Lilongwe and not across Malawi.

Source: BRCA Analysis, 2018.

3.1.2. Main Challenges Identified

Overarching National Building Legislation

The foundation of a building regulatory framework is best supported by overarching national legislation which defines the roles and responsibilities of national and local institutions to regulate buildings and principles for enforcement. To date, the Government of Malawi has not promulgated national building legislation. The absence of national building legislation weakens the basis for Government authorities to undertake formal enforcement and apply sanctions for violations for unsafe building practices. The Department of Buildings (MoTPW) and the Department of Housing (MoLHUD) recognise the importance of developing this legislation and have initiated the development of the Buildings Control and Development Bill. At the time of finalising this report, the Bill is in the early stages of drafting.¹³⁴

In parallel, the Department of Buildings is also in the process of drafting a Buildings Policy. This Buildings Policy will outline broad principles for the cabinet to review and endorse.¹³⁵ This policy could then serve as a basis for the development of the new Buildings and Development Control Bill.

As per international best practice, national building legislation should legally mandate the enforcement of up-to-date building regulations and outline a process for future maintenance and update. In many other Common Law countries, building regulations have the legal status of a subsidiary regulation. This dual approach to building regulation, combining a host national legislation and separate building regulations, has the advantage of allowing frequent technical revisions of the code without having to seek Parliamentary approval. This dual approach enables the code to be updated in line with advances in building science and technology as well as in the dynamic context of a changing climate.

In addition, international best practice dictates that national building legislation should:

- Define the broader objectives of building control, including its link to climate change adaptation,

mitigation and social inclusion objectives (i.e. accessibility and usability for persons with disabilities).

- Define the roles and responsibilities of national and local Government institutions for building control.
- Mandate inspections to ensure building officials will be called upon to carry out inspections at key stages, systematically prioritizing high-risk buildings.
- Outline penalties and sanctions for non-compliance with provisions for appeal mechanisms.
- Define the registration, certification and continuing education requirements for building regulators and building professionals.

In countries where there is a high prevalence of informal settlements, it is also advisable for national building legislation to provide guidance or provisions for how the national and Local Councils should manage informal settlements. For example, the Building Act of Jamaica, establishes provisions for the regulation of a new category of previously unregistered and unregulated (informal) builders (see Box 1 for more details).

BOX 1: Building Practitioners in the Jamaica Building Act (2017)

The Building Act of Jamaica establishes a new category of previously unregistered and unregulated (informal) builders: building practitioners. Under the Building Act, building practitioners are restricted to construct non-complex buildings of less than 300 square metres. Such structures are assumed to include primarily residential and small commercial buildings. The majority of such buildings have not previously been subject to regulatory review or inspection. This provision is an important extension of the benefits of building standards to the informal building sector.

Building practitioners have the opportunity to register formally and receive a licence under the purview of a newly formed Building Practitioners Board. The Building Practitioners Board decides upon the qualifications for registration and licensing.

¹³⁴ BRCA Analysis, February 2019.

¹³⁵ Ibid.

The development and passage of national building legislation would significantly strengthen Malawi's building regulatory framework.

Overarching National Physical Planning Legislation

The Physical Planning Act (2016) is critically important. Implementation of the Act began in April 2018. Some of the Physical Planning Act's key features and innovations include:

- Provisions and guidance to prepare and implement physical development plans at the national, district and local level.
- The introduction of new prominent planning institutions, including the (i) Physical Planning Advice Council, intended to resolve disputes and provide advice and guidance on planning policies, standards and national development plans (ii) and the Physical Planning Board, intended to register and regulate physical planners across the country.
- Provisions for "buildings of a traditional nature." These vernacular housing structures must comply with basic health and safety regulations and guidelines¹³⁶ but beyond this will be largely exempt from formal planning standard requirements.

However, one limitation of the Act is that it does not reference the need to integrate hazard maps into national, district or local physical development plans. Risk-sensitive land-use planning provides an opportunity to avoid settlements being built on land most vulnerable to natural hazards (i.e. flood plains and areas prone to landslides). As discussed in Chapter 2, building in these areas leaves the residents and assets at risk. That being said, the language in the Act is open and does leave the option for the Commissioner for Physical Planning¹³⁷ to request the inclusion of additional materials and inputs in both district and local physical development plans.¹³⁸

¹³⁶ These basic health and safety rules are defined in the "Public health (Minimum buildings standards for traditional housing areas) rules" of 1971 and some other are also part of the Safe Buildings guidelines. These rules are also mentioned in the physical planning Act Section 43(2)c.

¹³⁷ A new position created under the Physical Planning Act (2016).

¹³⁸ Government of Malawi, [Physical Planning Act](#), 2016 (Date of promulgation, September 2016, Date of commencement April

With the passage of the Physical Planning Act the MoLHUD should consider developing guidelines to support Local Councils in the development of their physical plans. The guidance materials would provide an opportunity for the MoLHUD to ensure that hazard maps are integrated into district and local physical development plans. The MoLHUD could draw from the experience of Kenya.

In Kenya, the Ministry of Lands and Physical Planning (MoLPP) is developing County Planning Guidelines. The MoLPP plans to provide technical assistance to counties to support the development of spatial plans. It also plans to scale support to counties incrementally. In 2018, the Ministry aimed to support eight counties with the development of their spatial plans and a further fifteen counties in 2019.¹³⁹

Overarching Legislation for Fire Safety

Malawi does not have an overarching framework to mitigate the risk of fire. A fire risk mitigation framework is generally composed of a policy, an act and nationwide technical building provisions for fire prevention and preparedness. Generally, building bylaws in major Malawian cities integrate select fire prevention specifications; however, these do not fully reflect an up-to-date understanding of fire and building science or disaster risk (see Chapter 5 for an in-depth discussion). Elements of fire-resilient construction are outlined in the National Construction Industry Policy (2015) but are not yet law.

The development and passage of fire risk mitigation legislation would strengthen Malawi's building regulatory framework. As per international best practice, fire risk mitigation legislation should:

- Establish clear roles and responsibilities for fire response and prevention activities at the national and local level.
- Mandate the preparation and implementation of integrated fire risk management plans at all levels and sectors.

2018) See Clause 29 (1) (f) p12 – in reference to District Physical Development Plans – Clause 34 (2) p 13 – in reference to Local Physical Development Plans.

¹³⁹ World Bank, 2019, [Kenya Building Regulatory Capacity Assessment Analysis](#).

- Establish registration requirements, a code of conduct and responsibilities for fire engineers, fire officers, firefighters and lead agencies.

As a point of comparison, in Kenya, the Government has identified fire safety in the built environment as a priority area and developed a comprehensive Fire Safety Management Policy (2011).¹⁴⁰ The Policy sets an ambitious legal and institutional reform agenda, including the passage of a Fire Safety Act and the establishment of a national regulatory body, the Kenya Fire Safety Agency. While the implementation of the measures proposed in the Policy have yet to be initiated, the Policy provides a valuable example.

3.2 Institutional Framework

3.2.1. Overview

In Malawi, several national institutions govern and oversee the built environment, from the development of building and land-use regulations to the registration of construction workers. This section provides an overview of the roles and responsibilities of key national institutions, highlights some of the challenges and limitations and provides targeted recommendations.

Ministry of Transport and Public Works

The MoTPW has a broad mandate as the steward of Malawi's public infrastructure development programs and related activities.¹⁴¹ This includes ensuring the provision of effective and sustainable transport systems, developing large-scale infrastructure and procuring policies and regulations on the built environment. A department with a key role in regulating the built environment is the Department of Buildings.

Department of Buildings (MoTPW)

The Department of Buildings is responsible for the procurement and maintenance of public infrastructure and for providing policy direction and regulations for the built environment.¹⁴² As such, the Department

has responsibility for developing new National Building Regulations as well as supporting legislation in the form of a building act.¹⁴³ In practice, given the challenge of limited human resources in the Central Government, the development of the National Building Regulations will be a collaborative process between the Department of Buildings, the Department of Housing at the MoLHUD and the DoDMA at the Office of the President and Cabinet.¹⁴⁴

As noted above, the Department of Buildings is responsible for overseeing the development and maintenance of public infrastructure. This includes conducting site inspections during and after construction.¹⁴⁵ The Department provides architectural, mechanical and electrical buildings services, surveying, landscaping, and structural and civil engineering services.¹⁴⁶ The capacity of the Department for some of these functions will be discussed later in the chapter. The Department of Buildings also has some capacity for materials testing at the laboratory of the MoTPW. These laboratories are reserved for testing materials for public infrastructure and facilities.¹⁴⁷

Ministry of Lands, Housing and Urban Development

The MoLHUD is responsible for several functions related to the management of the built environment. The ministry is responsible for providing policy direction, national standards and coordination for matters concerning land, housing and urban development. For example, the Ministry is responsible for overseeing national, district and local physical development plans; land registration; national land surveying and mapping; and providing technical assistance to local Governments in these areas.¹⁴⁸ The MoLHUD's mandate is outlined in various statutes, including the Land Act (2016) and the Physical Planning Act (2016).¹⁴⁹

¹⁴³ Ibid.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ MoTPW, 2017, Buildings Department Strategic Plan 2017-2022.

¹⁴⁷ Ibid.

¹⁴⁸ Ministry of Lands Housing and Urban Development (MoLHUD), 2018, [About Us](#).

¹⁴⁹ BRCA Legislative Review, February 2018.

¹⁴⁰ Government of Kenya, 2011, Fire Safety Management Policy.

¹⁴¹ Ministry of Transport and Public Works (MoTPW), 2017, Buildings Department Strategic Plan 2017-2022.

¹⁴² BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD).

As noted above, the Ministry has an important role in defining the legislative framework and regulations for physical planning and land management. The Ministry, for example, led the development of the Physical Planning Act (2016), including the consultation process and drafting of supporting regulations.¹⁵⁰

Department of Housing (MoLHUD)

The Department of Housing is responsible for facilitating affordable, safe and secure housing for all income groups. The Department is responsible for a broad range of activities, from managing urban renewal and informal settlement to running home ownership schemes.¹⁵¹ In terms of building and land-use regulation, the Department was instrumental in developing the Safer Housing Guidelines. It is also playing a key role on the task team for the development of National Building Regulations.¹⁵²

Department of Surveys (MoLHUD)

The Department of Surveys (DoS) is responsible for land surveying and mapping in Malawi.¹⁵³ Its mission is to make accurate, up-to-date and reliable geospatial information (including hazard maps) readily accessible.¹⁵⁴ The Department provides surveying and mapping services to the public and private sector and is responsible for providing guidance on spatial data generation and dissemination.

To coordinate geospatial activities, the DoS formed the National Spatial Data Centre (NSDC). The NSDC coordinates the acquisition and sharing of geo-information and assists in developing the National Spatial Data Infrastructure (NSDI).¹⁵⁵ To support this agenda, the NSDC launched the Malawi Spatial Data Platform (MASDAP),¹⁵⁶ an online GIS portal used to share and manage spatial data (e.g. elevation data, soil

types and river catchments). To support this work, the DoS has also created the Malawi Geographic Information Council (MAGIC), although it is not yet functional. DoS plans to request resources for MAGIC in the 2019 annual budget.¹⁵⁷ The development and integration of hazard maps into building and land use regulations is an important input into a resilient built environment.

Department of Physical Planning (MoLHUD)

The Department of Physical Planning is responsible for preparing and reviewing national, district and local (urban and rural) physical development plans. The department provides technical assistance to local government for the development of their development plans. Furthermore, for areas without a physical development plan—this currently includes most rural areas—the Physical Planning Department is responsible for processing development permit applications. Applicants must submit their application to the regional office of the MoLHUD. For planned areas, the Local Council is responsible for administering development permits.¹⁵⁸

Department of Lands (MoLHUD)

The Department of Lands is responsible for the management of land and land based resources. Its services include providing land policy directions, managing land registration, land allocation and resettlement. Land ownership and registration is an important requisite for obtaining a development permit. Security of tenure is also considered essential to motivate investment in sustainable and safe housing.¹⁵⁹

Department of Urban Development (MoLHUD)

The Department of Urban Development is responsible for providing an enabling policy and institutional environment for urban development. The department has an important role in creating policies to improve the capacity of local authorities for physical planning, to promote sustainable and resilient cities and support economic development and local job creation.¹⁶⁰

¹⁵⁰ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD).

¹⁵¹ MoLHUD, 2018, [Housing and Urban Development](#).

¹⁵² BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD).

¹⁵³ Based on the Land Survey Act chapter 59:03 of the Laws of Malawi and some sections of the Registered Land Act chapter 58:01, the Adjudication of Titles Act chapter 58:03 and Customary Land (Development) Act chapter 59:01.

¹⁵⁴ Ministry of Lands Housing and Urban Development (MoLHUD), 2018, [About Us](#).

¹⁵⁵ Ibid.

¹⁵⁶ Malawi Spatial Data Platform (MASDAP), 2019, [Web-page](#).

¹⁵⁷ BRCA Interview, November 2018, Geological Survey Department.

¹⁵⁸ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD)

¹⁵⁹ MoLHUD, 2019, [Lands Department](#).

¹⁶⁰ MoLHUD, 2019, [Urban Development Department](#).

Ministry of Natural Resources, Energy and Environment

The MoNREE provides policy guidance and coordination on Malawi's natural resources, energy and environmental management.¹⁶¹ The following departments have a role in enabling the regulation of buildings.

Department of Environmental Affairs (MoNREE)

In terms of managing the built environment, the Ministry's Department of Environmental Affairs issues Environmental Impact Assessments (EIAs) during the building design process. The Department of Environmental Affairs is also tasked with reviewing applications for certain land-use modifications.¹⁶²

Geological Survey Department (MoNREE)

The Geological Survey Department has important expertise in the mapping of earthquake- and landslide-prone areas (particularly in the Karonga, Michesi and Zomba Mountains).¹⁶³ These geologic maps constitute an important input into the development of risk-informed National Building Regulations.

Malawi Bureau of Standards

The Malawi Bureau of Standards (MBS) is a statutory organisation established in 1972 by an Act of Parliament.¹⁶⁴ Its mandate is to promote metrology, standardisation and quality assurance of commodities, including their manufacture, production, processing and treatment.¹⁶⁵

In terms of building regulation, the MBS is responsible for setting construction standards. The Standards Act (1972) includes a list of relevant standards that the Bureau is responsible for maintaining.¹⁶⁶ The MBS has previously established technical committees to develop standards, including in areas relevant to construction (e.g. pipes and fittings, bricks and tiles, cement and

lime, electrical safety, timber products and iron and steel products).

The MBS also has a Quality Assurance Department and a Testing Department, although its testing capacity for building materials and products is limited.¹⁶⁷ For example, neither the MBS nor the Malawi Energy Regulatory Authority¹⁶⁸ has the capacity to test electrical wires and cables.¹⁶⁹

Malawi National Construction Industry Council

The NCIC regulates and promotes the construction industry in Malawi by registering firms, construction workers, contractors and construction materials suppliers. Since its establishment in 1996, the NCIC has registered professional firms and individuals in different categories.¹⁷⁰ It currently lists over 400 members in its directory.¹⁷¹

NCIC carries out inspections on projects, verifying that contractors and consultants are registered and that they are operating within their authorised capacity.¹⁷² As per the NCIC Act (1996), the NCIC can impose a fine and issue warrants for arrest when they identify non-compliance.¹⁷³

The NCIC also plays a broader role in supporting the development of national policies, legislation and standards related to the construction sector. The NCIC, for example, works as a liaison with multiple stakeholders in the sector to identify building standards that need to be developed and those that need to be further promoted to encourage compliance.¹⁷⁴ As a result of this initiative, in coordination with the MBS,

¹⁶¹ Ministry of Natural Resources, Energy and Environment, 2018, [Strategic Objectives](#).

¹⁶² BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD).

¹⁶³ UNDP, 2012, [Current Hazard Mapping Capacity and Effectiveness Of Scenario Based Tools for Long Term Planning Mechanisms](#).

¹⁶⁴ Cap 51:02.

¹⁶⁵ MBS, 2018, [Organizational Profile](#)

¹⁶⁶ The Malawi Bureau of Standards Act (1972).

¹⁶⁷ BRCA Interview, February 2018, Representatives from the Malawi Bureau of Standards.

¹⁶⁸ This authority regulates companies that install electric and fire prevention systems. It is not currently equipped with testing laboratories.

¹⁶⁹ BRCA Interview, February 2018, Representatives from the Malawi Bureau of Standards.

¹⁷⁰ NCIC regulates contractors in different categories based on their demonstrated capacity to carry out construction works and on the financial value of the project (see <http://ncic.mw/membership/learn-about-membership/>).

¹⁷¹ NCIC, 2018, [Membership Directory](#).

¹⁷² National Construction Industry Council, 2018, [Organization Overview](#).

¹⁷³ Section 11(s) of the NCIC Act of 1996.

¹⁷⁴ National Construction Industry Council, 2018, [Our Services](#).

a code of practice for design loadings for buildings was created in 2010.¹⁷⁵

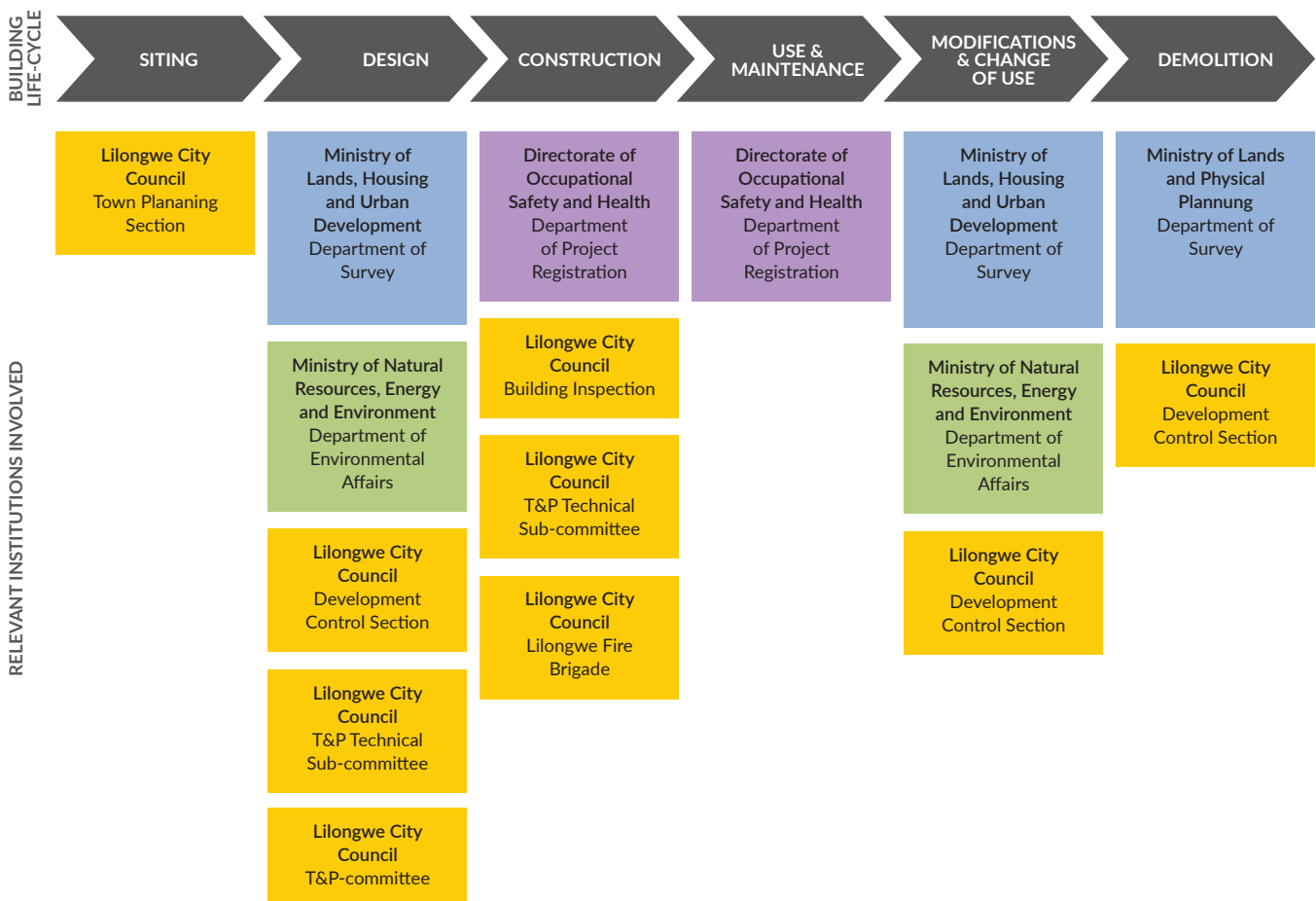
Additional National-level Institutions

There are several other institutions with a role in building and land use regulation that have not been listed above. For example, the Operational Safety and Health Directorate (OSHD) and the Malawi Housing Corporation, among others. The OSHD inspects construction sites to ensure compliance with minimum standards of safety. The Malawi Housing Corporation (MHC) is mandated to construct, maintain and

develop housing and plots; MHC is a major national land administrator and oversees large-scale building development.¹⁷⁶

Figure 10 maps the institutions directly involved in Malawi’s building development and control process and Table 2 provides a summary of their roles. Lilongwe City Council has been included in the institutional mapping to highlight the interaction between national and local council departments at different stages. Annex 1 provides further details of their responsibilities across the steps of the building cycle.

FIGURE 10: Institutional Mapping of Malawi’s Building and Development Control Process



¹⁷⁵ Ibid.

¹⁷⁶ Centre for Affordable Housing in Africa (2016). [Understanding Housing Finance Markets in Malawi](#).

TABLE 2: Summary of National Institutional Roles and Responsibilities for Building Development Control

Institution	Building Development Control Role
Ministry of Transport and Public Works	<ul style="list-style-type: none"> Procure and maintain public infrastructure. Develop legislation on the built environment. Oversee inspections and material testing for public infrastructure projects.
Ministry of Lands, Housing and Urban Development	<ul style="list-style-type: none"> Oversee national urban and land-use planning. Register land. Produce and distribute land surveys and maps. Provide technical assistance and capacity building for counties on physical planning and housing.
Ministry of Natural Resources, Energy and Environment	<ul style="list-style-type: none"> Review environmental land-use guidelines. Approve Environment Impact Assessment (EIA) for new building projects. Inspect certain building sites to check that the project is EIA licenced.
Directorate of Occupational Safety and Health	<ul style="list-style-type: none"> Ensure registration of new workplace building projects. Inspect construction sites to ensure workers' safety. Approve safety measures in building plans.
Malawi National Construction Industry Council	<ul style="list-style-type: none"> Register building contractors and construction workers. Register building projects. Register material suppliers. Inspect building sites to ensure the presence of NCIC registered contractors and construction workers.
Malawi Bureau of Standards	<ul style="list-style-type: none"> Develop and promote construction standards Test and approve building materials
Local Councils *	<ul style="list-style-type: none"> Develop and implement local land-use and physical development plans. Conduct plan review, site inspection, inspections (during and after construction) and issue construction and occupancy certificates. Coordinate specialised plan review and inspections (i.e. fire safety and health).

* "Local Councils" has been added as a point of comparison.

Source: World Bank, 2018, BRCA Analysis in Malawi.

3.2.2. Main Challenges Identified

National Support for Local Implementation of Building and Land-Use Regulations

The MoLHUD and the MoTPW lack sufficient capacity and human resources to provide technical advice and advisory services to Local Councils to guide development and building control processes. A lack of Government staff and resources is in no way unique to Malawi. However, it does raise concerns over how central authorities can support a gradual and effective process of decentralisation of development and building regulatory functions to local Government in a manner consistent with the provisions of the Local Government Act (1998),¹⁷⁷ the National

Decentralisation Policy (1998) and the Physical Planning Act (2016).

Physical Planning

As noted earlier in the report, through the decentralisation process, the Department of Physical Planning at the MoLHUD handed over some of its planning and development control functions to Local Councils with a view to improve efficiency and service delivery.¹⁷⁸ Subsequently, the MoLHUD's role was reformed to include oversight of local planning authorities, including the provision of guidance and support.¹⁷⁹

Stakeholders from the Department of Physical Planning reported that the Department has limited capacity

¹⁷⁷ The Second Schedule of the Local Government Act (1998) assigns a wide range of functions to both urban and rural local Governments, including development planning, physical and land-use planning as well as regulations and control of building and construction.

¹⁷⁸ Government of Malawi, 1998, Local Government Act.

¹⁷⁹ MoLHUD, 2019, [Departments](#).

to provide technical assistance to Local Councils and monitor compliance to rules and procedures.¹⁸⁰

Building Development Control

Local Councils are also responsible for administering building regulations.¹⁸¹ There is currently no centralised monitoring of, or support for, local building authorities conducting these activities.¹⁸² Stakeholders from the Department of Buildings at the MoTPW reported that this is a barrier to effective building control and noted that their Architecture and Structural Engineering Divisions currently have no staff assigned to this role.¹⁸³ This is partly due to the Department's staffing levels: the Department has four registered architects and one registered engineer to cover the country.¹⁸⁴

The Department of Buildings plans to address this challenge by introducing a Building Regulation Division to provide technical assistance and advisory services to local Councils, coordination and development of National Building Regulations and research on building materials. The Department of Buildings recently initiated a functional review to determine the necessary human resources to support this function.¹⁸⁵

Fire Prevention

Local Councils are responsible for providing fire services, including fire prevention.¹⁸⁶ In Lilongwe, for example, this function sits within the Lilongwe Fire Brigade.¹⁸⁷ As per international best practice, an important component of fire prevention includes specialised building plan reviews and inspections by qualified fire inspectors. The capacity of local Councils to conduct this function will be discussed in Chapter 5 of this report.

At the level of the Central Government, there is currently no ministry responsible for coordinating fire prevention activities, including: providing technical assistance

and guidance to local fire brigades; monitoring local compliance to rules and procedures; coordinating the training and certification of fire inspectors and engineers across the country; and, defining the legislative framework for fire prevention.¹⁸⁸ Given the importance of fire regulation within the building control process, the Department of Buildings should determine whether the planned Building Regulation Division can take on this responsibility.

Specialised Plan Review and Inspections

As outlined earlier in the chapter, several national-level institutions have a role in the oversight of buildings and/or construction sites that meet certain criteria. These institutions include the Department of Environmental Affairs at the MoNREE, the Department of Buildings at the MoTPW, the Occupational Health and Safety Directorate at the Ministry of Labour and the National Construction Industry Council.¹⁸⁹ However, several of these institutions have limited human and financial resources to conduct these roles consistently and systematically.¹⁹⁰

For example, the Occupational Safety and Health Directorate has a mandate to inspect all work places (including construction sites) to ensure compliance with minimum health and safety standards.¹⁹¹ However, the Department operates with only 13 inspectors.¹⁹² The Principal Occupational Safety and Health Officer estimates that the Directorate is operating at less than 50 percent the required capacity.¹⁹³ The Directorate is also lacking equipment, including vehicles for their inspectors.¹⁹⁴ As a result, the Principal Occupational Safety and Health Officer estimated that inspectors reach approximately 60 percent of workplaces.¹⁹⁵

Similarly, the NCIC carries out inspections on construction sites to ensure the firms, contractors and construction workers and material suppliers are

¹⁸⁰ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing and Urban Development Department (MoLHUD).

¹⁸¹ Government of Malawi, 1998, Local Government Act.

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

¹⁸⁵ BRCA Interview, February 2018, Buildings Department, MoTPW.

¹⁸⁶ Government of Malawi, 1998, Local Government Act.

¹⁸⁷ BRCA Interview, February 2018, Lilongwe Chief Fire Officer.

¹⁸⁸ Ibid.

¹⁸⁹ BRCA Interview, February 2018, Building Department, MoTPW.

¹⁹⁰ BRCA Interview, February 2018, Registration Officer (NCIC), Principal Occupational Safety Health Officer (MoL), Representatives from the Department of Buildings (MoTPW).

¹⁹¹ Government of Malawi, 1997, Occupational Safety Act.

¹⁹² BRCA Interview, February 2018, Principal Occupational Health and Safety Officer, OSHD.

¹⁹³ Ibid.

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

registered. It currently has six officers nationally (four in Lilongwe, one in Mzuzu and one in Blantyre).

Penalties for non-compliance do exist, however, they are rarely enforced. The NCIC Act (1996) and Occupational Safety Act (1997) outline the respective penalties that the NCIC and OHS Directorate can apply to prescribed violations. For example, as per the NCIC Regulations, finalised in 2018, the NCIC reserves the right to suspend any works or activities being carried out in contravention to the NCIC Act. The NCIC has a mandate to impose a penalty or a two-year term of imprisonment for non-compliance.¹⁹⁶

National Capacity for Testing Soil Samples, Building Products and Building Materials

Testing Building Products and Materials

Uniform and certified performance criteria for building materials are essential for the design and construction of safe buildings. Quality control for building materials requires standards test facilities and laboratories to certify materials such as cement, aggregate cement masonry units and steel. Beyond a necessary focus on safety, durability and structural integrity, a testing capacity should be utilized for the purpose of supporting climate smart materials and innovative solutions to promote affordable energy-conserving building materials and products.

However, currently the MBS has limited capacity to conduct certain types of tests, including more specialised tests such as those for particular types of cement and non-destructive testing.¹⁹⁷ Furthermore, neither the MBS nor the Malawi Energy Regulatory Authority¹⁹⁸ have the capacity to test electrical wires and cables.¹⁹⁹ This is despite increasing risks associated with the large-scale imports of unsafe sub-standard electrical wires and cables by the Malawian construction industry.²⁰⁰

¹⁹⁶ NCIC, 2018, Compliance Regulations Amended.

¹⁹⁷ BRCA Interview, February 2018, Representatives from the Malawi Bureau of Standards.

¹⁹⁸ This authority regulates companies that install electric and fire-prevention systems. It is not currently equipped with testing laboratories.

¹⁹⁹ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MoLHUD).

²⁰⁰ Ibid.

The MBS has a Quality Assurance Department and a Testing Department and is currently investing in a significant state-of-the-art laboratory with funding support from the EU.²⁰¹ About 300 new staff are expected to be recruited by the MBS, thus considerably extending the capacity of the Headquarters in Blantyre.²⁰² However, this additional capacity will focus on testing food products.²⁰³ There is no plan to expand the capacity of MBS to certify the quality of building products and testing materials.²⁰⁴

Testing Soil

Soil tests are the first step in construction planning. They determine the soil's suitability for the proposed construction work and are critically important to building safety. The capacity for lab and field soil tests is a challenge in Malawi.

Several institutions have soil testing facilities but focus on providing public sector services.

- The Department of Buildings has some capacity at the materials testing laboratory of the MoTPW; these resources cover public infrastructure and facilities, not private buildings.²⁰⁵
- The Geological Survey Department also has some soil testing laboratories; these laboratories are undergoing maintenance work.²⁰⁶
- The Agricultural Research and Extension Trust (ARET) have soil testing facilities; these facilities are primarily used for tobacco growth research: ARET's activities are sanctioned and funded by tobacco growers.²⁰⁷
- The Polytechnic University of Malawi, Department of Civil Engineering, based in Blantyre, has some soil testing capacity and can conduct tests for a set fee (see Annex 2 for details of available tests).

²⁰¹ Malawi Bureau of Standards, 2018, [Standardisation Quality Assurance, Accreditation and Metrology \(SQAM\) Project](#).

²⁰² BRCA Interview, February 2018, Representatives from the Malawi Bureau of Standards.

²⁰³ Malawi Bureau of Standards, 2018, [Standardisation Quality Assurance, Accreditation and Metrology \(SQAM\) Project](#).

²⁰⁴ Ibid.

²⁰⁵ Ibid.

²⁰⁶ BRCA Desk Research, Previous Permanent Secretary and Director of the Geological Surveys Department.

²⁰⁷ Agricultural Trust Research and Extension Trust, 2019, [Webpage](#).

Overall, private builders have limited options to meet the requirements for soil quality outlined in the local bylaws.

Responsibilities and Capacity for Developing and Sharing Hazard Maps

Hazard and risk assessments are the foundation of emergency preparedness and risk reduction planning. In line with this agenda, the MDG III promotes the development of comprehensive disaster risk assessments and hazard maps for Malawi and the integration of this data into risk-informed development planning:

“... enhancing risks knowledge at all levels from household, community, district to national level [by] undertaking comprehensive disaster risk assessments and mapping covering all sectors and disseminating the results to enhance risk-informed development planning.”²⁰⁸

Adequate hazard mapping for reference in the National Building Regulations and local development plans is an integral part of the regulatory regime for disaster risk reduction. Given the hazard profile of Malawi, flood plain maps, peak-ground accelerations, seismic maps, landslide maps and volcanic maps should be referenced and integrated into the National Building Regulations. Chapter 4 details how these hazard maps should be integrated.

Different agencies and departments within the Government develop different hazard maps. For example, the Geologic Survey Department has developed seismic maps and landslide maps for certain areas of Malawi, particularly in the areas of Karonga, Michesi and the Zomba Mountains.²⁰⁹ While the Department of Water Management (Ministry of Irrigation and Water Development) is responsible for the development of flood maps. The Department of Survey (MoLHUD) and Department of Disaster Management Affairs (DoDMA) have a key role in coordinating disaster risk assessments and hazard maps.

The Government of Malawi also has received international support to develop hazard and

vulnerability maps. For example, through a GFDRR-funded project, Risk Engineering and Design (RED) and Evaluación de Riesgos Naturales (ERN) developed peak ground acceleration maps for a 500-year return period.²¹⁰ These maps were computed considering local soil effects. The objective was to provide an estimate of future earthquake risk for Malawi through the year 2050.

Further, in 2015, the Government of Malawi developed the National Hazards and Vulnerability Atlas. This project was led by the DoDMA and received support from the United States (US) National Aeronautical and Space Administration (NASA), US Agency for International Development (USAID), United Nations Development Programme (UNDP), Regional Centre for Mapping of Resources for Development (RCMRD), World Bank Group and other Government and non-Government agencies.²¹¹ The Atlas includes a geographic information system (GIS), web-based, hazard modelling tool that shows the vulnerability, exposure, adaptive capacity and sensitivity of Malawi to hazards, including drought, forest fires and riverine floods.

While the Atlas provides a valuable platform for assessing hazard vulnerability across Malawi, it is limited as a reference for building regulations.

This Assessment identified three main challenges related to hazard mapping:

- **Quality and comprehensiveness of hazard maps:** The existing hazard maps: (i) are often developed for particular districts and are not available for the whole country;²¹² (ii) do not follow a set methodology so are difficult to compare/overlay;²¹³ (iii) are not always at an appropriate scale to be a useful reference document in building and land-use regulations;²¹⁴ and (iv) are in the process of being transferred from analogue to digital format.²¹⁵

²¹⁰ For further details, see: [Project Description By RED.](#)

²¹¹ [http://tools.rcmrd.org/vulnerabilitytool/.](http://tools.rcmrd.org/vulnerabilitytool/)

²¹² For example, high-quality flood maps were developed for 2 out of 28 districts in Malawi. These flood maps were developed by the company Atkins and are available to download on the Malawi Spatial Data Portal (MASDAP): <http://www.masdap.mw/maps/213>.

²¹³ BRCA Interview, February 2018, Land Survey Department.

²¹⁴ BRCA analysis.

²¹⁵ UNDP Malawi, 2012, [Current hazard mapping capacity and effectiveness of scenario-based tools for long-term planning](#)

²⁰⁸ Section 7.2 Disaster Risk Management and Social Support.

²⁰⁹ UNDP, 2012, [Current hazard mapping capacity and effectiveness of scenario based tools for long term planning mechanisms.](#)

Further research is required to identify high-quality hazard maps to reference in the National Building Regulations (under development) and the National Physical Development Plan. The firm working with the Government to update the National Building Regulations is undertaking this process.²¹⁶ These hazard maps could be developed by national agencies or by national or international research institutes or private companies.

- **Geographic data-sharing and coordination:** Central coordination for the development and collection of geographical information is limited. The Malawi Geographical Information Council (MAGIC) and its executive arm, the National Spatial Data Centre (NSDC), were established in 2003²¹⁷ to coordinate the acquisition and sharing of spatial data. The Land Survey Act (2016) lays out the role of MAGIC. However, representatives from the Land Survey Department reported that MAGIC's role still needs to be institutionalised and its capacity increased.²¹⁸

As per the Land Survey Act, MAGIC should be responsible for overseeing the Malawi Spatial Data Portal (MASDAP),²¹⁹ established in 2012. This online platform is a web-based data-sharing tool. MASDAP is free of charge for users. It is based on open-source software that is designed to support inter-agency collaboration and to enhance public access on information, ranging from the environment, water resources, agriculture, climate to disaster risks. Amongst its core objectives, MASDAP is intended to provide a resource for community mapping activities and land-use planning. While MASDAP is a useful resource with the prospect of incremental improvement over time, it focuses essentially on flood hazards and has no data uploaded for seismic risks, volcanic risks, land-slides or wind-speeds.²²⁰

There are currently no national standards, set methodologies or guidance for Government Departments to develop maps (including hazard maps) in Malawi. This lack of standards limits the

extent to which maps can be integrated and overlaid in a GIS system.

- **Geodetic network:** A geodetic control is essential to register and integrate spatial information into geographic information systems (GIS).²²¹ Such GIS systems have application in wetlands delineation, mineral assessment, renewable resource management, public health, urban and regional planning, disaster response and recovery. The grid of Continuous Observing References Stations in Malawi is only 6 percent complete.²²² This low completion rate increases the complexity and length of time needed to undertake spatial mapping. While the Department of Survey (MoLHUD) recognises this as a priority, it currently does not have the resources to complete the network.²²³

These challenges will need to be addressed in order to build (i) the Government of Malawi's hazard mapping capacity and (ii) the Government's ability to develop and implement risk-informed building and land-use regulations.

Centralised Efforts to Train Regulatory Personnel, Building Contractors and Construction Workers

National initiatives and resources to train building regulatory personnel, fire engineers and inspectors, building contractors and construction workers are limited. In order to promote safe construction, there is a strong argument for the Government of Malawi to play a more prominent role in coordinating sustained training on safe construction and building regulation requirements. Large-scale efforts to expand and institutionalise training should be integral to Governmental policies, particularly to support sectors that are inherently dependent on technical capacities, such as the building industry.

Jamaica provides a relevant case study of how this objective can be achieved. Jamaica innovated and established a National Building Code Training Consortium to coordinate sustained training on the

[mechanisms.](#)

²¹⁶ BRCA Desk Research, February 2019, EcoBuild.

²¹⁷ Ibid.

²¹⁸ BRCA Interview, February 2018, Land Survey Department.

²¹⁹ Malawi Spatial Data Platform, 2019, [Webpage.](#)

²²⁰ BRCA Review of MASDAP, February 2018.

²²¹ Geodetic data are the product of geodetic control and are essential to the development of GIS. They should serve as one of the primary components of the National Spatial Data Infrastructure (NSDI).

²²² BRCA Interview, February 2018, Land Survey Department.

²²³ Ibid.

National Building Code of Jamaica (NBCJ). The NBJC aims to streamline training, ensuring all relevant target audiences are covered. It is led by the Bureau of Standards Jamaica (BSJ) and the Ministry of Local Government and Community Development (MLGCD). The Consortium includes training institutions and providers such as the local universities, community colleges and vocational training institutions. See Figure 11 for a diagram outlining the Consortium's structure.

FIGURE 11: International References for Fire Competency Frameworks

In the United Kingdom, The Chief Officers Association (CFOA) develops and updates a Competency Framework for Business Fire Safety Regulators every few years. The Framework promotes a common and consistent approach for all fire regulators, including standards and supporting educational materials for technical and non-technical skills: <http://www.cfoa.org.uk/22122>

In the United States, the National Fire Protection Agency (NFPA) has numerous certification schemes for fire prevention and protection professionals: <https://www.nfpa.org/Training-and-Events/By-type/Certifications>

From an overall building and fire regulatory competence perspective, the Certified Building Official qualification in the United States also includes building and fire regulation: <http://buildingofficial.com/commercial-building-official/>

Source: BRCA Analysis, 2018.

Building Regulatory Personnel

No centralised institution is mandated to provide training to local building authorities to administer building regulation.²²⁴ This is particularly significant given the relatively new Building Departments established as a result of the devolution process. The same applies for fire engineers and inspectors within Council fire brigades and/or building authorities.

²²⁴ BRCA Interview, February 2018, TEVETA.

The delivery of effective regulation depends on the competency of the professionals who carry out the plan reviews and inspections. Common regulatory competence standards, underpinned by a robust development process and comprehensive learning materials, are essential to the effective delivery of building regulation.

The role of the Building Department at the MoPW could be expanded to coordinate the training of building regulatory personnel in Local Councils in partnership with existing professional schools. It is an opportune moment to explore whether the Department has the capacity to take on this role given that they are reviewing the feasibility of establishing a new Building Regulation Division.

The training could focus on developing core skills pertaining to building regulation administration, design, plan review, inspection and ethics.²²⁵ A nationally coordinated training mechanism for building regulation personnel would need to support its long-term sustainability. The history of national programs or agencies relying only on national budget appropriation have proved vulnerable to political, economic and social priorities. There is strong argument for the fees for construction permits to contribute to a large-scale training solution for building regulators.

Fire Engineers and Inspectors

There is also currently no clear line of responsibility for the training of fire prevention designers, fire engineers and fire inspectors. The result is a shortage of trained fire personnel and a lack of regulatory and control capacity in the local Fire Brigades and Building Departments of major cities.

Universities, Polytechnic and colleges in Malawi have not yet introduced a fire engineering curriculum.²²⁶ Some private training initiatives (by private dealers of fire equipment) exist but do not meet the training

²²⁵ The International Code Council generally includes a module on ethics within its building code training curriculum. The training highlights the important role of building regulators as custodians of public health and safety and directly addresses issues surrounding corruption.

²²⁶ BRCA Interview, February 2018, Lilongwe City Council Fire Department, Malawi Institute of Architects (MIA) and Malawi Institute of Engineers (MIE).

needs.²²⁷ The University of Malawi Polytechnic initiated the development of a curriculum on fire prevention, but the initiative was never finalised or adopted.²²⁸

The planned Building Regulation Division of the Building Department (MoTPW) could take the lead in coordinating fire prevention training for Local Council fire brigades, in partnership with national and international institutions such as Malawi Polytechnic and the US National Fire Protection Association. The body responsible for coordinating training should also be responsible for the development of a fire competency framework.

As per international best practice, a fire competency framework should:

- 4) Ensure that all categories of relevant fire professionals, including regulatory personnel, have the skills, knowledge and understanding of fire prevention and protection standards, building fire safety regulations and other attributes necessary to be competent in the evaluation of fire prevention and protection measures for regulatory compliance.
- 5) Develop mechanisms (i.e. exams, tests, certifications and continuous professional development training) to ascertain the competence of relevant fire professionals.

The primary objective of a competency framework for fire prevention is to provide a supportive input to implement the fire provisions of building regulation requirements (see Figure 12).

Contractors and Construction Workers

There are more centralised training resources available for contractors and construction workers. The NCIC, for example, provides training courses for construction workers and contractors. Courses offered in 2018 included, amongst others: training in labour intensive techniques, environmental management and construction contracts. These courses generally target registered professionals.²²⁹

Although training is applicable to the full spectrum of professional trades, evaluating the vocational training options is particularly urgent. The building sector employs a substantial number of untrained workers; this can be detrimental to the safety of the workers and the buildings. The existing formal training system has been limited by a lack of funding and institutional outreach.²³⁰

The difficulty of consolidating a national vocational training structure has direct consequences on Malawi's workforce profile: most of the youth acquire skills through informal apprenticeships.²³¹ In Malawi, according to the International Labour Organisation (ILO), only about 10 percent of the population works in the formal sector.²³² Further, building contractors are not incentivised to formalise their workforce as the current status-quo keeps wages low and contractual responsibilities at a minimum.²³³

The TEVETA, established by an Act of Parliament in 1999,²³⁴ is tasked with the promotion, regulation and sustainable provision of technical, entrepreneurial and vocational education.²³⁵ Despite TEVETA's ambitious objectives, their scale remains relatively small; it runs 15 apprenticeship programs, four of which are directly related to building trades: bricklaying, carpentry and joinery, electric installations, and fabrication and welding. TEVETA reported that approximately 1,500 students enrol in their apprenticeship program every year.²³⁶ In addition to TEVETA, Malawi has other smaller-scale vocational training institutions, community colleges and programs for specific training skills carried out by international institutions and non-Governmental organizations. However, none focus on training for the construction sector.

The National Construction Industry Policy (2015) has acknowledged the need to improve vocational training as part of a corrective process of regulatory measures to address: poor working environment; low standards

²²⁷ BRCA Interview, February 2018, SGD (Simwango General Dealers), Webster Carlton Mwangobola (fire equipment company operating in Blantyre).

²²⁸ BRCA Interview, February 2018, Fire Department of Lilongwe.

²²⁹ NCIC, 2018, [Training](#).

²³⁰ BRCA Interview, February 2018, TEVETA.

²³¹ Aggarwal, Hofmann and Phiri, 2010, ILO, 2010, [A study on Informal Apprenticeship in Malawi](#).

²³² ILO, 2010, A study on informal apprenticeship in Malawi.

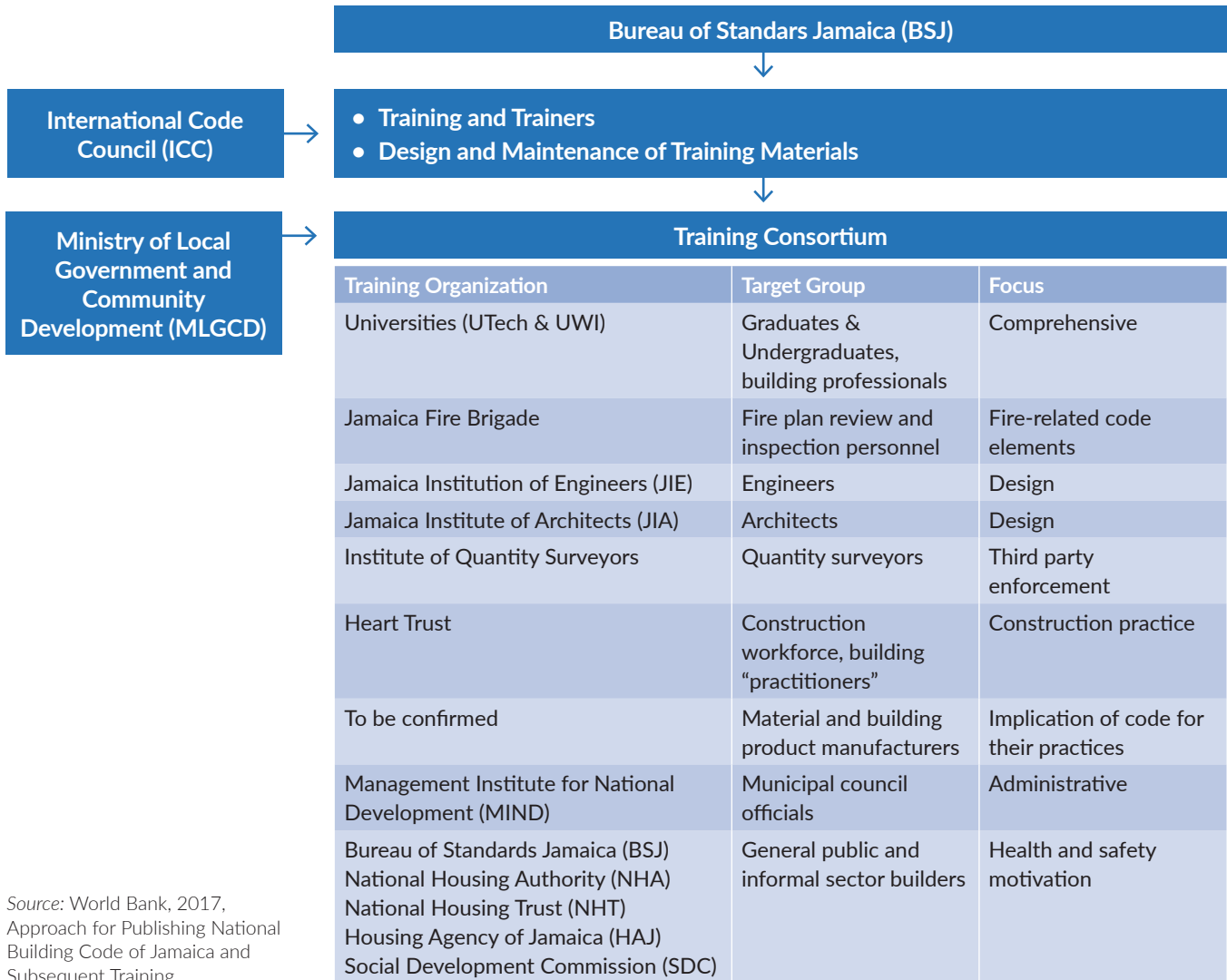
²³³ BRCA Interview, February 2018, TEVETA.

²³⁴ Government of Malawi, TEVET Act of Parliament (No. 6) TEVET Act of Parliament (No. 6) TEVET Act of Parliament (No. 6).

²³⁵ TEVETA, 2018, [About Us](#).

²³⁶ BRCA Interview, February 2018, TEVETA.

FIGURE 12: Jamaica National Building Code Training Consortium



Source: World Bank, 2017, Approach for Publishing National Building Code of Jamaica and Subsequent Training.

of safety and occupational hazards on construction sites; limited policies and regulatory frameworks; and, corruption and financial mismanagement in public and private sectors.²³⁷ This investment in vocational training for the construction industry also aligns with Malawi’s vision to increase the building stock and extend national infrastructure.²³⁸

In order to support this agenda, vocational training institutions need:

- 1) **Increased investment to scale-up training.** Vocational training organisations such as TEVETA

require financial and technical support from the Government of Malawi to extend their institutional outreach and increase their training offering to reflect the skills currently deployed in the formal and informal construction industry.

- 2) **Renewed public awareness campaigns.** Research indicates that there is limited public awareness about TEVETA’s programmes and objectives. In a recent study, only 33 percent of respondents were aware of TEVETA and 14 percent were aware of TEVETA’s construction and manufacturing programmes.²³⁹

²³⁷ Malawi Ministry of Transport and Public Works, 2015, National Construction Industry Policy.

²³⁸ Government of Malawi, 2000, [Vision 2020](#).

²³⁹ Manda, 2016, Public Awareness Perception of Tevet Activities in Malawi.

- 3) **Support to develop up-to-date and targeted training materials.** The training courses offered across the country need to be aligned with the needs of the industry. TEVETA representatives noted that the courses offered generally do not cover the new materials and techniques being used in the sector.²⁴⁰ Consequently, there is limited capacity within the construction sector to handle new materials on the market that require particular skillsets.²⁴¹ As a result, use of these materials is often improvised and leads to unsafe buildings. Furthermore, methods and materials integral to low-income populations are often not acknowledged or integrated into training courses. As noted earlier in the report, in Jamaica, informal builders have been recognised in the recently gazetted Building Act (2017) as building practitioners. Along with this legislation, a series of dedicated vocational training programs are being developed by the vocational training college HEART. TEVETA and the Government of Malawi could draw from Jamaica's experience.

TEVETA, together with senior Government authorities, could explore linking their Programs to a World Bank project in the education sector. For example, an ongoing World Bank Skills Development Project is working to increase access, market relevance and results orientation of skills-development institutions.²⁴²

- 4) **Make training courses more accessible to informal builders.** To ensure that training courses are accessible and attractive, market research needs to be conducted amongst informal builders to determine the price informal builders are willing to pay for training, how much time they can dedicate and the distance they are able to travel. The World Bank Building Regulations for Resilience (BRR) Program conducted a similar study in Jamaica in partnership with the NGO Build Change. The data collected will be used by the HEART college of Construction Services to tailor and market their courses.

²⁴⁰ BRCA Interview, February 2018, TEVETA.

²⁴¹ Ibid.

²⁴² For more information see: [World Bank Higher Education Skills Development Project](#).

3.3 Recommendations

1) Strengthen and pass the Buildings Control and Development Bill referencing the new National Building Regulations.

The Department of Buildings (MoTPW) recently initiated the drafting of a Building Control and Development Bill. As per international best practice, the process of developing Building legislation should include wide-spread consultation and dialogue with the building professional community, national and local public sector representatives, private sector representatives, NGO and academics, including disaster risk management experts.

Once developed, the Bill should be benchmarked against international best practice, including the examples of best practice referenced in this report. For example, the Bill should clearly define the roles and responsibilities of national and local institutions through one set of consistent legal provisions.

2) Develop a national-level framework for fire prevention, including the development and passage of fire prevention legislation.

This process could also be initiated with the development of a policy paper focused on fire prevention. The policy paper should be benchmarked against international best practice, including the comprehensive Fire Safety Management Policy (2011)²⁴³ developed by the Government of Kenya.

The development of fire prevention legislation should be the result of a comprehensive consultative process.

3) Support the establishment of the proposed Building Regulation Division of the MoTPW and build its institutional capacity. This includes:

- Providing guidance materials and technical assistance to Local Councils.
- Coordinating the training of building regulators and fire inspectors and engineers, including the development of a competency framework.

²⁴³ Government of Kenya, 2011, Fire Safety Management Policy.

- Leading the development and maintenance of the National Building Regulations, in partnership with the Department of Housing at MoLHUD.
- Leading the development of building legislation.
- Conducting research on building materials.

4) Strengthen Malawi's capacity to test construction products, materials and soil. Testing facilities should be available for both the public and private sector.

The MBS should conduct a review to determine their own technical and human capacity to conduct tests for contemporary construction materials and products (i.e. electrical wires) as well as the testing capacity of other public, private and academic institutions.

The review should compare relevant institution's testing capacity against the current and potential market demand. Gaps in testing facilities and human capacity should be identified and prioritised according to the risk associated with the material/product and market demand.

A phased plan should be developed to increase the MBS' as well as other private and public institutions' construction testing capacity, and the availability of national and international funding mechanisms should be explored. Strengthening the testing capacity of public universities should be explored as this testing equipment is also needed to conduct academic research. Technical assistance may be necessary to support the MBS in this review.

5) Assist the Department of Physical Planning in developing guidance materials for Local Councils to help them develop risk-sensitive land-use and physical development plans.

Given that there is no explicit mention of hazard maps in the Physical Planning Act, the guidance materials should clearly note hazard maps as a necessary input and provide relevant guidance and parameters. The guidance materials should be widely disseminated and available online.

In order to be effective, these guidelines should also be accompanied by technical assistance. The MoLHUD should consider adopting the approach of the Ministry of Lands and Physical Planning in Kenya,

whereby the Ministry is incrementally rolling out technical assistance to support local Governments in the development of their spatial plans.

6) Strengthen the coordination between different Government agencies and departments for developing and sharing hazard maps. This includes the development of data-sharing standards and methodologies for hazard mapping.

Responsibility should be assigned to different Government agencies and departments for developing hazard maps. Responsibility should also be assigned for the collation and sharing of hazard maps to support inter-institutional coordination and collaboration.

To support the coordination and sharing of data, standards and a set methodology for geographical mapping (including hazard mapping) need to be developed so that maps can be integrated and compared. These standards can be benchmarked against international best practice, for example, the geographical mapping standards developed in Colombia and for the European Union.

7) Support the Support the Department of Survey in the completion of Malawi's Geodetic Network.

The Department of Survey (MoLHUD) has identified the completion of the geodetic network as a priority; however, to date, the Department has not had sufficient funding to support this. The completion of a Geodetic network is an important step to increase national mapping capacity, including hazard mapping.

8) Provide technical and financial assistance to the Technical, Entrepreneurial and Vocational Education and Training Authority (TEVETA) to develop a market-oriented training curriculum for construction workers which incorporates code requirements.

This technical and financial assistance should start by supporting TEVETA to develop up-to-date and targeted training materials, to conduct market research amongst informal/artisanal builders and to launch a renewed public awareness campaign.



4. Building Regulation Development and Maintenance

Building regulations are critical to creating a safe, sustainable and resilient built environment. They provide a single point of reference that establishes common and transparent building standards for public health, safety and fire protection. In addition, well-designed building regulations can be used to meet other societal objectives, such as accessibility for persons with disabilities, climate change adaptation, cultural heritage preservation and energy efficiency.

This chapter provides a review of the existing building bylaws in Lilongwe, Blantyre and Mzuzu and also provides a review of the draft National Building Regulations (1997) which will be used as the base for the new National Building Regulations. The chapter also highlights best practices for the development and maintenance of National Building Regulations and provides recommendations.

4.1. Status of Malawi's Building Regulations

Malawi does not currently have national uniform building regulations in place. Instead, the largest cities of Lilongwe, Blantyre and Mzuzu have their own independent city-level building bylaws.²⁴⁴ Some of these building bylaws were developed over half a century ago and need to be updated with advances in building technology.²⁴⁵

²⁴⁴ BRCA, 2018, Desk Research.

²⁴⁵ BRCA, 2018, Analysis.

In recognition of these challenges, the Government of Malawi is taking the significant step of introducing new National Building Regulations. This effort was initiated in 2018 and is being led and overseen by the Department of Buildings (MoTPW), in coordination with the Department of Housing (MoLHUD) and Department of Disaster Management Affairs (OPC).²⁴⁶ The National Building Regulations are being developed with the following objectives:²⁴⁷

- Incorporating disaster and climate-resilient design in new and existing buildings.
- Bringing consistency across Local Councils in dealing with risks in the built environment.
- Incorporating modern objectives consistent with other development goals set out in the Malawi Growth and Development Strategy III and other prominent policy areas such as physical planning.
- Developing the basis for cross-sectoral training and professional development by leveraging the future building regulations as an educational tool.

The National Building Regulations are being developed as part of the World Bank-funded Malawi Floods Emergency Recovery Project (MERP). At the time of finalising this Assessment, the international firm EcoBuild Africa²⁴⁸ had been hired to undertake this

²⁴⁶ Ibid.

²⁴⁷ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MLHUD).

²⁴⁸ BRCA 2018, Desk Research.

project.²⁴⁹ The firm will use draft National Building Regulations, developed in 1997, as the basis. This 1997 draft was developed by an international firm,²⁵⁰ under the leadership of the MoTPW and the MoLHUD.²⁵¹ The new National Building Regulations are due to be completed by June 2019.²⁵² A public and private sector task team has been established to provide inputs and feedback.²⁵³

As will be discussed later in the chapter, clarity is needed on how the National Building Regulations will interact with the pre-existing bylaws in Lilongwe, Blantyre and Mzuzu.

4.2. Review of Current Building Bylaws

Lilongwe Bylaws

The Lilongwe Building Bylaws were developed in 1961 and were based on the then British Building Regulations.²⁵⁴ The building bylaws are relatively comprehensive and include details in permitting procedures as well as design provisions and standards. Good practices in the bylaws include:

- Incorporating mandatory fire-resistance durations for different materials and structural elements, considering the thickness requirements for reinforced concrete, masonry walls and steel elements.
- Defining live loads²⁵⁵ by considering the future use of the building under study. Defining live loads is fundamental for design under gravity loads, in order

²⁴⁹ BRCA Interview, November 2018, World Bank Task Team Leader of the Malawi Floods Emergency Recovery Project.

²⁵⁰ Mutiso Menezes International (Architectural and Planning Consultants) and Rofe Kennard and Lapworth (EA) LTD (Consulting Civil and Structural Engineers).

²⁵¹ BRCA Interview, February 2018, Representatives of the Building Department (MoTPW) and the Housing Department (MLHUD).

²⁵² BRCA Interview, November 2018, World Bank Task Team Leader of the Malawi Floods Emergency Recovery Project.

²⁵³ Other than the organisations already mentioned, this Task Team comprises core participants such as the National Construction Industry Council of Malawi (NCIC), Malawi Institute of Architects (MIA), Malawi Institution of Engineers (MIE), academia (Polytechnic) and MFERP PIU.

²⁵⁴ JICA, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi – Final Report](#).

²⁵⁵ Live Load: load that is not permanently applied to a structure but is likely to occur during the service life of the structure (excluding environmental loads).

to avoid undervaluation and diminish the risk of collapse.

Annex 3 provides a more comprehensive list of good practices in the Lilongwe Building Bylaws (1961). However, the bylaws are now over half century old and generally do not reflect an up-to-date understanding of building science and are not adapted to the local context. The bylaws do not have provisions for disaster risk management (e.g. the inclusion of seismic load standards), energy efficiency or persons with disabilities and some of the British Standards underlying the code have now been withdrawn or replaced.²⁵⁶ Furthermore, the Lilongwe Bylaws are not available online or as an electronic file and as such are not easily accessible to building professionals. Annex 4 provides a detailed review of the Lilongwe Building Bylaws and associated recommendations.

Blantyre Bylaws

In Blantyre, the City Council recently took the initiative of developing new building bylaws. These bylaws were finalised in 2018.²⁵⁷ They are extensive and include good practices such as:

- Incorporating a classification of public building occupancy to establish fire protection parameters and means of egress during emergencies.
- Provisions for persons with disabilities facilitating egress and access to sanitation facilities in public buildings.
- Measures that aim to promote a more efficient use of fresh water in construction.

A detailed matrix of good practices is provided in Annex 5.

However, the bylaws could more explicitly reference the MS Standard 820:2010 (Code of Practice for Design Loadings for Buildings) on building structural requirements, reference broader planning requirements and improve on issues such as fire protection and access for person with disabilities. The permitting process could further distinguish low-risk from high-risk buildings. More detailed analysis of the bylaws and recommendations is provided in Annex 6.

²⁵⁶ BRCA analysis, February 2018.

²⁵⁷ BRCA desk research, November 2018/

Mzuzu Bylaws

In Mzuzu, a set of new building bylaws were finalised in 2017.²⁵⁸ It is a shorter document with fewer provisions than the bylaws of Lilongwe and Blantyre. The bylaws appropriately cover definitions, grounds for disapproval of the Local Council, construction materials, minimum architectural requirements, occupancy permits, penalties for legal infringements and permitting fees. International best practice suggests that the bylaws could be improved with an initial focus on:

- Laying out more explicitly the details and actual rules of the permitting process in order to avoid confusion and excessive discretion.
- Mandating the sign-off of building plans by registered architects or engineers.
- Explicitly referencing the Malawian building structural standard (MS Standards 820:2010);
- Referencing other important resources such as the Safer Housing Guidelines.
- Providing details on how to implement major concepts such as accessibility for persons with disability.

More detailed analysis of the bylaws and recommendations is provided in Annex 7.

4.3. Review of the National Building Regulations

The draft National Building Regulations (1997) represent a significant improvement to the Lilongwe Building Bylaws (1961). The draft was developed by a Nairobi architectural firm and a United Kingdom civil and structural engineering firm.²⁵⁹ Positive features include:

- Fire provisions for building design, external walls and materials as well as additional provisions for the inclusion of sprinklers and water supply systems.

- Requirements for geotechnical inspections; soil conditions are critical for load bearing capacity.
- Clear provisions for the change of use of buildings, with potentially important impacts on safety (i.e. additional fire safety requirements).
- “Deemed to comply” provisions, allowing for the recognition of local materials and methods of construction which is critical to lowering regulatory compliance costs and addressing the growth of informal construction.
- Explicit references to testing of materials and products with appropriate focus on fire and structural requirements.

A comprehensive and detailed list of good practices in the National Building Regulations (1997) is provided in Annex 8.

Main Challenges Identified

In order for the draft National Building Regulations (1997) to provide up-to-date construction standards across Malawi, several challenges need to be addressed. The first challenge relates to the relationship between the existing city bylaws (Lilongwe, Blantyre and Mzuzu) and new National Building Regulations. The other challenges noted in this chapter relate to technical adjustments necessary to the 1997 draft to ensure that the building regulations are consistent with international best practice and with Malawi’s broader development agenda.²⁶⁰ A detailed analysis of the National Building Regulations (1997) is included in Annex 9, identifying the main gaps and providing technical recommendations.

Relationship between City Bylaws and the National Building Regulations

The relationship between the existing city bylaws and the National Building Regulations needs to be determined. In their current form, the National Building Regulations and city bylaws in Lilongwe and Blantyre all include technical provisions for design and

²⁵⁸ Ibid.

²⁵⁹ Mutiso Menezes International (Architectural and Planning Consultants) and Rofe Kennard and Lapworth (EA) LTD (Consulting Civil and Structural Engineers).

²⁶⁰ For example, the objectives and targets of Malawi’s Growth and Development Strategy III (2017-2020), Africa Regional Strategy for Disaster Risk Reduction (2004), the Sendai Framework for Disaster Risk Reduction (2015) and Malawi’s Disaster Risk Management Policy (2015).

construction. It is important not to overlap provisions in the city bylaws and the national regulations.

The firm hired to develop the new National Building Regulations - Ecobuild - will review the existing city bylaws as part of their work programme. The relationship between the different sets of regulatory documents remains to be defined.²⁶¹

The National Regulations Task Team and EcoBuild can draw from different models of linking national and sub-national regulations. Several countries have implemented “*model building regulations*” or “*model building codes*” that are developed at the national level as comprehensive regulatory documents. They can be subsequently adopted by legislation, with or without modification, and promulgated by local Government jurisdictions. This approach is often followed by federal Governments or by countries, like Malawi, engaged in a process of decentralisation.

India and Canada have the same system of a national model code adopted by local jurisdictions. In parallel to the model code, some local jurisdictions also have building bylaws. These bylaws include mostly procedural provisions, for example, procedures for permitting, inspections and change-of-use.²⁶² These bylaws are complementary to the model code, which outlines technical provisions for design and construction. There is limited overlap in content.²⁶³

Risk-Informed Building Regulations

There is increasing recognition internationally and within Malawi²⁶⁴ that a modern building regulation system will play an essential role in reducing underlying risks in the built environment.

Natural Hazards

The draft National Building Regulations (1997) do not reference hazard zones and associated structural

requirements. Given the hazard profile of Malawi, seismic maps and wind maps should be referenced in the building regulations. Based on these maps, geographic zones should be differentiated in terms of expected hazard-event frequency and intensity. The differentiation of hazard zones is essential for enabling the safe siting of buildings and balancing design requirements for anticipated loads. The Building Regulation task team and the firm hired to develop the building regulations (EcoBuild) are currently working to identify which seismic hazard map will be integrated into the new building regulations.

For example, in Colombia, the Colombian seismic hazard map is referenced in the National Building Code (NSR-98). Four levels of seismic intensity have been included. The design requirements included in the building code are prescribed based on the seismic zone and nature of the occupancy (see Box 2 for further details).

As per international best practice and the disaster profile of Malawi, the National Building Regulations should include provisions for seismic loads. Seismic provisions should also be included for non-structural components and retrofitting for different types of buildings, such as reinforced concrete and light-frame wood buildings. The retrofit guidelines in the International Code Council 2018 International Existing Building Code provide a comprehensive example.¹⁴⁹

Recognising the importance of a risk-informed building regulations, the MBS, Malawi Institute of Architects (MIA) and Malawi Polytechnic worked together to develop the “Code of Practice for Design Loadings for Buildings.”²⁶⁵ The document is based on the South African National Standard (SANS 10160: 1989) and integrates earthquake loads and wind loads. This document was published in 2010, after the draft National Building Regulations (1997) were developed.²⁶⁶ The standard references a wind map, an earthquake map and a peak ground acceleration map. However, zones of varying seismic intensity have not been identified. (See the case study for Colombia in Box 2.) Annex 10 outlines a list of good practices in the “Code of Practice for Design Loadings for Buildings”

²⁶¹ BRCA Analysis, 2018.

²⁶² See the building bylaws of the city of London, Ontario, as an example: <https://www.london.ca/city-hall/bylaws/Documents/buildingB6.pdf>.

²⁶³ BRCA Analysis, 2018.

²⁶⁴ Malawi is clearly linking the development of National Building Regulations to a disaster risk management agenda. The renewed effort to develop these regulations is being funded as part of a disaster risk management project (World Bank-funded Malawi Emergency Flood Recovery Project).

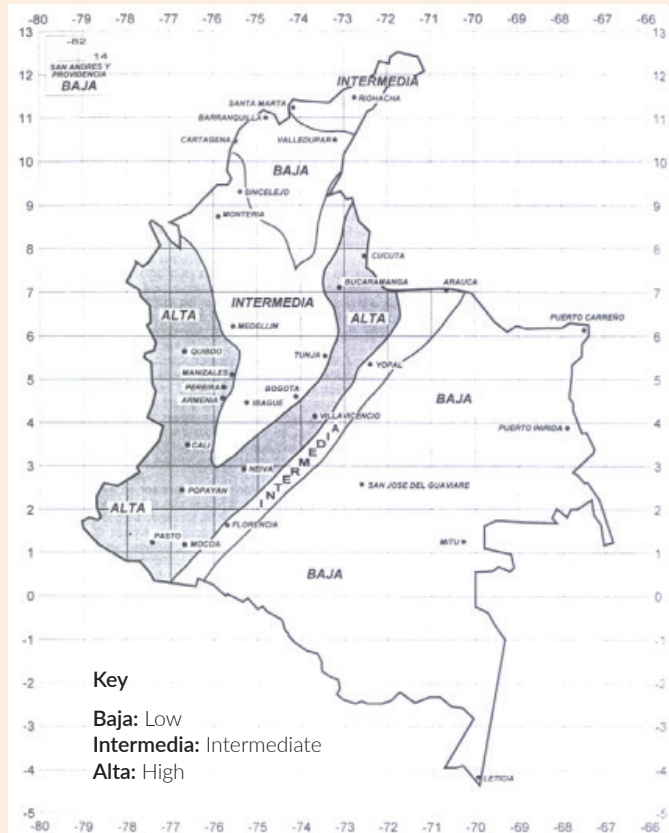
²⁶⁵ BRCA Desk Research, November 2018.

²⁶⁶ Ibid.

BOX 2: Building Code and Seismic Hazard Maps in Colombia

The Colombian seismic hazard map referred to in the National Building Code (NSR-98), in effect until 2009, was developed in 1996 and updated in 2010. Since then, the National Seismological Network of Colombia has improved in both coverage and technology providing, fifteen years of additional seismic records. The seismic hazard maps correspond to those developed by the seismic hazard committee of the Colombian Association for Earthquake Engineering (AIS) and are considered official and for mandatory use in the earthquake resistant codes for buildings and bridges.

The country is divided in three seismic zones along a northeast to southwest region parallel to the Bucaramanga Fault Zone into Ecuador. The zones are designated as High Seismic Hazard, Intermediate Seismic Hazard and Low Seismic Hazard. The map presented below is taken from the NSR-98. It shows the geographic distribution of the seismic zones. In the building code, specific design load requirements are prescribed based on the seismic zone and the nature of the occupancy.



Four levels of seismic intensity are considered. Standard Occupancy is assigned a seismic intensity level on 1.0. Special Occupancy is assigned a 10 percent increase on the intensity. Emergency and Relief Services Facilities Occupancy a 20 percent increase. Essential Facilities Occupancy are assigned a 30 percent increase on the seismic intensity.

Source: Guillermo Santana, 2013, Seismic Code Evaluation Colombia; NASA – Smithsonian Astrophysical Observatory.

and Annex 11 provides more detailed analysis and a list of recommendations.

Malawi is also exposed to floods and landslides. These hazards have very localised effects, as such a national hazard map would not provide sufficient detail to ensure the safe siting of buildings. Therefore, the National Building Regulations should not reference national maps for these hazards. The Building Regulations should reference the need for the regulator and developer to consult local hazard maps. As will be discussed in the next chapter, local development plans and land-use regulations should include and reference local hazard maps.

Chronic Hazards

Building regulations should be designed to reduce chronic risks such as fire and spontaneous collapse. Consideration should also be given to the promotion of a healthy built environment, including provisions to discourage the spread of disease.

In terms of fire risk, the current draft National Building Regulations (1997) include generally comprehensive fire prevention and safety provisions for building design, external walls, materials, and sprinklers and water-supply systems. However, the review of the National Building Regulations undertaken as part of this

BOX 3: Example of a Prevalent Form of Construction in Malawi



Unburnt brick wall buildings with pitched rooves are common in urban and rural areas throughout Malawi. They are gaining popularity, representing approximately 45 percent of the country's housing stock.

The thatched roof is supported by unburnt mud brick walls built in mud mortar. The walls are built on a stone platform raised above ground as a protection against floods. There is no horizontal or vertical reinforcement. As a result, the strength of the building is low and considered to be very vulnerable to earthquake effects. In the 1989 Salima Earthquake (magnitude 6), nine people died and over 50,000 people were left homeless. Many unburnt brick wall buildings suffered extensive damage or collapsed.

Source: Earthquake Engineering Research Institute (EERI) and International Association for Earthquake Engineering (IAEE), 2002, World Housing Encyclopaedia.

Assessment identified areas for improvement, including, for example, regulations regarding the placement of sprinklers. Further, more comprehensive provisions need to be included for electrical design. Given the prevalence of fires in many informal settlements across Sub-Saharan Africa,²⁶⁷ it is important that the National Building Regulations reflect international best practice and an up-to-date understanding of building science and fire safety.

In terms of health risk, the current draft National Building Regulations 1997 include provisions that allow the use of corrugated sheets and asbestos cement. As these materials age or become damaged, they release small fibres which have been linked to lung diseases, including cancer.

Reference to Non-Engineered Low-Income Housing

The draft National Building Regulations (1997) do not recognise or provide guidance for the types of

construction that low-income groups can afford. Generally, the design and construction of these buildings does not involve professional architects and engineers. The buildings often make use of local materials and skills and are improved and extended incrementally as funding, time and materials become available.

In Malawi, there is a high prevalence of informal settlements. In Lilongwe, for example, approximately 76 percent of urban dwellers are estimated to live in sub-standard housing and/or informal settlements.²⁶⁸ Estimates indicate that 45 percent of the country's building stock constitutes unburnt brick walls with a pitched roof (see Box 3).²⁶⁹

The Government needs to decide whether to include provisions and/or guidelines for these types of buildings in the building regulations. Significant trade-offs need

²⁶⁷ UNDP, 2013, From Everyday Hazards to Disasters: The Accumulation of Risk in Urban Areas.

²⁶⁸ UN HABITAT, 2011, Malawi : Lilongwe Urban Profile.

²⁶⁹ Earthquake Engineering Research Institute (EERI) and International Association for Earthquake Engineering (IAEE), 2002, [Word Housing Encyclopedia](#).

to be considered in terms of risk, life-safety, feasibility and affordability. As highlighted in Box 3, buildings constructed with earth bricks, sun dried adobe bricks, stabilised soil blocks and concrete and mud plaster generally perform very poorly during earthquakes and other disaster events and can pose a significant risk to life-safety. However, at the same time, these building types make up a significant proportion of the country's building stock and safe-construction guidelines, if implemented, can help to increase their resilience and safety.

To make this decision the Government needs to decide what constitutes an “acceptable level of risk” and a minimum performance objective for building structures across the country. As per international best practice, this dialogue should include consultation with a wide range of stakeholders. Figure 13 provides an example of a four-tiered categorisation of building performance objectives and how they relate to resilience.

Globally, Governments have taken different approaches to non-engineered and vernacular housing in building regulations and have come to different conclusions as to what is an “acceptable level of risk.” For example, in Colombia, the Government decided not to integrate

guidelines for non-engineered, vernacular buildings into their National Building Regulations; they concluded that the performance level of these buildings is too low and the risk of structural failure too high. Whereas, in Nepal, the 1992 Building Code recognises the full spectrum of current forms of construction through a four-tier building permitting system, including: (i) international “state-of-the-art” construction, (ii) professionally-engineered structures, (iii) small buildings designed to meet “rules-of-thumb” and (iv) non-engineered construction employing traditional materials and skills. On this basis, Nepal developed a hierarchy of building controls consistent with the existing capacity on the ground, in terms of both construction practice and regulatory application of compliance checks (see Box 4).

If Malawi does decide to include provisions and/or guidelines for non-engineered, vernacular buildings within the National Building Regulations, the Safer Housing Construction Guidelines could be a useful reference. These guidelines should be reviewed to see whether they are appropriate to reference in the National Building Regulations and whether the guidelines enable the minimum performance level set by the Government to be achieved (see Box 5).

FIGURE 13: Building Performance Objectives

Performance Objective	Description	Level of Resilience
PO1 Continuous occupancy	<ul style="list-style-type: none"> No structural damage. The building is safe to be used during and after the natural disaster. Damage to contents is minimal and services will continue to function without alteration. 	High
PO2 Immediate occupancy/ operational continuity	<ul style="list-style-type: none"> Minor damage to structure that is repairable at a reasonable cost and in a reasonable amount of time. Specified assets are protected. Nonstructural components and systems needed for the building to operate are fully functional (with utilities possibly available from standby sources). Some cleanup and repair may be required. 	Moderate
PO3 Life safety	<ul style="list-style-type: none"> Damage to both structural and nonstructural components, but risk of loss of life is low. Building systems and utilities are damaged and inoperable. 	Safe
PO4 Collapse prevention	<ul style="list-style-type: none"> Building is near collapse and significant hazard to life may exist. Building and emergency systems are extensively damaged and operable. Building beyond technical repair. 	Unsafe

Source: World Bank, GFDRR and Arup, 2017. Roadmap for Safer Schools: Guidance Note.

BOX 4: Nepal Society for Earthquake Technology and the Nepal Building Code

The Nepal Society for Earthquake Technology (NSET) has carried out a multifaceted program of earthquake risk reduction over the past 20 years. The NSET initiatives have included building code development, mason training, school retrofit and regulatory capacity building.

The 1992 Nepal Building Code (NBC) recognised the full spectrum of current forms of construction through a four-tiered building permitting system. On this basis, it developed a hierarchy of building controls consistent with the existing capacity on the ground, in terms of both construction practice and regulatory application of compliance checks.

International “state-of-the-art” construction: Examples of such construction include high-rise hotels and office buildings. If consultants ensure that their designs meet the recognised international standards, the designs are considered to be in conformance with the NBC.

Professionally-engineered structures: These include structures such as hospitals, commercial buildings, factories, warehouses and multi-storey buildings. For such buildings, design requirements are provided in the NBC.

Small buildings designed to meet “rules-of-thumb”: This category is defined as buildings constructed with modern materials, such as concrete and steel, but not exceeding simple criteria of height, configuration and number of stories or floor area. Mandatory “rules of thumb” are provided. The requirements are typically confined to the maximum span, minimum reinforcing and member sizes, positioning of earthquake-resisting elements and other such rules. The guidance materials are provided in a form that an experienced construction manager or mason can understand them and present sufficient detail to pass the permit review of the building department.

Non-engineered construction employing traditional materials and skills: These guidelines are based on the analysis of some 50 typical prevailing building types in Nepal constructed by employing vernacular materials and skills. Two sets of guidelines have been developed: one dealing with low-strength masonry and another dealing with earthen structures. The guidelines provide simple rules for improving seismic safety of these structures. Although these recommendations are described as guidelines, they are intended to be mandatory if they are built in areas controlled by a building permit-issuing local authority.

Source: Parajuli Amod Dixit, 2000, Nepal Building Code – Need, Development Philosophy and Means of Implementation; and UNCRD, 2008, Implementation, Learning from Experience of Lalitpur Sub-Metropolitan City, Nepal.

BOX 5: Malawi Safer Housing Construction Guidelines

The Government of Malawi, through its Department of Housing (MoLHUD), produced Safer Housing Construction Guidelines in 2012, which were revised in 2014 with financial support from the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR). The Guidelines provide an illustrated set of instructions on how to build a small (two-room) house resilient to all major hazards impacting Malawi, including earthquakes, floods, windstorms, hail storms, landslides, fires and soil erosion. Chapter 4 includes a detailed set of specifications for the production of essential local building materials, such as earth bricks, sun-dried adobe bricks, stabilised soil blocks, and concrete and mud plaster.²⁷⁰

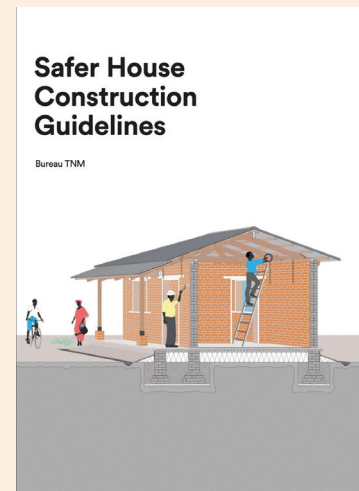
The Guidelines cover three standardised houses based on three income levels and are more appropriate for rural low-income groups. The Guidelines recognise the process of incremental construction and promote non-engineered forms of housing construction consistent with local building practices.

There is evidence that the Department of Housing has actively promoted the Guidelines across different cities in Malawi and urged Local Councils to adopt them as a form of subsidiary regulations or requirements attached to their respective bylaws. The Guidelines have been translated into local languages by the Department of Housing. The Department initiated training of Local Council staff initially in the 15 districts impacted by the 2015 floods.²⁷¹

Source: BRCA Analysis, 2018.

²⁷⁰ World Bank, 2018, BRCA Review of Housing Guidelines.

²⁷¹ BRCA Interviews, February 2018.



Accessibility for Persons with Disabilities

In the draft National Building Regulations, accessibility and usability requirements for persons with disabilities need to be further detailed. For example, the National Building Regulations should include comprehensive provisions for ramps, lifts, handrails and wheel chair spaces. World Health Organization (WHO) data indicate that persons with disabilities represent around 14 percent of the Malawi's total population.²⁷² (See Box 6 for the WHO's definition of persons with disabilities.)

These provisions would be aligned with the mandate of the Disability Act (2012)²⁷³ and UN Convention on the Rights of Persons with Disabilities, signed by the Government of Malawi in 2007.²⁷⁴ The Act

²⁷² WHO, 2011, [World Disability Report](#).

²⁷³ Malawi Government, 2012, [Disability Act](#).

²⁷⁴ At an international level, Malawi signed and ratified the UN Convention on the Rights of Persons with Disabilities in 2007. The signing and ratification of this Convention means that Malawi

mandates that all architectural drawings for public and institutional buildings comply with the standards of universal design.²⁷⁵

Prior to the adoption of the Disability Act (2012), the Ministry of Education issued a directive to all its institutions stating that all new structures constructed should be disability-friendly and allow for quick and efficient means of egress in case of fire. The Education Infrastructure Management Unit has guidelines on how to construct disability-friendly structures. There is evidence of some success achieved in implementing these guidelines. For example, 20 newly constructed secondary schools in Blantyre, Kasakula, Ntchisi, Chinsapo and Lilongwe were built in compliance with universal standards. This construction program received World Bank support.²⁷⁶

has obligations to report to the UN on how it is making progress to enhance the rights of persons with disabilities.

²⁷⁵ Disability Act, 2012, Part IV, Article 8 (e).

²⁷⁶ 2016, [Malawi Education Sector Improvement Project Project Appraisal Document](#).

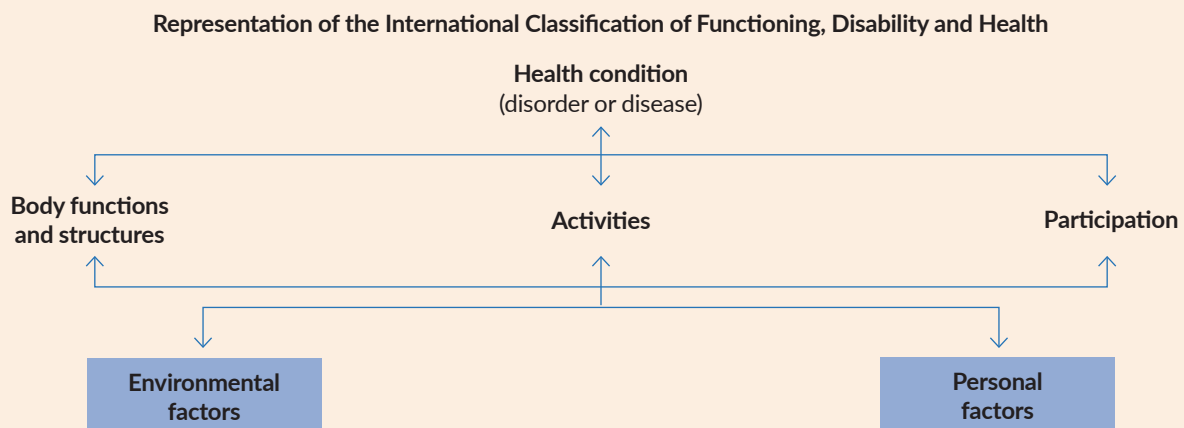
BOX 6: World Health Organisation's Definition of Disability

According to the World Health Organisation (WHO), disability is the umbrella term for impairments, activity limitations and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).

Environmental factors are central in creating disability; problems with human functioning are categorised in three interconnected areas:

- Impairments are problems in body function or alterations in body structure, for example, paralysis or blindness;
- Activity limitations are difficulties in executing activities, for example, walking or eating; and
- Participation restrictions are problems with involvement in any area of life, for example, facing discrimination in employment or transportation.

Disability, therefore, refers to difficulties encountered in any or all three areas of functioning and arises from the interaction of health conditions with contextual factors, environmental and personal factors as shown in the figure below:



Source: World Health Organisation, 2011, World Report on Disability.

While the policy and legal framework for persons with disabilities is consistent with good practice, progress in implementing appropriate access to public and institutional buildings has not yet been operationalised through the building regulatory process.²⁷⁷ The development and implementation of new National Building Regulations is an opportunity to do this.

Green Buildings

Carbon contributions from the built environment are a recognised concern. Buildings and construction account for more than 35 percent of global final-

energy use, nearly 40 percent of energy-related CO₂ emissions and almost half of all energy generated globally is used to cool, light and ventilate buildings.²⁷⁸ The Intergovernmental Panel on Climate Change (IPCC) estimates that building-related GHG emissions will double by 2030 under a high-growth development scenario.²⁷⁹ Improving the energy efficiency of buildings can help to reduce these emissions and can also provide significant cost-savings for the occupants.

As per international best practice, building regulations can provide energy-efficiency requirements for new

²⁷⁷ BRCA Review of Lilongwe Building Bylaws 1961 and the Building Regulations 1997.

²⁷⁸ International Energy Agency, 2017, [Global Status Report](#).

²⁷⁹ Intergovernmental Panel on Climate Change, 2014, [Climate Change 2014: Mitigation of Climate Change: Buildings](#).

and existing buildings. Improvement of building's efficiency at planning stage can be relatively simple, while improvement after their initial construction can be more difficult. Decisions made during a building's project phase will largely determine energy consumption over much, if not all, of a building's lifetime.²⁸⁰

The International Code Council's (ICC) Energy Conservation Code provides a comprehensive example of energy-efficiency regulations.²⁸¹ Energy-efficiency requirements included in building regulations are usually set in a specific chapter. The energy-efficiency requirements themselves are often brief, while the underlying standards are typically longer and more comprehensive.²⁸²

Furthermore, additional green-building provisions can be included within building regulations, for example, provisions for rainwater harvesting and run-off retention and control.

4.4. Process for Updating Malawi's Building Regulations

The development of new building regulations should be an inclusive and consensus-based process. This includes the participation of the public sector, private sector, building professionals, builders, building owners and building occupants, as well as those with expertise on health, safety and disaster risk.

In line with this, those leading the development of the National Building Regulations in Malawi – Department of Buildings, Department of Housing and Department of Disaster Management Affairs – have established a task team to provide inputs and feedback on the draft. The task team comprises representatives from the National Construction Industry Council, Malawi Institute of Architects, Malawi Institution of Engineers and Malawi Polytechnic. In line with international best practice, this task team could be extended to include additional public-sector representatives from

²⁸⁰ International Energy Agency, 2008, [Energy Efficiency Requirements in In Building Codes, Energy Efficiency Policies for New Buildings.](#)

²⁸¹ International Code Council, 2018, International Energy Conservation Code.

²⁸² International Energy Agency, 2008, [Energy Efficiency Requirements in In Building Codes, Energy Efficiency Policies for New Buildings.](#)

the Occupational Safety and Health Directorate (Ministry of Labour); Ministry of Natural Resources, Energy and Environment; Local Council Building and Planning Departments; Local Council Fire Brigades; and additional experts with experience in health, safety and disaster risk in the built environment.

In terms of building regulation maintenance, effective building regulations typically benefit from three- to five-year updating cycles. Frequently updated codes tend to incorporate newer design and technology options as well as lessons learned from more recent chronic or severe disaster events. This updating process requires a sustainable broad and participatory consultative process. This process should be detailed in legislation.

4.5. Recommendations

1) Address the technical gaps in the draft National Building Regulations and ensure alignment with international best practice, including:

- Referencing hazard maps with determination of building structural requirements.
- Integrating provisions for access and usability for persons with disabilities.
- Integrating provisions for green and energy-efficient buildings.

1) Determine the relationship between the city bylaws and the National Building Regulations.

The Department of Buildings, Department of Housing and Department of Disaster Management Affairs should lead a consultative process to determine how these sets of national and sub-national regulations will interact. It is critical to avoid overlapping and potentially contradictory provisions.

2) Initiate dialogue between the Building Regulation task team and a wide range of stakeholders to decide whether and how provisions and/or guidelines for non-engineered vernacular construction should be integrated or referenced in the new National Building Regulations.

The dialogue should be focused on the trade-offs between risk, life-safety, feasibility and

affordability. Consensus needs to be reached on what is an “acceptable level of risk” and minimum performance objective. As per international best practice, this dialogue should include consultation with a wide range of stakeholders.

3) Finalise, promulgate and disseminate the National Building Regulations.

The National Building Regulations should be legally mandated. This necessitates referencing the Regulations in national legislation (see

recommendations in Chapter 3). The finalised regulations should be published online to ensure that both building regulators and professionals have easy access to the documents.

4) Establish a systemic and inclusive technical process for the National Building Regulation’s future update, publication and distribution.

The process should be outlined in the Building Regulations themselves and in any future national building legislation.

5. Local Government Capacity for Implementing Building Regulations

Comprehensive legal foundations and building regulations by themselves cannot reduce disaster risk or protect public health and safety. Achieving this depends on local implementation of, and compliance with, building and land-use regulations. This chapter assesses the effectiveness and efficiency of local regulatory implementation with a focus on:

- Capacity of Local Councils.
- Processes for plan reviews, inspections and permitting.
- Funding mechanisms for regulatory services.

Malawi’s local Government system consists of twenty-eight District Councils, four City Councils, two Municipal Councils and one Town Council (see Figure 14).²⁸³ This Assessment focuses on Lilongwe City Council. Councils across Malawi may have different capacity, organisational frameworks and building regulatory processes in place. However, the preliminary analysis of this Assessment points to similar challenges in other City Councils.

FIGURE 14: Local Government Jurisdictions in Malawi



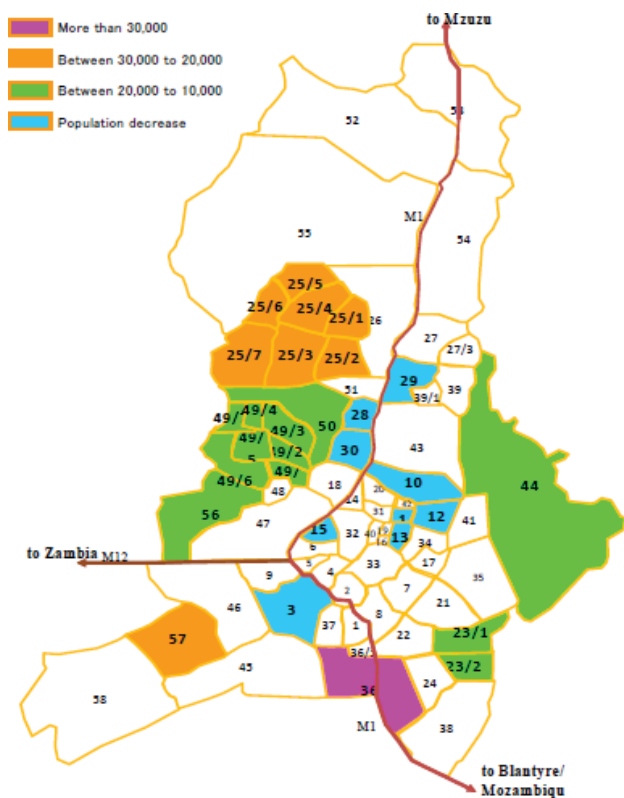
²⁸³ Commonwealth Local Government Forum, 2018, [Malawi Country Profile](#).

Source: Malawi National Statistical Office, 2012, Statistical Year Book.

5.1. Implementation of Building and Land-Use Regulations in Lilongwe

The jurisdiction of Lilongwe City Council covers an area of approximately 393 square kilometres²⁸⁴ and has a population of just over 1 million.²⁸⁵ This makes Lilongwe Malawi’s largest city.²⁸⁶ In 2014, as many as 76 percent of residents in Lilongwe lived in sub-standard housing and/or informal settlements.²⁸⁷ Lilongwe’s urban growth pattern between 1998 and 2008 is illustrated below in Figure 15. The population is projected to reach 1.58 million by 2030.²⁸⁸

FIGURE 15: Population Increase/Decrease in Lilongwe (1998-2008)



Source: JICA and Government of Malawi, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi](#).

As per the Local Government Act (1998), and the subsequent Amendment in 2010, Local Councils in Malawi have a wide range of responsibilities, including administering building and land-use regulations. As such, Local Councils play a principal role in ensuring risk reduction measures are integrated into planning and construction activities in their jurisdictions. Currently, for areas without a physical development plan (this includes most rural areas), the Physical Planning Department (MoLHUD) is responsible for processing development permit applications.²⁸⁹ However, under the recently gazetted Physical Planning Act (2016), the whole of Malawi is declared a planning area, and there are provisions to create Physical Development Plans for all jurisdictions.²⁹⁰

In terms of building regulations, Lilongwe has its own building bylaws (1961). In terms of land-use regulations, Lilongwe’s current Master Plan, Study on Urban Development Master Plan for Lilongwe, finalised in 2011. It outlines the land uses that are permitted with a planning period of up to 2030.²⁹¹

Development Permit Process

The Planning and Development Department of Lilongwe City Council has a central role in administering land-use and building regulations across the country. The Department processed approximately 600 development permits in 2017.²⁹² Figure 16 illustrates the City Council entities involved in these activities.

²⁸⁴ Lilongwe City Mayor, 2018, [Public Participation in Urban Planning – Case of Lilongwe](#).

²⁸⁵ World Bank, 2016, [Malawi Urbanization Review](#).

²⁸⁶ Ibid.

²⁸⁷ UN-Habitat, 2011, [Malawi: Lilongwe Urban Profile](#).

²⁸⁸ JICA and Government of Malawi, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi](#).

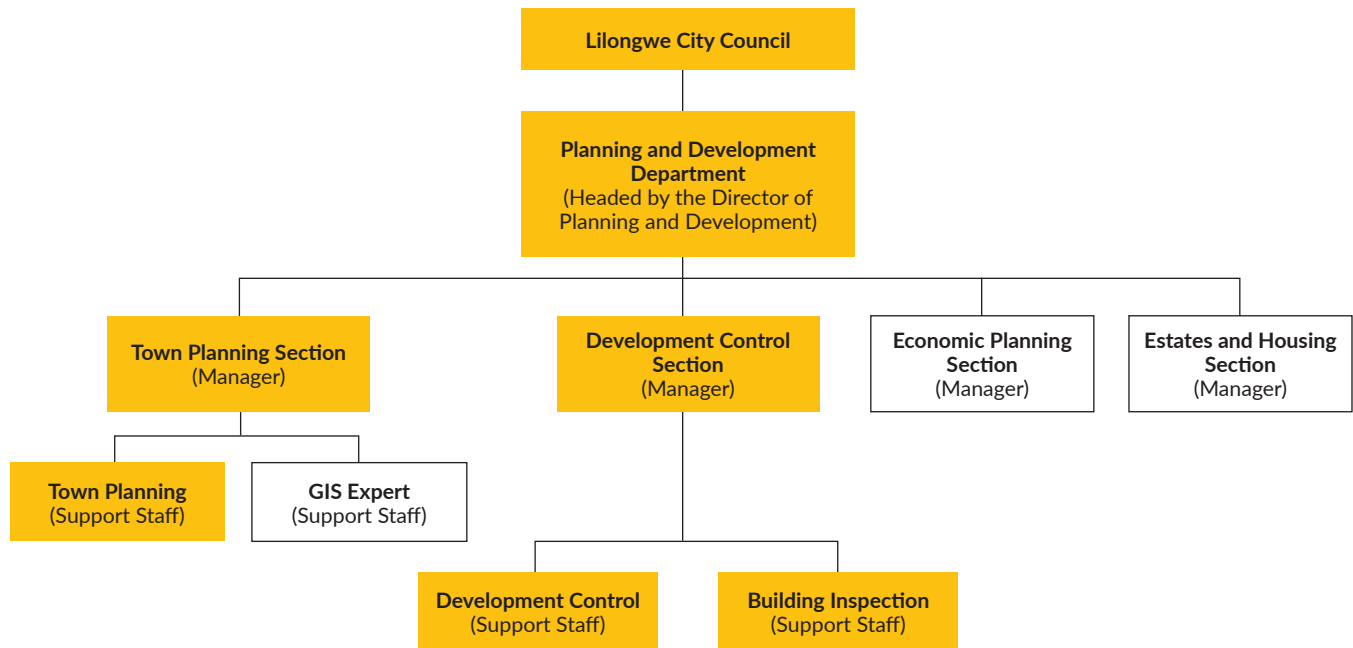
²⁸⁹ Malawi Ministry of Lands, Housing and Urban Development, 2018, Webpage, Physical Planning.

²⁹⁰ Government of Malawi, [Physical Planning Act](#), 2016, (Date of promulgation, September 2016, Date of commencement April 2018).

²⁹¹ World Bank, 2016, [Malawi Urbanization Review](#).

²⁹² BRCA Interview, February 2018, Lilongwe City Council, Planning and Development Department.

FIGURE 16: Mapping of Lilongwe City Council Planning and Development Department



*Entities involved in the Development permitting process are highlighted in yellow.

Source: BRCA Analysis, 2018, Planning and Development Department.

Once a development permit application is submitted (paper copy), the application is reviewed by the Planning and Development Department. (See Box 7 for details on the documentation the applicant must submit.) This review consists of checking that the necessary documentation has been provided, checking that the listed architect is registered with the MIA and calculating the necessary permit fee. Once the review has been completed, the applicant must pay the required fee and the Development Control Section then registers the plan and gives the applicant an application number.²⁹³

Following this review, the application is then sent to the Town Planning Technical Sub-Committee (see Box 8). The Technical Sub-Committee plans to meet on a monthly basis to review applications. At this stage, compliance with building regulations (Lilongwe Building Bylaws) and land-use regulations (Lilongwe Master Plan) is evaluated. The Technical Sub-Committee either returns the application to the applicant with comments

or submits the application to the Town and Planning Committee with recommendations.²⁹⁴

The Town Planning Committee then makes a final and binding decision on the development permit application and is not bound to follow the recommendations of the Town Planning Technical Sub-Committee. The Town Planning Committee is constituted of Local Government Councillors and ex-officio members. Box 9 lists the ex-officio members of the Lilongwe Town Planning Committee. At this stage, there are three possible outcomes for the application: accepted, refused or differed. If approved or refused, the application is returned to the Planning and Development Department where it is signed by the Chairman and sent back to the applicant. When an application is differed, a letter is sent to the user outlining the necessary modifications.²⁹⁵ A copy of the decision is also sent to the Ministry of Lands, Housing and Urban Development.

²⁹³ BRCA Interview, February 2018, Lilongwe City Council, Planning and Development Department.

²⁹⁴ Ibid.

²⁹⁵ BRCA Interview, February 2018, Lilongwe City Council, Planning and Development Department.

BOX 7: Documentation Required for a Development Permit Application in Lilongwe City Council

- Application form.
- Location plan and site plan obtained from the entity to which the land belongs (e.g. Malawi Housing Corporation and Ministry of Lands or Airport Limited). If the land is owned by Lilongwe City Council, there is a designated office where location plans can be obtained.
- Building design (drawings), including the structural plans for public buildings, warehouses, multi-story buildings and multi-story residential buildings.
- Soil test are not required.

Source: BRCA Analysis, 2018, Planning and Development Department.

BOX 8: Composition of Lilongwe Town Technical Planning Sub-Committee

- LLC Planning and Development Department.
- Institute of the Architect of Malawi (because of a lack of architects in the LCC).
- Institute of Engineers of Malawi (because of a lack of engineers in the LCC).
- Roads Authority.
- Physical Planning Institute of Malawi.
- Others Government Agencies.
- Department of Health of the LCC.
- Fire Brigade of Lilongwe.

Source: BRCA review, Lilongwe City Council.

BOX 9: Lilongwe Town Planning Committee Ex-Officio Members

- The Mayor.
- The Deputy Mayor.
- The Director of Buildings.
- The Regional Commissioner for Lands and Valuation.
- The Regional Commissioner for Physical Planning.
- The Regional Manager, Malawi Housing Corporation.
- The Chief Executive Officer, Roads Authority.

Source: BRCA Review, 2018, Lilongwe City Council.

The development permit process for Lilongwe City Council is illustrated in Figure 17. A detailed process map can be found in Annex 12.

In 2017, 598 applications were received by the LCC and 443 were approved.²⁹⁶ The Physical Planning Act (2016) stipulates: "The responsible authority shall, within 30 days of the receipt of an application for development permission, inform the applicant of the decision on the application, or where no decision has been taken, of the progress on the application, and the likely date by which a decision will be taken."²⁹⁷ Representatives from the Lilongwe City Council, Planning and Development

Department reported that it takes approximately 30 days to process development permit applications for small and medium projects and approximately 60 days for a large project. No data are available to confirm the average processing time.²⁹⁸

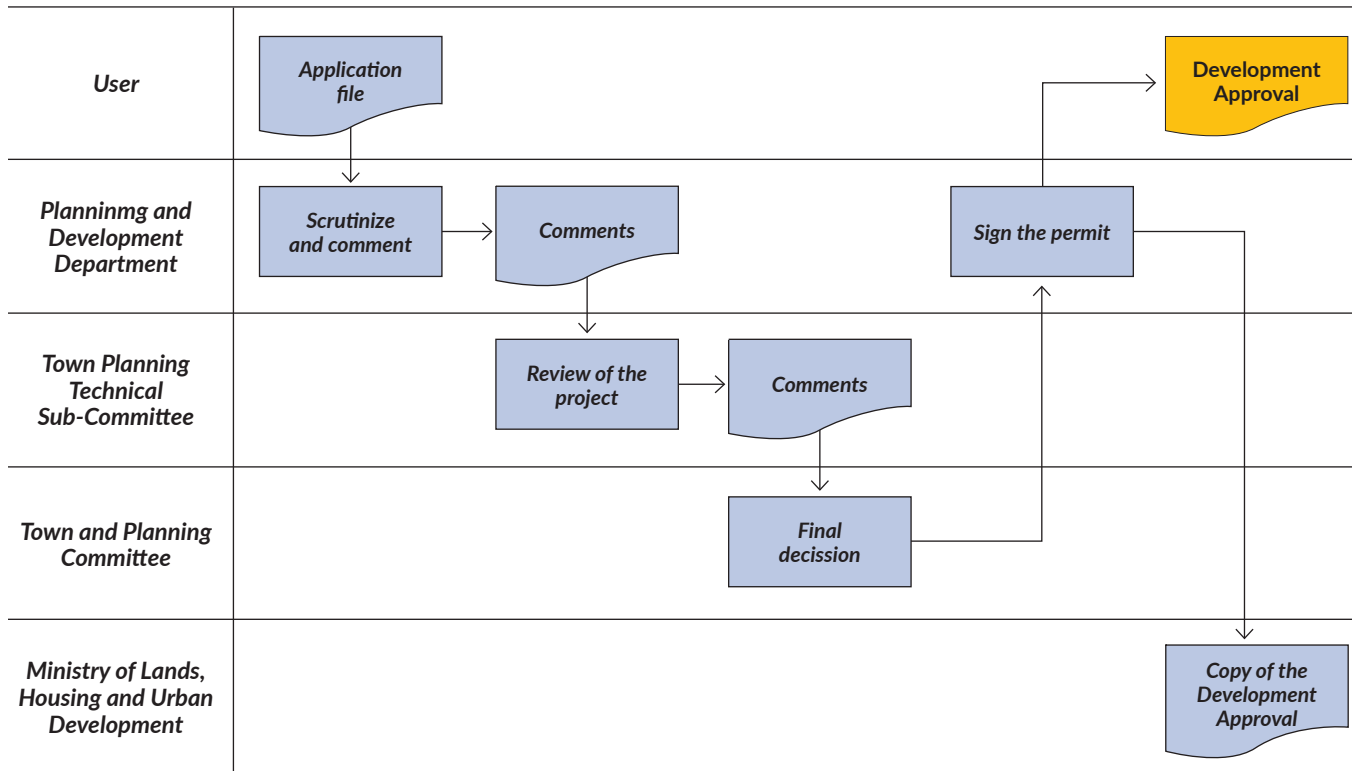
The Physical Planning Act, gazetted in April 2018, has implications for the development permit approval process. As per the Physical Planning Act, each local Government authority must appoint a Planning Committee for its area of jurisdiction. This Planning Committee is the responsible planning authority and exercises all duties referenced in the Act; these duties include development control and enforcement. The composition of the Planning Committee is detailed in

²⁹⁶ Ibid.

²⁹⁷ Government of Malawi, [Physical Planning Act](#), 2016, (Date of promulgation, September 2016, Date of commencement April 2018).

²⁹⁸ BRCA Interview, February 2018, Lilongwe City Council, Planning and Development Department.

FIGURE 17: Development Permit Process in Lilongwe City Council



Source: BRCA Analysis, 2018, Planning and Development Department.

the Act (see Box 10). This marks a significant change to the provisions in the Town and Country Planning Act (1998), where these responsibilities were designated to the Town Planning Committee (see Box 9 for current composition).

Building Inspections and Occupancy Permit Process

During the construction process, the Development Control Section is responsible for conducting on-site inspections to ensure the building reflects the approved plans. For new construction projects, the applicant is required to send a notice of commencement of work to the Planning and Building Department once the construction work has been initiated. Overall, the applicant is required to provide notice to the Planning and Building Department at six stages of construction:²⁹⁹

- 1) Commencement of work on the erection of the building;

²⁹⁹ Lilongwe City Council, 1993, Appendix VII of the Development Control Procedures for Lilongwe City.

BOX 10: Composition of Local Council Planning Committee

- Director of Planning and Development (who shall be the Secretary).
- Urban Physical Planning Officer.
- Urban Lands Officer.
- Urban Engineer.
- Urban Surveyor.
- Urban Water Engineer.
- Urban Architect.
- Director of Social Services of the Council.
- Urban Environmental Officer.
- Member of the Urban Development Committee.
- Member of the Urban Works Committee.
- Registered Physical Planner in private practice (recommended by the Physical Planners Board).

Source: Malawi Government, 2016, Physical Planning Act.

- 2) Completion of foundation excavation;
- 3) Completion of brick work foundation;
- 4) Completion of damp roof;
- 5) Completion of drainage and sanitation; and
- 6) Completion of work.

Previously, the Development and Planning Department sent six inspection cards (one for each stage of inspection) to the permit applicant, along with their approved plans. This practice has been stopped as the Department can no longer afford the cost of distribution.³⁰⁰

For buildings that meet the criteria, national agencies, including the NCIC and the MoL, also conduct site inspections.

Once the construction work and inspections have been completed, the Planning and Development Department is responsible for issuing an Occupancy Permit. The Occupancy Permit is generally issued after the Town and Planning Technical Sub-Committee performs the last on-site inspection. Annex 13 provides a process mapping for obtaining occupancy permits in Lilongwe City Council.

The Lilongwe City Council is also responsible for overseeing the modifications, change of use and demolition of buildings.

Main Challenges Identified

Development and Implementation of Local Development Plans

The 1986 Lilongwe Outline Zoning Scheme was the first statutory land-use plan for Lilongwe.³⁰¹ The then Town and Country Planning Department developed the Scheme on behalf of the Lilongwe Town and Country Planning Committee, with a planning period until 2000.³⁰² Between 2000 and 2011, the city did not have a statutory land-use plan in place.³⁰³ The current Master Plan for Lilongwe, completed in 2011, fills this gap; it includes detailed land-use regulations

³⁰⁰ BRCA Interview, February 2018, Lilongwe City Council, Planning and Development Department.

³⁰¹ JICA and Government of Malawi, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi](#).

³⁰² Ibid.

³⁰³ Ibid.

and planning controls and has a planning period until 2030.³⁰⁴

From a disaster risk reduction perspective, the Master Plan does not integrate hazard maps and as such does not guide construction away from high-risk areas such as flood plains.³⁰⁵ The Master Plan references “flood risk” once in the document but does not set any exclusion zones or requirements for flood-prone areas. This lack of risk-informed planning can be attributed to the lack of local hazard mapping capacity,³⁰⁶ a lack of awareness and the prevalence of a disaster response rather than pro-active disaster risk reduction approach and mind-set.

In terms of local hazard mapping capacity, Lilongwe City Council Planning and Development Departments do not currently have staff dedicated to hazard mapping. There is a position in the Department’s organogram for a GIS Expert, but it is vacant (see Figure 18).

Further, despite the existence of detailed and legally enforceable land-use plans, urban spatial expansion has occurred in a relatively ad-hoc manner.³⁰⁷ Of the settlements surveyed in Lilongwe, 64 percent were unplanned.³⁰⁸ Similar challenges apply to Blantyre, Mzuzu and Zomba where zoning plans provide adequate land for the spatial expansion of the cities but planning controls are unable to prevent informal construction.³⁰⁹ These factors have resulted in informal settlements being constructed on areas planned for infrastructure such as roads and in challenges such as limited access for emergency and fire services.³¹⁰

This low-level of compliance with land-use regulations is compounded by, among others:

- **High cost of compliance:** Current plot sizes are outlined in the Study on Urban Development Master Plan for Lilongwe. These plot sizes are generally large, for example, between 1,000 to 2,000 square metres for land designated low-density residential

³⁰⁴ Ibid.

³⁰⁵ BRCA analysis, February 2018.

³⁰⁶ BRCA Desk Research, November 2018, Lilongwe City Council, Planning and Development Department.

³⁰⁷ World Bank, 2016, [Malawi Urbanization Review](#).

³⁰⁸ Luppen and ActionAid, 2014, [Survey of Urban Poor Settlements in Lilongwe](#).

³⁰⁹ MoLHUD, 2013, [Situation of Urbanisation in Malawi](#).

³¹⁰ Ibid.

TABLE 3: Plot Size Regulation in Malawi

Land Use Category		Plot Size Regulation	
Category	Sub-Category	Minimum	Maximum
Residential	Low density residential	1,000	2,000
	Medium density residential	600	1,000
	High density residential	375	600
	High-rise residential	10,000	–
	Quasi-residential	375	600

Source: JICA, in coordination with the Government of Malawi, 2010, [The Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi](#).

(see Table 3). This makes access to land unaffordable for most low-income earners.³¹¹ Amongst experts in Malawi, there is a general agreement that measures should be introduced to meet the demand for 250–450 square metre plots.³¹² The high cost of accessing property is widely recognised as a driving factor behind informal settlements and unregulated construction.³¹³

The Study on Urban Development Master Plan for Lilongwe, 2010, provides the following guidance on the reform of plot sizes:

“Minimum land plot size of the residential development should be reduced. It will contribute to the improvement of land use efficiency... the minimum standard of 2,000 m² is too big for a land plot. In the past, such a big minimum standard had been beneficial to preserve the colonial luxurious atmosphere. From the viewpoint of promoting land use efficiency, the maximum standard would be important as well as the reduction of the minimum plot size. The Blantyre City Council has already launched the reduction of the minimum land plot size from 2,000 m² to 1,000 m² for low density residential. As in the case of Blantyre City, Lilongwe City should adopt such a policy of land plot size regulation, not only in terms of the minimum, but also of the maximum land plot size.”

- **Authority to coordinate infrastructure and service delivery:** City Councils have limited authority to implement urban development plans as they have little authority to make players in other sectors,

such as the Water Board or the Roads Authority, comply with the plans. This is partly a question of political will but may also require a formal provision of greater authority to City Councils to coordinate infrastructure and service delivery within their jurisdictions.³¹⁴

- **Capacity of Planning and Development Department:**

Compliance with land-use regulations requires sufficient capacity within the City Council to review development permit applications, conduct site inspections and actively monitor compliance across the city. The Planning and Development Department lacks financial, technical and human capacity to effectively conduct these functions.

The devolution process provides the opportunity for district, city and town Councils across Malawi to manage development control more coherently, since the functions of planning, zoning, permitting and inspection of construction now fall under one single jurisdiction. The development of local spatial plans could provide a useful resource to trigger more rigorous and participatory efforts to establish updated land-use and zoning requirements. The capacity and resources of Local Councils need to be strengthened to take on these new responsibilities.

Best practice indicates that these physical development plans be developed in consultation with local citizens and communities. The adverse implications of land-use planning regulations in Karonga illustrates why.

The Karonga Town Council integrated hazard risk into their land-use plans. The Town Council delineated

³¹¹ Ibid.

³¹² Ibid.

³¹³ Gondwe et al., 2017, [Discriminatory Land Use Planning and Flood Risk Management in Karonga Town](#).

³¹⁴ World Bank, 2016, [Malawi Urbanization Review](#).

flood-prone areas using local hazard maps to control flood damage. Serviced plots of land were then created in safer areas.³¹⁵ Despite the intention of the Council to reduce disaster risk, a recent study found that these land-use planning practices have in fact contributed to a proliferation of unsafe housing structures and increased vulnerability for the poor. The serviced plots of land developed in low-risk areas were unaffordable for lower-income citizens. The review concludes that the lack of consultation with the targeted beneficiaries was among the factors that led to this situation.³¹⁶

Property Registration

Security of tenure is considered essential to motivate investment in sustainable and safe infrastructure and housing. In 2002, the Government of Malawi implemented the National Land Policy. The Policy aims to ensure security of tenure and promote overall development through an optimum use of land. Amongst other objectives, the Policy intends to decentralise title registration to increase administrative efficiency and effectiveness and to promote gender-neutral land access.³¹⁷

The legal framework in Malawi also recognises land tenure rights through customary or statutory tenure regimes. Since customary regimes vary across the regions of Malawi, the country is governed by different land administration systems. In urban areas, such as Lilongwe, the legal framework provides for a mature statutory regime.

However, the full recognition of urban land tenure is hampered by administrative obstacles to formal title registration and the high cost of legal fees for formalisation.³¹⁸ The Land Governance Assessment Framework (2012) estimated that the local administrative system recognises rights for only 50–70 percent of the urban population through customary or statutory tenure regimes.³¹⁹ Meaning, between one-half and one-third of the population inhabiting informal settlements do not have legal recognition or rights.

³¹⁵ Gondwe et al., 2017, [Discriminatory Land Use Planning and Flood Risk Management in Karonga Town](#).

³¹⁶ Ibid.

³¹⁷ Government of Malawi, 2002, [National Land Policy](#).

³¹⁸ World Bank, Paul Jere, 2012, [Improving land sector governance in Malawi: Implementation of the land governance assessment framework](#).

³¹⁹ Ibid.

In Malawi, the cost to register property is high and constitutes a barrier to property ownership. The application fees for a formal leasehold title is K10,000 (US\$66).³²⁰ In addition, a cadastral survey is required and costs about K40,000 (US\$267).³²¹ Lawyers levy a 1 percent charge on the value of the transaction for drafting mortgage and leases.³²² The cost of formal tenure registration is unaffordable for most low- to middle-income households, so they turn to informal land markets.³²³

Availability of Cadastral Data and Surveying Capacity

Effective cadastral registration provides immediate evidence that the right to ownership has been established. It also prevents the acquisition of prescriptive rights where this is contrary to public policy. Confidence in ownership of land and built assets is an important precondition for individuals to make investments in building quality and resilience.³²⁴ All dealings in land, including development and building permits, are facilitated by efficient and functioning cadastral system. Boundaries are directly and accurately documented. The nature and extent of existing rights are clear. Long and costly inquiries into a title are avoided. And the need for the services of lawyers or other intermediaries is minimised.

The Malawi Land Survey Act (2016) defines the term “cadaster” as: “A methodically arranged public inventory of data on properties within a district based on a survey of the property boundaries.”³²⁵ In 2002, Malawi initiated the implementation of the National Land Policy, which aimed at ensuring security of tenure and promoting overall development through optimum use of land.³²⁶ The policy intended to register all land managed by traditional authorities and decentralise title registration to avoid delays.

³²⁰ World Bank, Paul Jere, 2012, [Improving land sector governance in Malawi: Implementation of the land governance assessment framework](#).

³²¹ Ibid.

³²² Ibid.

³²³ Ibid.

³²⁴ Building Regulation for Resilience, 2015, [Managing Risks for Safer Cities](#), GFDRR, World Bank.

³²⁵ Government of Malawi, 2016, [Land Survey Act](#).

³²⁶ Government of Malawi, 2002, [National Land Policy](#).

At present, Malawi has three categories of land: public, private and customary land. Public land comprises all land occupied by the Government whereas private land is owned under a leasehold title. Customary land, which is the most common form of tenure in the country, refers to all land under customary law. The customary system follows the traditional concept of considering land in a village as belonging to the community.³²⁷

Available research into this area suggests that:

- Between 50 and 70 percent of ownership information in Malawi's cadaster/registry is up-to-date. There is, however, a time lag between the transaction and the update of records which creates a temporary discrepancy between the cadastral maps and the actual situation on the ground.
- Most records for privately-held registered land are readily identifiable in the registry maps or cadaster. Some of these maps are in poor condition, making identification difficult.
- The responsible authorities or organisations, including the Surveys Department, are understaffed. They also have not fully leveraged GPS technology to map and register cadastral information.

The Malawi National Land Policy (2002) has identified these challenges and outlined strategies consistent with international best practice. The Policy recommends enhanced capacity-building at the Surveys Department; promoting private, competent, licensed surveying firms to augment capacity; employing systematic use of technology; and digitising records. These measures would contribute to critical efficiencies for more effective and efficient building-control procedures in Malawi. While the cadastral system is critical to enable building resilience and safety, no specific recommendations have been provided as this is beyond the scope of this report.

Capacity of Planning and Development Departments

Planning and Development authorities across Malawi require additional human and technical capacity to

effectively and efficiently administer building and land-use regulations.³²⁸ The resources required include sufficient numbers of qualified staff, equipment and financing.³²⁹

Human Resources

In Lilongwe City Council, on the whole, staffing levels are relatively high, as reflected by the high share of recurrent costs in total expenditures.³³⁰ Figures from 2016 show that Lilongwe City Council employs about 2,000 staff (roughly one employee for every 350 residents).³³¹ The same can be found in the cities of Blantyre, which employs about 1,400 staff (roughly one for every 500 residents), and Mzuzu, which employs about 520 staff (roughly one for every 300 residents).³³²

Stakeholders in the Lilongwe City Council Planning and Development Department, however, reported a shortage of qualified staff.³³³ For example, the Development Control Section, responsible for processing development permit applications, has a total of three staff; these three staff have a bachelor's degree in physical planning.³³⁴ The Building Control Section, which reviews plans and inspects buildings, only has two staff, only one of whom is a trained architect.³³⁵ As a whole, the Department has an 80 percent vacancy rate and many of the staff in current positions do not have sufficient qualifications or training.³³⁶

Figure 18 provides an overview of the vacancies in the Lilongwe City Council Planning and Development Department, as of October 2018. As per the organogram, 60 percent of positions in the Department are vacant. Stakeholders reported that the cause of this was two-fold: the lack of attractive salary packages for qualified personnel and recurrent gaps in funding to staff these Departments.³³⁷

³²⁸ BRCA Interview, February 2018, Representatives from the Building Department of the MTPW, Department of Housing of the MLHUD and Lilongwe City Council Urban Planning and Development Department.

³²⁹ Ibid.

³³⁰ World Bank, 2016, [Malawi Urbanization Review](#).

³³¹ Ibid.

³³² Ibid.

³³³ BRCA Interview, February 2018, Representatives from Lilongwe City Council Planning and Development Department.

³³⁴ Ibid.

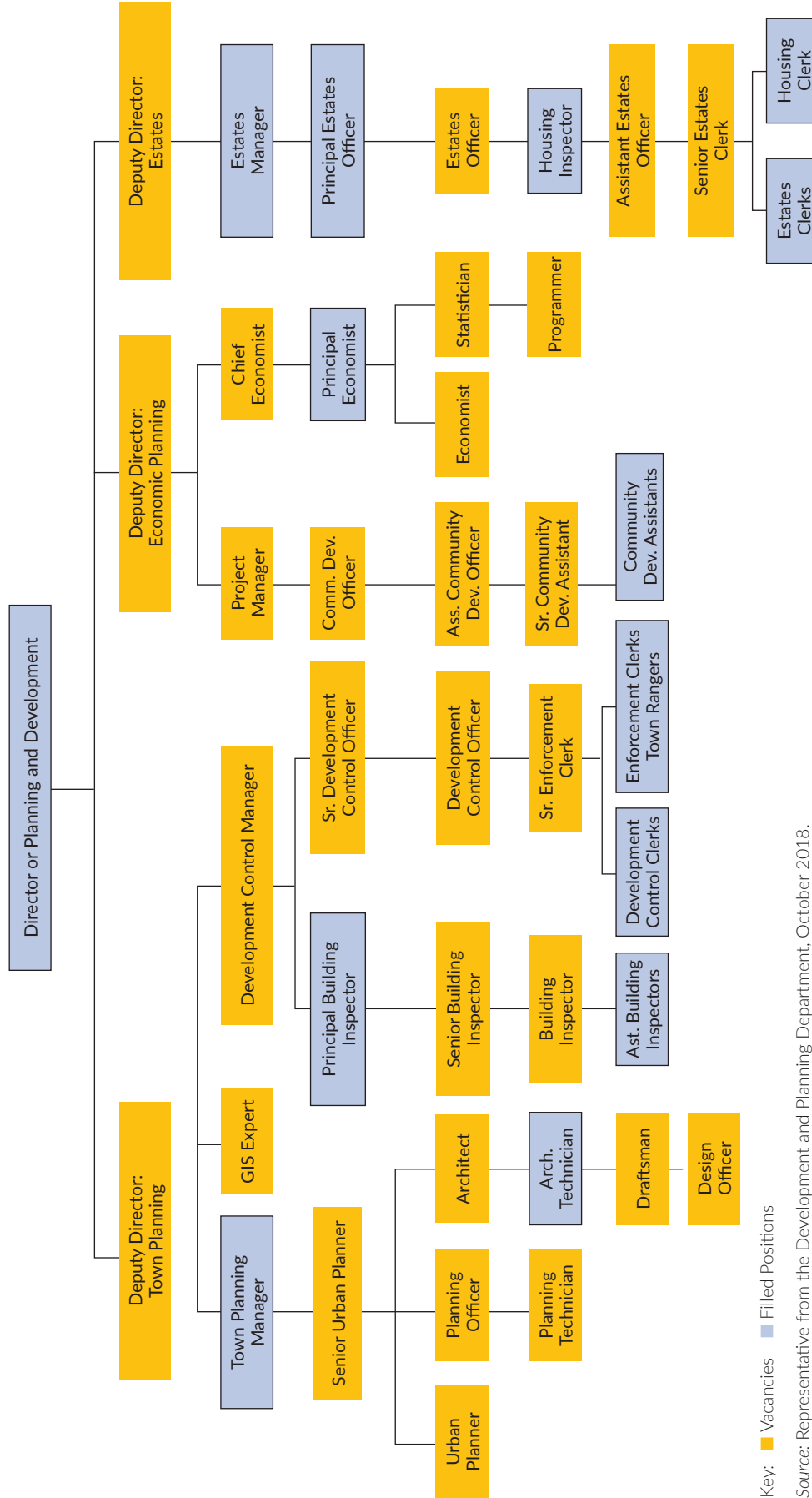
³³⁵ Ibid.

³³⁶ Ibid.

³³⁷ Ibid.

³²⁷ Cadastre in Africa: A Leap Towards Modernisation, Vaibhav Arora, 2011.

FIGURE 18: Vacancies in the Planning and Development Department



Key: ■ Vacancies ■ Filled Positions

Source: Representative from the Development and Planning Department, October 2018.

BOX 11: Ratio of Regulatory Personnel Versus Urban Population: A Comparison with the Building Regulatory System in Two US States and the City of Nairobi

One measure of the capacity of the Planning and Building Department in Lilongwe is provided by the United States Building Code Effectiveness Grading Schedule (BCEGS) developed by the US-based Insurance Services Office (ISO).

The BCEGS scoring system links regulatory capacity to urban resilience. The ISO recommends that for highly urbanised American states, there should be one certified building code official for 5,000 to 10,000 people. For example, this number is 8,000 in California and 6,460 in Florida. Both states rank high in the BCEGS score with regulatory systems considered as robust and effective in mitigating disaster risks in the built environment.

In comparison, Lilongwe has five planning and building code officials for a population of about 1,100,000 people. Lilongwe presents a ratio of 215,400 population serviced for one building code official. Although the US is a high-income country with a different construction industry and socio-economic context, this measure points to the gap in human capacity that should be bridged over time.

By comparison, the city of Nairobi has 15 plan reviewers and 34 building inspectors for a population estimated at about 4 million people. Nairobi presents a ratio of 81,600 population serviced by one building code official.

Source: International Standards Organization Building Code Effectiveness Grading Schedule; World Bank, 2016, Building Regulation for Resilience: Managing Risks for Safer Cities; and, World Bank, 2018 Kenya BRCA.

In 2017, the Lilongwe City Council processed approximately 600 development permit applications.³³⁸ These were processed with only two employees in the Building Control Section, only one of whom is a qualified architect. It is not feasible for these two employees to conduct, on average, 50 plan reviews and associated inspections every month.

In this context, compliance checks within the building permitting process are generally confined to checking the completeness of building permit applications and the payment of administrative fees.³³⁹ Further, limited human resources and the unavailability of transport for building officers also preclude comprehensive building inspections.³⁴⁰ As noted earlier in the report, six inspections should take place before the issuance of an occupancy permit.³⁴¹ However, stakeholders reported that generally only the sixth step is performed: the final inspection to complete the structure and request an occupancy permit.³⁴² Plan review and inspections are

the principal means of ensuring the safe and resilient siting and construction of buildings.

Similarly, the Lilongwe Fire Brigade primarily applies its limited resources to fire-fighting activities and emergency response activities.³⁴³ The Lilongwe Fire Brigade Chief Fire Officer reported a limited number of employees (i.e. two fire officers) to work on fire prevention activities. The Chief Fire Officer reported the fire brigade, depending on competing priorities, has the capacity to send one staff member to the Town and Planning Technical Sub-Committee meeting, where building permit applications are reviewed. There are no staff qualified to assess project plans for compliance with fire provisions (i.e. means of egress and fire-resistant materials). Further, there is insufficient capacity to dispatch qualified staff to test fire equipment and conduct building inspections.

Lilongwe lacks a methodology to classify buildings based on the risks they pose (i.e. location, ground-related risks, and building and use-related risks). Building classification systems can be used to

³³⁸ Ibid.

³³⁹ Ibid.

³⁴⁰ Ibid.

³⁴¹ Lilongwe City Council, 1993, Appendix VII of the Development Control Procedures for Lilongwe City.

³⁴² Ibid.

³⁴³ BRCA Interview, February 2018, Chief Fire Officer, Lilongwe City Council Fire Brigade.

prioritise the allocation of scarce building inspection resources based on level of risks. As per international best practice, building classification matrixes should combine elements of size, use and location in a risk-based approach. See Annex 14 for an example of a building classification matrix used in the city of Yangon in Myanmar.

Participation of Private Sector in Building Controls

Building control functions in Malawi are conducted with scarce resources and specialised personnel, yet urban expansion creates increased pressure and risks of more severe backlogs in planning, construction approval permitting and building inspections. Over the past two decades, models have emerged to incorporate the private sector in regulatory activities and expand capacity. This trend is based on various forms and degrees of outsourcing. This approach comes with trade-offs, including higher construction costs and the need to ensure acceptable standards of transparency and accountability.³⁴⁴ There are currently no enabling and explicit provisions in the existing Malawi regulatory framework allowing building authorities to outsource building controls to the private sector and determine guidelines for appropriate pricing and qualifications. Doing Business data show that private third-party involvement in building controls is associated with better building quality in construction as measured by the building quality control index.³⁴⁵

Financial Resources

Although it is beyond the scope of this report to explore larger structural issues of local Government funding, these challenges must be noted. The funding structure of local Government in Malawi profoundly impacts the standards and quality of all urban services delivered by City and Town Councils.

City Councils depend largely on own-revenues and receive limited inter-Governmental fiscal transfers (less than 20 percent or less of their total revenues).³⁴⁶ In turn, their own-revenues are constrained by a limited property tax base and more marginal collection of

other fees (e.g. permitting, building licences and market fees). Even in aggregate terms, they do not appear to be sufficient to deliver effective urban services.³⁴⁷

Urban areas, despite their potential to raise revenues, face significant constraints that are rooted in law and in limited enforcement. For example, in Blantyre, approximately 70 percent of the city's revenue is derived from ratepayers (property and business taxes), but the default rate is close to 50 percent. Thus, the city is unable to cover its budgeted expenses on a monthly basis. This shortfall undermines its services and its inability to pay higher wages. This makes it difficult to hire and retain staff. In Lilongwe, the City Council estimates nearly MWK 8 billion outstanding in property taxes, of which it is trying to recover MWK 2.9 billion. This income gap limits the Council's financial resources and operating capacity.³⁴⁸

The Malawi Urbanization Review reports that policy-makers appear increasingly willing to provide local Government with more "teeth" in the form of greater fiscal resources.³⁴⁹ The 2015–2016 budget presented to parliament allocated additional resources to local Governments. For the first time, the budget included a development component of MWK 5 billion in the local Government General Resources Fund (GRF) and allocated MWK 6.5 billion to Urban Councils to finance road rehabilitation and upgrades. In addition, as part of a wider and ongoing public-sector reform, moves are underway to provide local Government with greater control over local human resources.³⁵⁰

Effectiveness, Efficiency and Transparency of the Development Permitting Process

The review of building regulation administration in Lilongwe City Council identified areas to strengthen the effectiveness, efficiency and transparency of the development permit process.

Streamlining the Building Permitting Process

As described in section 5.1, In Lilongwe City Council, a two-phased permitting approval system is in place. The first decision on the development permit application is

³⁴⁴ World Bank Group, 2013, Good Practices for Construction Regulation and Enforcement Reform.

³⁴⁵ Doing Business 2018, Reforming to Create Jobs.

³⁴⁶ World Bank, 2016, [Malawi Urbanization Review](#).

³⁴⁷ Ibid.

³⁴⁸ Ibid.

³⁴⁹ Ibid.

³⁵⁰ Ibid.

made by the Town Planning Technical Sub-Committee (TPTSC). Following this cross-departmental technical review, the development application is submitted to the Town and City Planning Committee (TCPC). The TCPC then makes a final decision on the application.

The process for development permits should be reviewed to improve efficiency and transparency. While the Physical Planning Act stipulates that applications for a building permit should be approved within 30 days, in practice, the process of obtaining a building permit usually takes between 30 and 60 days, depending on the size of the project.³⁵¹ Malawi ranks 144th out of 190 countries in the Dealing with Construction Permits indicator of the 2019 Doing Business Report; one indicator is based on processing time for development permits.³⁵²

As noted earlier in this chapter, the recently gazetted Physical Planning Act has implications for the governance structure of local planning authorities. Under the Town and Country Planning Act (1998), the Town and Country Planning Council had responsibility for development control, including review of permit applications. Now, under the Physical Planning Act (2016), local Government authorities must establish a Planning Council, composed of technical experts, which will be responsible for development controls. The capacity of the newly established Planning Committee will need to be strengthened to enable a more efficient and integrated review.

Digitalisation of Work Flow

The current construction permitting process in Lilongwe is manual and paper-based.³⁵³ As per international best practice, the following building administration functions can be effectively digitalised:

- Computerised back-office workflow management systems, which allow permit applications to be routed to the relevant reviewers in Government.

³⁵¹ It is important to note that these figures are estimates from the Lilongwe Planning and Development Department. No data exist to verify these estimated processing times.

³⁵² [World Bank, 2018, Doing Business 2018: Dealing with Construction Permits: Private Sector Participation in Construction.](#)

³⁵³ BRCA Interview, February 2018, Planning and Development Department, Lilongwe City Council.

FIGURE 19: Building Permit Archives Room of the City Council of Lilongwe (February 2018)



Source: BRCA Fieldwork, 2018.

- Archiving systems for building permits and plans (see Figure 19).
- Online public portal where architects and developers can electronically submit permit applications and building plans while monitoring the review process through a web or mobile interface.³⁵⁴

These ICT solutions have not been introduced in Lilongwe. Previous efforts in Malawi at digitising records have focused on local titles and deeds registration systems, such as the World Bank-funded BESTAP Project.³⁵⁵ These projects have not yet modernised the building regulation administration system.

Digitalised permitting systems can improve effectiveness, efficiency, transparency and cross-departmental coordination. When implemented effectively, these ICT solutions can lead to easily.

³⁵⁴ Ibid.

³⁵⁵ Business Environment Strengthening Technical Assistance Project (BESTAP) began to digitise title and deeds registration under MoLHUD.

BOX 12: Benefits of E-permitting System to Governments and the Building Construction Industry

- Improved management oversight capabilities for the construction regulator, as managers can monitor workflow and throughput in real time to ensure service delivery standards are met.
- Reduced time and costs for architects and developers, as they can submit applications online and interact with Government staff reviewing their submission through electronic channels.
- Increased transparency, as the applicant obtains information on building codes and permitting procedures online as well as follows the progress of permit approval.
- Reduced opportunities for corruption by minimizing face-to-face interactions between applicants and Government officials and enabling secure archiving of plans and inspection reports.
- Increased compliance by the building industry through simpler processes and more efficient monitoring and enforcement, particularly through improved recording of inspections (including photographic evidence of building violations).
- Increased Government efficiency, resulting in the ability to handle more submissions with the same or fewer resources.

Source: BRCA Authors, 2018.

BOX 13: Nairobi E-permitting Platform

A sustained effort to increase the efficiency of building code administration is critical to reduce systemic complexities, reduce compliance costs, improve the business environment and further incentivise compliance with building code requirements.

Technological solutions can support these initiatives. One such example is in Kenya, where the Nairobi City County manages construction permitting through a web-based e-permitting system. The City Council received technical and financial support from the International Finance Corporation (IFC) to design and launch the system, which initiated in 2009 and launch the platform in 2011.

Prior to the reform, all construction permit processing was manual. The process was complex and not transparent to the applicant.³⁵⁶ “Private expeditors” had also emerged offering services to speed up the permitting process at a cost equivalent to 60 percent of the permit fee.³⁵⁷

The modernisation has significantly reduced the number of days to process construction permits. As a result of the reform, the Council went from 75 days to issue a permit in 2008 to just 40 days in 2010.³⁵⁸

Key functionalities of the platform include: e-registration of building professionals; e-submission of building plans; e-issuance of permit upon approval; document management and archival (no storage constraints); and, client interactions through SMS and email notifications.

After Nairobi, the system was established in Mombasa, Kisumu and Kiambu. Although the process has been successful, there are opportunities to improve the process and overcome limitations. Amongst these are the inclusion of digital signatures, expanding the capacity of the digital archive and scheduling, and coordinating and documenting building inspections through the e-platform.

³⁵⁶ World Bank, Innovative Governance and anticorruption initiatives, a selective survey of world bank activity, p.5, January 2014.

³⁵⁷ Ibid.

³⁵⁸ World Bank Group, 2010, Doing Business in Kenya.

TABLE 4: Comparison of the Cost to Obtain a Building Permit across 12 African Countries

Country	Rank-Dealing with Construction Permits (DB19)	Building Permit Cost for a Warehouse* (Amount in US\$)	Dealing with Construction Permits - Cost (% of Warehouse Value)
Botswana	31	1,286	0.4
Comoros	85	499	1.2
Sudan	105	548	1.5
South Africa	96	5,651	2
Zambia	70	1,530	2.6
Kenya	128	3,668	4.7
Tanzania	150	2,702	6
Uganda	145	2,254	8.1
Malawi	136	1,657	10
Burundi	162	1,672	10.7
Rwanda	106	4,139	12
Ethiopia	168	4,438	14.4
Congo, Dem. Rep.	165	3,554	15.8

*Doing Business records all procedures required for a business in the construction industry to build a warehouse along with the time and cost to complete each procedure. A series of standardised parameters have been set for the warehouse (e.g. usage, size, necessary road access). See for more information: Dealing with Construction Permitting Indicator methodology: <http://www.doingbusiness.org/en/methodology/dealing-with-construction-permits>).

Source: World Bank, Doing Business, 2019, Dealing with Construction Permits Indicator.

accessible archives, coordinated inspections, integration of land titling, cadastral, land-use and building information. This facilitates the relay of information back to builders, owners and other Government agencies with a regulatory stake in construction. The benefits of e-permitting systems are illustrated below in Box 12. Malawi can draw from Kenya's experience in implementing an e-permitting system in four counties, including the city county of Nairobi (see Box 13)

Building Permit Fees

Fees for construction permits and inspections should be affordable within the local socio-economic context and generally not exceed 3 percent of construction costs.³⁵⁹ As a point of reference, the aggregate regulatory cost fees paid for planning and construction approvals in OECD countries is equivalent to 1.7 percent of the overall cost of construction.³⁶⁰ Doing Business 2019 suggests that the current fee level in

Malawi exceeds this threshold, at approximately 10 percent.³⁶¹ As a point of comparison, Table 4 outlines the construction permit fees relative to construction costs in select African countries.

Malawi needs to address this significant challenge. Analysis shows that any fee level above 2–3 percent of the construction cost is usually associated with low building-regulation compliance.³⁶² The aggregate cost of planning, building permits and inspections should be set at a level that ensures the financial self-sustainability of building regulation municipal services. Not only should these levels be based on the cost of recovery for services provided by the local Government, but they should also be affordable within the local socio-economic context. Best practices for setting permit fees are presented in Table 5.

It is important to note that the Doing Business Report 2019 uses the City Council of Blantyre as the basis of

³⁵⁹ World Bank Group, 2013, Good Practices for Construction Regulation and Enforcement Reform, Guidelines for Reformers.

³⁶⁰ Ibid.

³⁶¹ <http://www.doingbusiness.org/data/exploreconomies/malawi#dealing-with-construction-permits>.

³⁶² World Bank, 2015, Building Regulation for Resilience.

TABLE 5: Summary of Good Practices for Establishing Administrative Building Permit Fees

Practice	Background
<i>Establish fee levels based on cost recovery for building control services.</i>	Fees should include the costs associated with the review of plans and any inspections, along with overhead costs. This approach is followed in New Zealand, where building consent agencies charge fees for issuing building code compliance certificates when buildings are completed.
<i>Ensure that building control fees do not fulfil a tax purpose.</i>	Low municipal tax resources often create an incentive to turn building permit fees into proxies for tax revenues. If deficiencies in the property tax system require collecting funds at the time of construction, the tax portion of the building permit fee should be clearly delineated in the interest of transparency and accountability.
<i>Charge small, fixed fees for small projects presenting no risk for public health and safety.</i>	For small buildings, setting a small, fixed fee is considered good practice. Minimum fees are necessary because the cost of providing services is not directly proportional to the area or cost of the building; a minimum charge is therefore necessary to cover enforcement costs for small projects. Large projects with substantial permit fees will typically cross-subsidise smaller projects.
<i>Publicise fee schedules.</i>	To support other relevant efforts in improving transparency and process efficiency, fees schedules for permits and inspections should be publicised and made available on the local authorities' website and other means of communications.

Source: World Bank, 2013, Good Practices for Construction Regulation and Enforcement Reform.

its analysis. As information on the administrative fees are not readily available online or in the City Council offices, it was not possible to conduct a comparison for Lilongwe.³⁶³ This points to a secondary challenge: building permit fees should be transparent and publicly available.

5.2. Recommendations

1) Initiate human resource capacity needs assessments to inform staffing plans in Local Council Planning and Development Departments.

A diagnostic and staffing plan should be developed at the local Government level, starting in Malawi's largest cities (Lilongwe, Blantyre, Mzuzu and Zomba). These plans should be based on capacity gaps for plan reviews, inspections and technical advice. These plans should include a phased approach, allowing a feasible timeframe to identify appropriate funding mechanisms and training of new staff. If the current staffing level of Lilongwe is indicative of the shortage of trained regulatory personnel in the rest of the country, strategic staffing plans should present measures and

timelines to make up for the shortfall in capacity over a period of three to six years. The Department of Buildings (MoTPW) and the Department of Housing (MoLHUD) should provide strategic and methodological support to local Governments to design and implement their staffing plans.

A similar effort should also be conducted for the Fire Brigades and Fire sections of County Building Departments to assess the number of personnel required to conduct plan reviews and building inspections for public and private buildings.

2) Require minimum academic and professional qualifications for local Government building, planning and fire regulators.

Local Government Development and Planning Departments should demand minimum qualification requirements for the recruitment of new staff and introduce new incentives to retain the services of qualified engineers and architects. Fire Brigades should implement the same requirements for fire engineers and inspectors. Incentives to recruit and retain qualified engineers and architects may include measures such as:

- Additional training upon completion of certain benchmark years.

³⁶³ BRCA Analysis, February 2018.

- Increased mobility across Building Departments.
- Opportunities for promotion based on individual performance.
- Waiving of professional registration fees.
- Improved access to Government services or benefits such as transport or access to housing.

3) Provide training for building regulatory staff in the Fire Brigades and Planning and Development Departments of Lilongwe, Blantyre, Mzuzu and Zomba in building plan reviews and inspection.

This process should be initiated with a training needs assessment. As noted in Chapter 3, the Department of Buildings (MoTPW) and the Department of Housing (MoLHUD) should have a central role in coordinating the training of building, planning and fire regulators. The content of the updated National Building Regulations as well as local city bylaws should be integrated into the curriculum.

4) Explore the option of leveraging resources from the private sector to expand local capacity for plan reviews and inspections.

A legal and regulatory review should be initiated to consider the introduction of licensed or accredited private sector engineers to carry out third-party plan reviews and inspections to verify project compliance with building regulation requirements and approved building plans. Simultaneously, an action plan could be developed to introduce standards of eligibility, transparency and accountability for private sector engineers to assume this regulatory role.

5) Review the Local Council's process for building permits and streamline where possible to improve efficiency and transparency.

The institutional reforms mandated by the Physical Planning Act (2016) provide an opportunity to reformulate the processes for development control.

6) Consider introducing a web-based MIS software application for building permits and inspections modelled on the cost-effective solutions introduced in Nairobi and Kigali.

7) Review the current fee policy of Local Councils to make it affordable for builders and home-owners to apply for a development permit.

8) Accompany the local permitting reform process with a strategic communication campaign targeting stakeholders such as building professionals, building and planning regulators, contractors and the general public.

Reforms associated with regulatory frameworks should place strategic communications at the heart of the process. The MoLHUD and the MoTPW could initiate and manage a strategic communications campaign aiming at different stakeholder groups, including building designers, builders, county regulators buildings trades, communities and the general public. A successful communications campaign should be sustained over time and seek feedback from the same target groups in order to maintain efficiency and innovation.

9) Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections.

With methodological support from the Department of Buildings (MoTPW), Local Council Planning and Development Departments should take steps to develop a comprehensive and practical classification of buildings. The classification would determine the level of prioritisation and allocation of scarce inspection resources based on level of risk. The classification should be unified to create one simplified categorisation of buildings and construction works, combining elements of size, use and location in a risk-based approach.

10) Local Councils should integrate hazard information for flood and landslide risks into land-use regulations and urban planning.

Under the leadership of national authorities such as the MoLHUD, the DoDMA and the MoNREE, local hazard maps should be identified and/or developed. Local Councils should integrate these into local physical development plans with technical assistance from the MoLHUD. Under the Physical Development Act (2016), city, town and district Councils must develop

physical development plans. Priority should be given to the cities of Lilongwe, Blantyre, Mzuzu and Zomba to ensure areas of potential urban extension are oriented to safer sites. A short-term priority should be to gather and review existing hazard data and research materials currently in the public domain.

The MoLHUD has a central role in strengthening the capacity of Council Planning Departments. As noted in Chapter 3, the Ministry should develop guidelines and provide technical assistance to support Local Councils.

11) Make risk-informed land-use maps available online to all citizens.

Local Councils should ensure risk-informed zoning maps are available online. This information should be readily available to the public without having to make a physical trip to the planning agency. These maps should be uploaded to the MASDAP Platform, managed by the Department of Survey.

As noted in the Chapter 3, the Department of Survey should provide national ministries and local governments with necessary guidance and standards to upload their data to the nationally managed platform.

12) Initiate steps to lower fees and costs associated with the registration of property rights and leasehold agreements. The cost is currently a deterrent for registration and formalisation.

13) Lilongwe City Council should initiate steps to reduce the size of the minimum and maximum plot size.

Lilongwe City Council should implement the recommendations outlined in the Urban Study on Development Master Plan for Lilongwe and draw on the experience of Blantyre City Council which has already initiated this reform. Particular effort should be made to lower the barrier of land registration for low-income earners by meeting the demand for smaller plots (e.g. 250–450 square metres).

6. Summary of Recommendations

The following tables summarise the Assessment's recommendations. These recommendations are framed as specific activities or tasks which should

be the responsibility of one or several institutions. The recommendations have been categorised as follows:

● **Short-term**

Activities which must be carried out starting immediately. Generally, these activities should be completed within a one-year time span.

● **Medium- to Long-term**

Activities that will take a longer period to implement, even up to three years. Starting these activities as soon as possible will yield benefits.

NATIONAL LEGISLATIVE AND INSTITUTIONAL FRAMEWORK		
Recommendations	S	M-L
Strengthen and pass the Buildings Control and Development Bill referencing the new National Building Regulations.		
Develop a national-level framework for fire prevention, including the development and passage of fire prevention legislation.		
Support the establishment of the proposed Building Regulation Division of the MoTPW and build its institutional capacity.		
Strengthen Malawi's capacity to test construction products, materials and soil. Testing facilities should be available for both the public and private sector.		
Assist the Department of Physical Planning in developing guidance materials for Local Councils to help them develop risk-sensitive land-use and physical development plans.		
Strengthen the coordination between different Government agencies and departments for developing and sharing hazard maps. This includes the development of data-sharing standards and methodologies for hazard mapping.		
Support the Land Survey Department in the completion of Malawi's Geodetic Network.		
Provide technical and financial assistance to the Technical, Entrepreneurial and Vocational Education and Training Authority (TEVETA) to develop a market-oriented training curriculum for construction workers which incorporates code requirements.		
BUILDING REGULATION DEVELOPMENT AND MAINTENANCE		
Recommendations	S	M-L
Address the technical gaps in the draft National Building Regulations and ensure that they align with international best practice.		
Determine the relationship between the city bylaws and the National Building Regulations.		
Initiate dialogue between the Building Regulation task team and a wide range of stakeholders to decide whether and how provisions and/or guidelines for non-engineered vernacular construction should be integrated or referenced in the new National Building Regulations.		
Finalise, mandate and disseminate the finalised National Building Regulations.		
Establish a systemic and inclusive technical process for the National Building Regulation's update, publication and distribution. The process should be outlined in the Building Regulations themselves and in any future national building legislation.		

LOCAL BUILDING REGULATORY CAPACITY AND IMPLEMENTATION		
Recommendations	S	M-L
Initiate human resource capacity needs assessments to inform staffing plans in Local Council Planning and Development Departments.		
Require minimum academic and professional qualifications for Local Government Building, Planning and Fire Regulators.		
Provide training for building regulatory staff in the Fire Brigades and Planning and Development Departments of Lilongwe, Blantyre, Mzuzu and Zomba in building plan reviews and inspection.		
Explore the option of leveraging resources from the private sector to expand local capacity for plan reviews and inspections.		
Review the Local Council's process for building permits and streamline where possible to improve efficiency and transparency.		
Consider introducing a web-based MIS software application for building permits and inspections modelled on the cost-effective solutions introduced in Nairobi and Kigali.		
Review the current fee policy of Local Councils to make it affordable for builders and home-owners to apply for a development permit.		
Accompany the local permitting reform process with a strategic communication campaign targeting stakeholders such as building professionals, building and planning regulators, contractors and the general public.		
Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections.		
Expand the capacity of Local Councils to develop hazard information for flood and landslide risks. This is a necessary input for risk-informed land-use regulations and urban planning.		
Make risk-informed land-use maps available online to all citizens.		
Initiate steps to lower fees and costs associated with the registration of property rights and leasehold agreements. The cost is currently a deterrent for registration and formalisation.		
Lilongwe City Council should initiate steps to reduce the size of the minimum and maximum plot size.		



Overview from hill to shoreline along Lake Malawi, Malawi Photo: Robert Ford

7. Conclusion and Next Steps

In many ways, Malawi is at a crossroad in its urbanisation process: the regulatory decisions made now will have a significant impact on the long-term safety, productivity and resilience of the built environment in both rural and urban areas. With its low base and moderate rate of urbanisation, Malawi is well-positioned to formulate plans to maximise the benefits and manage the challenges of urban agglomeration in the future.

The Government of Malawi has launched several initiatives to strengthen the building regulatory framework. The Government of Malawi must maintain the momentum behind this agenda in order to promote safe and resilient urbanisation. This report provides several recommendations as to how the Government of Malawi can strengthen the country's building regulatory framework.

While all the recommendations included in the report promote important components of a comprehensive building regulatory framework, there are five activities that should be prioritised. When implemented, these activities will provide a solid foundation for future regulatory reform.

1) Complete the Buildings Policy – this can form the basis of the Buildings Control and Development Bill.

This policy paper should outline broad principles for the Cabinet to review and endorse. The policy paper should

define broader objectives of building control, including its link to disaster and chronic risk reduction, climate change and adaptation, and social inclusion. The policy should also clearly define the roles and responsibilities of national and local Government institutions.

This paper should then serve as a basis for the development of a new building legislation. As per international best practice, this building legislation should reference and legally mandate the enforcement of the National Building Regulations.

2) Update, finalise and promulgate the National Building Regulations.

The Building Regulation task team and EcoBuild should address technical gaps in the draft National Building Regulations, including the detailed recommendations in Annex 9, and ensure that the new draft is aligned with international best practice.

The Department of Buildings (MoTPW), Department of Housing (MoLHUD) and Department of Disaster Management Affairs (DoDMA) should lead a consultative process to determine how these sets of national and subnational regulations will interact. It is critical to avoid overlapping and potentially contradictory provisions.

The National Building Regulations should be legally mandated. This necessitates referencing the Regulations in national legislation. The finalised Regulations should

be published online to ensure that both building regulators and professionals can have easy access to the documents.

3) Strengthen the capacity of the MoTPW and the MoLHUD to provide guidance and technical assistance to Local Council Planning and Development Departments.

This includes supporting the establishment of the proposed Building Regulation Division of the MoTPW, enhancing its role in providing guidance materials and technical assistance to District and City Councils and coordinating the training of building regulators including the development of a competency framework.

The MoLHUD should develop guidance materials for Local Councils to support them in the development of physical development plans. These guidance materials should include direction on how to integrate hazard maps. The MoLHUD should determine the feasibility of providing targeted technical assistance to Local Council Planning and Development Departments, starting with Malawi's largest cities – Lilongwe, Blantyre, Mzuzu and Zomba.

4) Strengthen the capacity of Local Council Planning and Development Departments and Fire Brigades.

A diagnostic and staffing plan should be developed at the local Government level, starting in Malawi's largest cities. These plans should be based on capacity gaps for plan reviews, inspections and technical advice. These plans should include a phased approach, allowing a feasible timeframe to identify appropriate funding mechanisms and training of new staff. The MoTPW and the MoLHUD should provide strategic and methodological support to local Governments to design and implement their staffing plans.

Training for building regulators on plan review and inspections should be initiated. This process should begin with a training needs assessment. The MoTPW and the MoLHUD could have a central role in coordinating the training of building, planning and fire regulators. The content of the updated National Building Regulations as well as local city bylaws should be integrated into the curriculum.

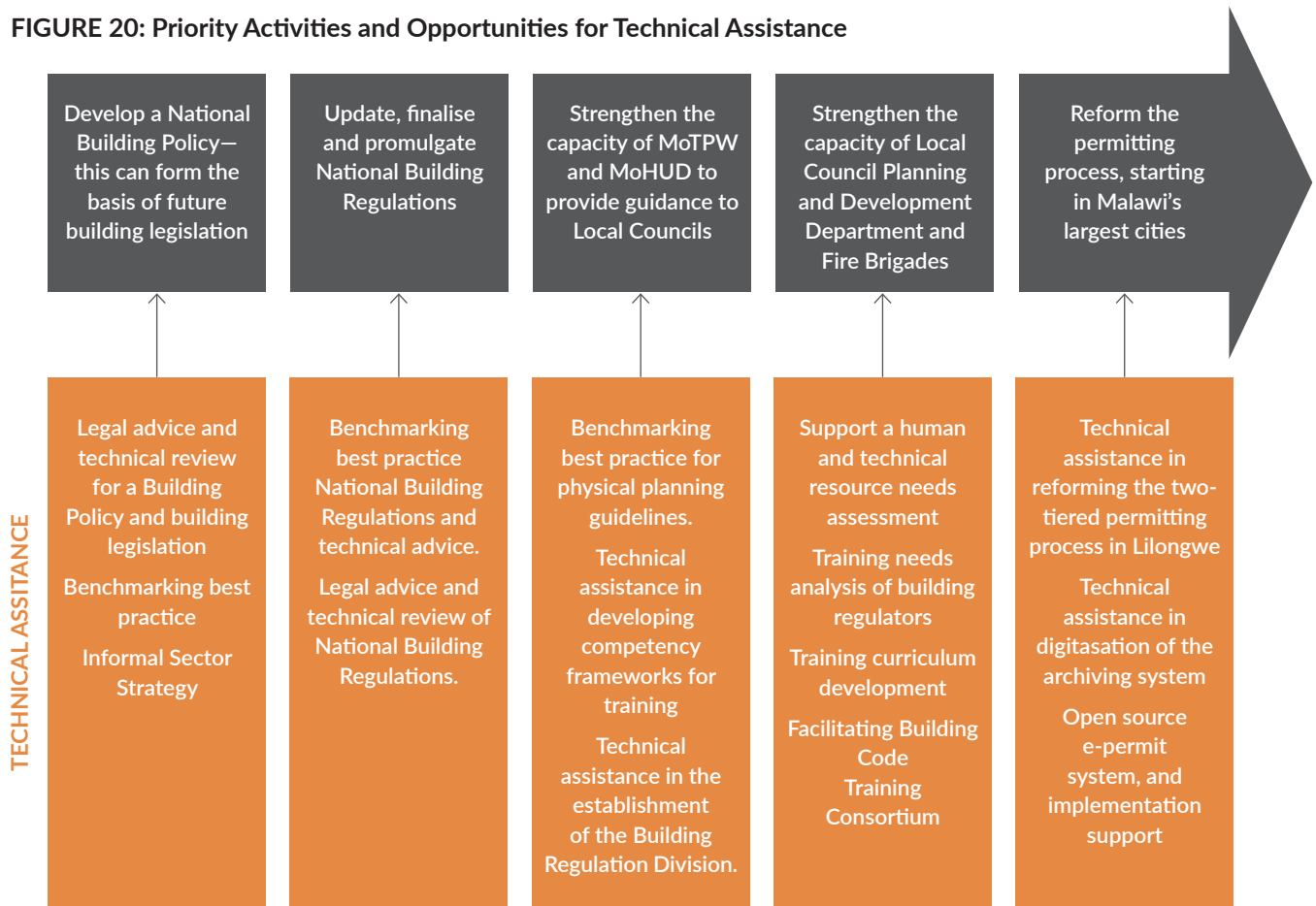
5) Reform the construction permitting process, starting in Malawi's largest cities.

The institutional reforms mandated by the Physical Planning Act (2016) provide an opportunity to reformulate the processes for development control. In order to increase efficiency and transparency, Lilongwe City Council should consider reforming the two-phased decision process for building permits. Lilongwe should also initiate reform of its permitting fees to reduce the financial barrier to compliance. Analysis should be conducted to determine the reforms required in Blantyre and Mzuzu.

The largest cities in Malawi should also initiate digitalisation of the archiving systems for building permits, record of inspections for all documented administrative decisions impacting building structures during their entire lifespan.

Figure 20 outlines these five activities and highlights opportunities for technical assistance. The World Bank will continue working with the Government of Malawi to determine what technical assistance and investment can be dedicated to pushing forward this critical agenda in order to promote safe and resilient construction across the country.

FIGURE 20: Priority Activities and Opportunities for Technical Assistance



Source: Malawi BRCA, 2019.



Financial building, Blantyre, Malawi. Photo: mtcuado

Annex 1

Mapping of Malawi's Legislation and Regulation Related to Building Development at Each Step of the Building Life Cycle

The legal review was conducted in May, 2018. The review included national legislation as well as the Lilongwe Bylaws of Building Standards, 1961.

Step 1: Overview of Laws Governing Building Siting

Step 1: Siting		
	Applicable Law	Detailed Sections
Legal Basis	Physical Planning Act, 2016	S.29 District physical development plans, S.33 Types of local physical development plans, S. 34 Contents of local physical development plans, S.35 Responsibility for preparation of local physical development plans.
	Public Roads Act, 1962	S.10 (4) Width of road reserves and effect of reservation, S.10 (6) prohibition to build.
	Land Act, 2016	S.9 Prohibition to grant freehold land, S.20 Unlawful use of public land, S.36 Prior written consent of the Minister or local Government authority before sale, lease, etc., of private land, S.39 Non-development of land, S.41 Minister's power to regulate, manage or control the use of land, S42 Power of entry to the land.
	Disaster Risk Management Act, 2017	S.28 Disaster risk assessment.
	Customary Land Act, 2016	S.19 Declaration of Hazardous Land.
	Bylaws of Building Standards of Lilongwe, 1961	S.74 (a) Built up area, S.75 Space in front of building, S.76 Space at rear of buildings, S.77 Buildings on site abutting on two or more streets.
	Lilongwe Urban Development Master Plan, 2010	Chapter 5.6. Land-Use Plan for 2030, Chapter 5.8. Institutional Measures to Implement Land-Use Zoning.
	Institutions Involved	
		Lilongwe City Council
	Town Planning Department	Inspections on site and zone planning. The Town Planning Department of the Lilongwe City Council is the one in charge of developing the local development plans.

Step 1: Siting			
Legal Basis	Applicable Law	Detailed Sections	
		Section Nr. Text	
	Public Roads Act, 1962	Section 10	10. (6) No person shall do any of the following acts or things on land in a road reserve without the consent in writing of the highway authority: (a) erect or alter any structure; (b) plant any tree or bush; or (c) prepare for cultivation any land which was not, when the land became road reserve, prepared for cultivation: Provided that notwithstanding such consent, neither the person doing such act or thing nor any who may acquire any interest in the land in question shall be entitled.
		Section 9	9. Freehold land shall not be allocated or granted to any person.
	Land Act, 2016	Section 20	20. A person who uses or occupies any public land and is not of public land entitled to such use or occupation by virtue of a valid grant, lease or other disposition made by the Minister under any law for the time being in force at the date of such grant, lease or disposition, commits an offence and upon conviction shall be liable to a fine of K500,000 and to imprisonment for three years , and, in the case of a continuing offence, to a further fine of K5,000 in respect of everyday during which the offence continues.
		Section 36	36. A person shall not sell or otherwise to convey, lease, transfer or assign any private land shall, without prior written consent of the Minister or a local Government authority to sell, convey, lease, transfer or assign the land.
		Section 39	39. Prior to the expiry of the three years period referred to in section 9(2), where a holder of private land under freehold title has not developed the land or has not shown or effected his intention to develop the land or dispose of it, within two years from the date the holder has been registered, the Minister may, without prejudice to any other powers conferred on him by this Act or any other written law: (i) acquire the land under the Lands Acquisition Act.
		Section 42	42. Any authorised officer may at any reasonable time enter upon any land to which section 41 (1) applies for the purpose of ensuring that this Part is being complied with.
	Disaster Risk Management Act, 2017	Section 28	28. (1) The Commissioner, in coordination with Local Authorities, shall periodically undertake or cause to be undertaken comprehensive hazard, vulnerability and capacity assessments and mapping at national, local authority and community level covering all sectors; (2) Without prejudice to the generality of the foregoing, the Commissioner shall (a) identify and map risks, areas, ecosystems, communities and households that are exposed or vulnerable to physical and human-induced threats; (b) review the technical characteristics of hazards such as their location, intensity, frequency and probability; (c) conduct periodic analyses of exposure and vulnerability including the physical social, health, economic and environmental dimensions; (d) regularly evaluate the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. (e) facilitate the production of hazard and vulnerability maps for Malawi; (f) promote use of space-based technologies in disaster risk management initiatives; and (g) coordinate the development and implementation of capacity building programs in key institutions responsible for disaster risk identification, assessment and monitoring.
	Applicable Law	Detailed Sections	

Step 1: Siting			
		Section Nr.	Text
Legal Basis	Customary Land Act, 2016	Section 19	19. (1) The Minister may declare any customary land in a hazardous land Traditional Land Management Area to be hazardous land in accordance with the provisions of this section. (2) Notwithstanding subsection (1), any local Government authority having jurisdiction in any village may advise the Minister to declare any customary land as hazardous land if in its opinion it is necessary to do so. (3) For the purposes of this section, "hazardous land" means land the development of which is likely to pose danger to life or to lead to the degradation of, or environmental destruction on, that or contiguous land, and includes: a) wetlands and offshore island in the lakes and other water bodies; (b) land designated or used for the dumping of hazardous waste; (c) land within sixty meters of a river bank or the shoreline of an inland lake or such other distance as the Minister may specify; (d) land slopes with a gradient exceeding any angle which the Minister shall, after taking account of proper scientific advice, specify; (e) land specified by an appropriate authority as land which should not be developed on account of its fragile nature; or land specified by an appropriate authority as being land which should not be developed on account of its environmental significance.
	Bylaws of Building Standards of Lilongwe, 1961	Section 74	Section incomplete in the referenced document.
		Section 75	75. Space in front of the building: Entire section.
		Section 76	76. Space at rear of buildings: Entire section.
		Section 77	77. Buildings on site abutting on two or more streets.
	Lilongwe Urban Development Master Plan, 2010	Chapter 5.6.	Land-use plan for 2030.
		Chapter 5.8.	Institutional Measures to Implement Land-Use Zoning.

Sep 2: Overview of Laws Governing Building Design

Step 2: Design		
Applicable Law	Detailed Sections	
Legal Basis	Occupational Safety, Health and Welfare Act, 1997	S.23 Overcrowding, S.24 Ventilation and Temperature, S.25 Lighting, S.26 Drainage of floors, S.27 Sanitary conveniences, S.28 Washing facilities, S.30 Change rooms, S.31 Seat, S.32 Facilities for meals), S.38 Hoists and lifts, S.39. Escalators, S.42. Steam boilers, S.56 Prevention of fire, S.57 Means of escape in case of fire.
	Electricity Act, 2004	S.41 Trees or buildings interfering with electricity supply and equipment.
	Electricity Bylaws, 2012	S.29 Design and protection of works, Third Schedule. Minimum section clearance, Fourth Schedule. Minimum heights of overhead lines.
	Public Health (Minimum Buildings Standards for Traditional Housing Areas) Rules, 1971	S.6 Side boundaries, S.7 Latrines, S.8 Minimum area specifications, S.9 Specifications for latrines, S.10 External doors, S.11 Drainage, S.12 Kitchen, S.13 Foundations, S.14 Walls, S.15 Floors, S.16 Roofs, S.17 Screens, S.18 Notice to be given.
	Environment Management Act, 1996	S.24 Projects for which an environmental impact assessment is required.
	Architects and Quantity Surveyors Act	S.22 Registers, S.23 Architects and surveyors must be registered, S.25 Qualification for registration as an architect, S.31 certification of registration, S.35. Unlawful practice of architecture or quantity surveying.
	Engineers Act, 1972	S.19 Registers, S. 20 Engineers must be registered, S.22 Registration as a registered engineer, S.38 Unlawful practice of engineering.
	Physical Planning Act, 2016	S.43 Exempted development permission, S.44 Permitted development, S.45 Types of permitted development, S.46 Application for development permission, S.47. Power to obtain information concerning application, S.48 Power of the minister concerning applications, S.49 Consultations in relation to applications, S.50 Consideration of applications, S.71 Appeals, First Schedule. Permitted development. Application should be made by a physical planner (S. 46(2)).
Legal Basis	Disability Act, 2012	S.9 Prohibition of Discrimination in Accessing Premises and the Provision of Services and Amenities, S.19 Cultural and Sporting Activities, and Recreational Activities.
	Tourism and Hotels (Minimum Standards) Regulations, 2005	S.26 Emergency exits, S.39 Planning Approval.
	Bylaws of Building Standards of Lilongwe, 1961	S.21 to S.29 General load bearing requirements, S.30 to S.32 Fire resistance, S.33 to S.38 Fire resistance of small houses, S.39 to S.48 to Fire resistance of buildings other than small houses, S. 49 to 50 Fire resistance - Miscellaneous provisions applying to all buildings, S.51 to S.52 Roofs, S. 53 Floors: Resistance to moisture, S.80 Windows, S.83 Ventilation of staircase, S.83a Height of ground floor, S.84 Height of habitable rooms, S.85 Thermal insulation of houses, S.88 Drainage of roofs, S.102 to S.108 Sanitary convenience, S.109 to 110 Cesspools and septic tanks, S.112 Swimming pools, S.113 Rainwater tanks, S.118 Penalties, S.119 Prescribed period, S.20 Fees Schedule, First schedule: Deposit of plans and other particulars, Second schedule: Calculation of loading, Third and fourth schedule: Rules to satisfy requirements as to stability and fire resistance.
	Monuments and Relics Act, 1991	S.13 Prohibition on alteration, etc., S.29 Rescue archaeology.

Relevant Institutions	Institutions Involved	
	(Activity 01) Obtain the Location Plan	
	<i>Ministry of Lands, Housing and Urban Development (MoLHUD, City Council, Malawi Housing Corporation, Airport Limited, etc.)</i>	
	Department in charge of the location plan.	
	(Activity 02) Obtain the Environmental Impact Assessment	
	<i>Department of Environmental Affairs (Ministry of Natural Resources, Energy and Environment)</i>	
	Department in charge of the EIA.	
	(Activity 03) Obtain the Development Approval	
	<i>Lilongwe City Council</i>	
	Building control section	<ol style="list-style-type: none"> 1. Submit the application file to the Development Control Section, 2. Inspect the plot, 3. Perform a preliminary check, 4. Calculate the fees, 5. Calculate the fees, 6. The user pay the fees and the project is registered, 7. The user receive an application number, 8. Obtain architectural plans approval notification through the scrutinisation of the Town and Planning Technical sub-committee (Building Department of LCC, Institute of Architects of Malawi, Institute of engineers of Malawi, the Roads Authority, the Physical Planning Institute of Malawi, Department of Health of the City Council, the Fire section, others Governmental agencies), 9. Formulate recommendations, 10. Decision of the Town and Planning Committee, 11. Sign the development approval.

Step 2: Detailed Provisions of Laws Governing Building Design

Step 2: Design		
Legal Basis	Applicable Law	Detailed Sections
		Section Nr. Text
Occupational Safety, Health and Welfare Act, 1997	Section 23	23. (1) A workplace shall not, while work is carried on, be so overcrowded as to cause risk of injury to the health of the persons employed therein. (2) For purposes of subsection (1), a workplace shall be deemed to be overcrowded if the number of persons employed at any one time in any workroom is such that the amount of cubic space allowed for each person so employed is less than eleven cubic meters. (3) Every workroom shall be not less than three meters in height, as measured from the floor to the lowest point of the ceiling or, where there is no ceiling, to the lowest point of the roofing material.
	Section 24	24. (1) Every workplace shall have effective and suitable provision for securing and maintaining the circulation of fresh air in each workroom, adequate ventilation of the room, and for rendering harmless, so far as practicable, all such fumes, dust and other impurities generated in the course of any process or work carried on in the workplace as may be injurious to health.
	Section 25	25. (1) Every workplace shall have effective provision for securing and maintaining sufficient and suitable lighting, whether natural or artificial, in every part of a workplace in which persons are working or passing.
	Section 26	Where any process is carried on which renders the floor at any workplace liable to be wet, and the wet is capable of being removed by drainage, effective means shall be provided and maintained for drainage and disposal of the wet.
	Section 27	27. (1) Every occupier shall provide sufficient and suitable sanitary conveniences for persons employed in the workplace, which shall be maintained and kept clean, and effective provision shall be made for lighting the conveniences and, where persons of both sexes are or are intended to be employed (except in the case of workplaces where the only persons employed are members of the same family dwelling there), such conveniences shall afford proper separate accommodation with a distinct approach for persons of each sex.
	Section 28	28. (1) Every occupier shall provide at a workplace separate washing facility for male and female employees, easily accessible, in the proportion of at least one wash hand basin and one shower for every twenty employees, per a shift where shifts are operational. (2) The washing facilities referred to in subsection (1) shall be maintained in a clean and orderly condition for the use of all persons employed and shall have separate entrances for each sex.
	Section 31	31. (1) Every occupier shall provide and maintain at a workplace a sufficient number of seats for the use of those employees whose work is ordinarily performed standing and shall permit such employees to take advantage of any opportunities for resting which may occur in the course of their employment.
	Section 32	32. (1) Every occupier shall provide and maintain in good condition, suitable facilities where employees may prepare and consume their meals. (2) No person shall be permitted to consume food or drink in any room where any poisonous or otherwise injurious substance is so used as to give rise to any dust or fume.

Step 2: Design			
	Applicable Law	Detailed Sections	
		Section Nr.	Text
Legal Basis	Occupational Safety, Health and Welfare Act, 1997	Section 38	38. (4) Every hoist way or lift way shall be efficiently protected by a substantial enclosure fitted with gates, being such an enclosure as to prevent, when the gates are shut, any person falling down the way or coming into contact with any moving part of the hoist or lift. (5) Every gate referred to in subsection 4 shall be fitted with efficient interlocking or other devices to ensure that the gate cannot be opened except when the cage or platform is at the landing and that the cage or platform cannot be moved away from the landing until the gate is closed. (6) Every hoist or lift and every enclosure referred to in subsection 4 shall be so constructed as to prevent any part of any person or any goods carried in the hoist or lift being trapped between any part of the hoist or lift and any fixed structure or between the counter-balance weight and any other moving part of the hoist or lift.
		Section 39	39. Every escalator in a workplace shall be examined by a competent person after every period of six months, and a report of the result of every such examination in the prescribed form and containing the prescribed particulars shall be signed by the person making the examination and shall be submitted to the Director within fourteen days of the date of examination.
		Section 42	42. (1) Every steam boiler and all its fittings and attachments shall be of good construction, sound material, adequate strength and free from patent defect, and shall be properly maintained.
		Section 56	56. (1) There shall be provided and maintained in every workplace, adequate and suitable means for extinguishing fire, which shall be readily accessible.
		Section 57	57. (1) Every workplace shall have adequate means of escape in case of fire for the persons employed therein. (5) Any door in a workplace opening on to any staircase or corridor from any room in which more than ten persons are employed and, in the case of any workplace constructed or converted for use as a workplace after the coming into operation of this Act, all other doors affording a means of exit from the workplace for persons employed therein, shall, except in the case of sliding doors, be constructed to open outwards. (6) Doors in a workplace giving access to stairways shall not open immediately on to a flight of stairs, but on to a landing of adequate width, in no case less than the width of the door opening on to that landing. (10) Every hoist way or lift way inside a building constructed after the date of coming into operation of this Act shall be completely enclosed with fire-resisting materials, and all means of access to the hoist or lift shall be fitted with doors of fire-resisting materials.
	Electricity Act, 2004	Section 41	41. (4) Except with the permission of the licensee, no person shall erect any building or structure in the wayleave or in such a position or in such a manner as to be likely to interfere with the supply of electricity through any transmission line or distribution line and, if, after a transmission line or distribution line has been constructed, any person erects any building or structure in the wayleave or in such a position or in such a manner as to be likely to interfere with the supply of electricity through such transmission line or distribution line, the licensee may request such a person to remove or adjust such a building or structure as may be necessary.

Step 2: Design				
Applicable Law	Detailed Sections			
	Section Nr.	Text		
Legal Basis	Electricity bylaws, 2012	Section 29	A licensee shall ensure that high-voltage conductors and high-voltage live parts, unless completely surrounded and protected by earthed metal have the minimum section clearances set out in the Third Schedule hereto attached or are guarded by a protective barrier in order to prevent inadvertent touching or dangerous approach by a person standing on any floor-level, walkway, stairway or working platform.	
		Third Schedule	Minimum section clearance.	
		Fourth Schedule	Minimum heights of overhead lines.	
	Public Health (Minimum Buildings Standards for Traditional Housing Areas) Rules, 1971	Section 6	6. No building shall be erected within 10 feet of any side boundary of the plot on which it stands: Provided that a latrine may be sited up to the line of the back boundary of the plot.	
		Section 7	7. Every latrine shall be sited in accordance with the directions of the controlling authority.	
		Section 8	8. (1) Every dwelling house shall have a minimum floor area of 40 square feet for each person to be accommodated therein. (2) No round house shall have an internal diameter less than 12 foot. (3) Rectangular houses shall not be smaller than 180 square feet total floor area, and no single wall shall be less than 10 feet in length. Each occupant of a house shall have at least 40 square feet of floor area in rooms used for sleeping purposes. (4) When thatch is the roof material the height from the floor to the top of the wall shall be not less than six feet, and when the roof is of iron or aluminium the minimum height of wall shall be not less than eight feet. (5) Where the window space which opens does not equal or exceed one twentieth of the floor area, an air space four inches in height shall be provided between all the walls and the roof.	
		Section 9	9. (1) Every dwelling house shall be provided with a latrine, the doorway of which shall be suitably screened from view.	
		Section 10	10. Every dwelling house shall be provided with an external door or doors to the satisfaction of the controlling authority.	
		Section 11	11. Drainage Storm water drainage shall be provided and the filling of holes and clearing of the site shall be completed by the house owner to the satisfaction of the controlling authority on or before the date of completion of the building.	
		Section 12	12. Each dwelling house shall be provided with a kitchen of not less than 24 square feet floor area and with adequate ventilation to the satisfaction of the controlling authority.	
		Section 13	13. Foundations shall be adequate to support the load transmitted to them and shall be constructed in such a manner as the controlling authority may approve. Every foundation shall be laid on ground of such compressive strength as will carry the total loads imposed.	
		Public health (Minimum buildings standards for traditional housing areas) rules, 1971		
		Section 14	14. Walls shall be constructed of materials approved by the controlling authority. They shall have a smooth internal finish and external protection in accordance with best local customs except where the controlling authority may require any other form of finish.	
	Section 15	15. Every floor shall have a smooth finish and shall be at least four inches above the surrounding ground level. A floor may be constructed of well compacted earth or of such materials as will provide a smooth hygienic finish.		
	Section 16	Every roof shall be of thatch or of asbestos, tiles, corrugated iron or aluminium or of such other material as may be approved by the local authority.		

Step 2: Design			
	Applicable Law	Detailed Sections	
		Section Nr.	Text
Legal Basis	Public Health (Minimum Buildings Standards for Traditional Housing Areas) Rules, 1971	Section 18	18. Every person proposing to erect any dwelling house to which these Rules apply shall give notice to the controlling authority, or to any representative thereof appointed under rule 22, of his intention to build and shall supply such particulars of the proposed building and materials as the controlling authority or such representative shall require. No person shall commence any building operations until the written authority of the controlling authority or any such representative has been obtained.
	Environment Management Act, 1996	Section 24	24. The Minister may, on the recommendation of the Council specify, by notice published in the Gazette, the types and sizes of projects which shall not be implemented unless an environmental impact assessment is carried out.
	Architect and quantity surveyor Act, 1992	Section 22	22. (1) The Board shall, for the purposes of this Act, keep and maintain, in the appropriate prescribed forms: (a) a Register of Architects.
		Section 23	23. (1) Save where this Act otherwise provides, no person shall engage in the practice of architecture or quantity surveying in Malawi or hold himself out as being entitled so to do, unless he is registered under this Act. (2) Any person who engages in the practice of architecture or quantity surveying in contravention of subsection (1) shall not be entitled to recover in any court any charge or fee in respect of any architectural or quantity surveying work or activity done or performed by him in the course of his practice which constitutes a contravention of subsection (1).
		Section 25	25. Any person may, upon making application for registration, be registered as an Architect provided that he proves to the satisfaction of the Board that his professional and general conduct has been such as not, in the opinion of the Board, to debar him from registration and that he: (a) is a member of the Malawi Institute of Architects or such other institution or society as the Minister may, by notice published in the Gazette, declare to be of adequate standing; and (b) either: (i) has passed a qualifying examination approved by the Board and has had at least two years' practical training in the work of an Architect to the satisfaction of the Board; or (ii) has satisfied the Board that he possesses a qualification which, in the opinion of the Board, furnishes a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of the work of an Architect.
		Section 31	31. The Registrar shall issue to every person registered as an Architect, Graduate Architect, Architectural Technician, Quantity Surveyor, Graduate Quantity Surveyor, Quantity Surveying Technician, as the case may be, under this Act, a certificate of registration in the appropriate prescribed form.
		Section 35	35. Save where this Act otherwise provides, any person who is not registered under this Act, and who in Malawi: (a) engages, or purports to engage, in the practice of architecture or quantity surveying; (b) holds himself out as being entitled to engage in the practice of architecture or quantity surveying; (c) does or performs, or purports to do or perform, any act or thing which, under this Act may be done or performed exclusively by a person registered under this Act, shall be guilty of an offence and liable to a fine of K5,000 and to imprisonment for a term of one year.
	Engineers Act, 1972	Section 19	19. (1) The Board shall, for the purposes of this Act, keep Registers and maintain, in the appropriate prescribed forms: (a) a Register of Engineers; (b) a Register of Graduate Engineers; and (c) a Register of Selected Registered Engineers.

Step 2: Design			
	Applicable Law	Detailed Sections	
		Section Nr.	Text
Legal Basis	Engineers Act, 1972	Section 20	20. (1) Save where this Act otherwise provides, no person shall engage in the practice of engineering in Malawi, or hold himself out as being entitled so to do, unless he is registered under this Act.
		Section 22	22. (1) Any person shall be entitled to make application for registration as a registered engineer under this Act if: (a) he has attained the age of 25 years; and (b) he has, in consequence of an examination, obtained from an approved institution a degree or other qualifying certificate which the Board considers acceptable for registration; and (c) he has passed the appropriate Engineering Qualifying Examination; and (d) he has, for the prescribed period, been registered as a Graduate Engineer under this Act, and has complied with all of the conditions attached to his registration as such Graduate Engineer.
		Section 38	38. Save where this Act otherwise provides, any person who is not registered under this Act, and who, in Malawi: (a) engages, or purports to engage, in the practice of engineering; or (b) holds himself out as being entitled to engage in the practice of engineering; or (c) does or performs, or purports to do or perform, any act or thing which., under this Act may be done or performed exclusively by a person registered under this Act, shall be guilty of an offence and liable to a fine of one thousand Kwacha and to imprisonment for a term of one year.
	Physical Planning Act, 2016	Section 43	43. (1) Nothing in this Part shall affect the mandate of a customary land committee under the Customary Land Act, 2016 to authorise the use and occupation of any customary land or customary estate within its area in accordance with the Customary Land Act, 2016, but where such land is in a land development control area, such authorisation shall not operate as a development permission and it shall be the duty of the occupant of the customary land or customary estate to apply for development permission unless the proposed development is an exempted development under this Act.
		Section 44	44. (1) The types and classes of development set out in the First Schedule hereto shall, to the extent provided, be permitted development under this Act and shall be exempt from development permission under this Act.
		Section 45	45. The types of development permission that may be granted under this Part are as follows: (a) an outline development permission and development permission for development anywhere in Malawi including within a land development control area; (b) an advertisement permission for the display of advertisements anywhere in Malawi; or (c) a subdivision permission for the subdivision of land within a subdivision control area.

Step 2: Design			
	Applicable Law	Detailed Sections	
		Section Nr.	Text
Legal Basis	Physical Planning Act, 2016	Section 46	46. (1) An application for development permission under this Part shall be: (a) made to:(i) a local Government authority, in case of any development within the area of its jurisdiction; or (ii) the Commissioner, in every other case; (b) in a prescribed form; and (c) accompanied by a prescribed fee payable to Government and shall include such other information as the local Government authority or the Commissioner may require. (2) An application for development permission shall be submitted by a registered physical planner being an agent of the applicant. (3) Where the development permission applied for is of national interest, the local Government authority or the Commissioner, as the case may be, shall forward the application to the Council for approval. (4) The responsible authority may, by written notice served on an applicant for the grant of a development permission require the applicant to do either or both of the following: (a) publish details of his application at a time or times in a place or places and in a manner specified in the notice; or (b) give details of his application to the persons and authorities and in a manner specified in the notice. (5) Pursuant to the notice given in subsection (3), a person with an interest in the published notice may make a submission outlining his interest in the publication, to the responsible authority. (6) In making its decision on an application for a grant of development permission, the responsible authority shall take into account any submission made under subsection (4). (7) A responsible authority shall in writing notify the applicant for a development permission of its decision on the application, giving, where it grants the permission, the conditions, if any, upon which it is granted and, where it refuses the permission, a brief of reasons for the refusal. (8) The responsible authority shall, within thirty days of the receipt of an application for development permission, inform the applicant of the decision on the application, or where no decision has been taken, of the progress on the application, and the likely date by which a decision will be taken.
		Section 47	47. (3) The responsible authority may defer a decision on an application for the grant of development permission until the responsible authority is satisfied on the matters in respect of which it requires information or permission to enter on the land to which the application relates has been granted, provided that any deferment to make a decision under this subsection shall not exceed a period of sixty days.
		Section 48	48. The Minister may from time to time, by order published in the Gazette, or in any individual case, by directions or instructions in writing under his hand, withdraw an application or class of applications for development permission from the jurisdiction of the responsible authority and reserve the power to make a decision on that application or class of applications to himself.
		Section 49	49. (1) A responsible authority may, on receipt of an application for development permission, consult with and seek information from any of the following persons and authorities as may be necessary for the satisfactory disposal of the application.

Step 2: Design			
Legal Basis	Applicable Law	Detailed Sections	
		Section Nr. Text	
	Physical Planning Act, 2016	Section 50	50. (1) In considering any application for development permission, the responsible authority shall, and subject to this Act or any other written law, take such of the following matters into account as it considers necessary for the satisfactory disposal of the application: (a) any district physical development plan or local physical development plan applicable to the area; (b) such information and advice as it has received under section 46; (c) the foreseeable impact of the proposed development on the natural or built environment and on adjacent uses of land; (d) the quality and economy of the proposed development, its proposed layout and the quality of its architectural designs; (e) consideration of noise, air, water and ground pollution, and any other detrimental effect the proposed development may have on the amenity and built environment of the area and adjoining land uses; (f) traffic considerations; (g) the contribution the proposed development may make to economic and social facilities and welfare, including employment, within the area; (h) the financial and other resources available to the person who has applied for development permission; (i) whether the proposed development is desirable, convenient or necessary having regard to the public interest; and (j) any other consideration which the Minister requires the responsible authority to have regard to.
		Section 71	71. (2) Where a person wishes to appeal against any notice or decision referred to in subsection (1), he shall submit a notice of appeal to the Council, within thirty days of the receipt of the notice or decision to be appealed against.
		First schedule	Permitted Development.
	Disability Act, 2012	Section 9	9. (1) No person shall be denied access or admission to any premises or the provision of any service or amenity, on the basis of disability. (2) A person who contravenes subsection (1) commits an offence and is liable to – (a) in the case of a natural person, a fine of K100,000 and imprisonment for twelve months; or (b) in the case of a body corporate, a fine of K1,000,000.
		Section 19	19. (1) The Government shall: (b) take appropriate measures to ensure that persons with disabilities have access to: (ii) places of cultural performances or services, such as theatres, museums, cinemas, libraries and tourism services, and, as far as possible, to monuments and sites of national and cultural importance; and (iii) specific development programs for sports, both in and out of school.
	Tourism and Hotels (Minimum Standards) Regulations, 2005	Section 26	26. Emergency exits shall be provided and clearly indicated.
		Section 39	Guesthouses shall satisfy the following requirements: (1) Planning approval for the operation of a guesthouse from relevant authorities, (2) Fire safety precautions approved by the relevant authorities, (3) A reasonable standard of exterior and interior decoration.
	Bylaws of Building Standards of Lilongwe, 1961		(Various sections are relevant).

Step 2: Design		
Legal Basis	Applicable Law	Detailed Sections
		Section Nr.
		Text
	Monuments and Relics Act, 1991	Section 29 29. (1) A person in charge of any survey, excavation, exploration, construction or new development shall, at the earliest stages of planning for such activities, give notice to the Minister to enable, where necessary, rescue archaeology to be carried out in accordance with subsection (2). (2) Rescue archaeology of a monument or relic under subsection (1) shall be carried out by the Chief Antiquities Officer or any qualified person with an excavation permit issued by the minister, and the cost of such work shall, unless the Minister otherwise directs, be borne by the person in charge of any survey, excavation, exploration, construction or other development.
		Section 13 13. (1) No person shall without the prior written consent of the minister: (a) make any alteration to, or destroy or damage, any monument or relic or any part thereof; or (b) carry out cultivation or mining project or other work so as to cause, or likely to cause, damage or disturbance to nay protected monument or protected relic. (2) A person who contravenes subsection (1) shall be guilty of an offence.

Step 3: Overview of Laws Governing Building Construction

Step 3: Construction		
	Applicable Law	Detailed Sections
Legal Basis	Public Health (Minimum Buildings Standards for Traditional Housing Areas) Rules, 1971	S.21 Entry and inspection, S.23 Penalties.
	Land Act, 2016	S.45. (1)(4) Summons for trespass, encroachment or unlawful occupation.
	Electricity Act, 2004	Part VIII. Rights Over Land S.40 to S.44 (affectations produced by constructions).
	Occupational Health and Safety Act, 1997	S.6 Registration of workplaces, S.7 Premises not to be used as a workplace unless registered, S.8 Application for erection or alteration of workplaces, S.22 Cleanliness, S.26 Drainage of floor, Sanitary conveniences, S.40 Cranes and other lifting machines, S.56 Prevention of fire, S.73 Powers of inspectors, S.76 Improvement notices.
	National Construction Industry Act, 1996	S.20 Prohibition of carrying on business, etc.
	National Construction Industry (Application Fees) Regulations, 1998	S.2 Application fees.
	National Construction Industry (Fees and Forms) Regulations,	S.3 Forms.
	Monuments and Relics Act, 1991	S.56 Offence .
	Tourism and Hotels (Minimum Standards) Regulations, 2005	S.25 Fire-fighting equipment, S.26 Emergency exists,.
	Bylaws of Building Standards of Lilongwe, 1961	S.6 Notice of commencement and completion of certain stages of work
Physical Planning Act, 2016	S.51 Time and completion of development, S.52 Revocation of grant of a development permission, S.54 Development not to take place without permission, S.55 Enforcement notice, S.56 Reconsideration of enforcement notice, S.57 Matter to be taken into account on enforcement notice, S.58 Action in pursuance of enforcement notice, S.59 Stop notice, S.60 Development Permission subsequent upon unauthorised development.	

Relevant Institutions	Institutions Involved	
	(Activity 01) Register the Workplace	
	<i>Directorate of Occupational Safety and Health</i>	
	OSH Project Registration Department	
	(Activity 02) On-Site Inspections	
	<i>Lilongwe City Council</i>	
	Building Inspection Department	Inspections on site in order to verify the compliance to the laws and regulations.
	(Activity 03) Issuance of the Occupancy Certificate	
	<i>Lilongwe City Council</i>	
	Technical sub-committee	

Step 3: Detailed Provisions of Laws Governing Building Construction

Step 3: Construction		
Applicable Law	Detailed Sections	
	Section Nr.	Text
Public Health (Minimum Buildings Standards for Traditional Housing Areas) Rules, 1971	Section 21	21. (1) Any person authorised by a controlling authority may with or without workmen or others at all reasonable times enter upon the site of any building for the purpose of the inspection of such building whether under construction or already constructed, or for the purpose of securing compliance with any of these Rules. (2) Every person shall comply forthwith with any written notice given by a controlling authority, or by any representative thereof appointed under rule 22 requiring any such person to carry out any works, repairs or operations, or to do or to refrain from doing anything for the purpose of securing compliance with any of these Rules.
	Section 23	23. Any person who contravenes any of the provisions of these Rules shall be guilty of an offence and shall be liable to the penalties prescribed in section 138 of the Act.
Land Act, 2016	Section 45	45. (4) When determining in accordance with subsection (2), the period of time which shall be allowed to the defendant within which to vacate the land, the magistrate court shall take into consideration the period of time which may reasonably be required to enable the defendant, if he be so minded, for his own use and benefit— (a) to take down, disassemble and remove from the land, or any part thereof, any buildings, structure, fence or improvement of any kind whatsoever which he may have erected upon or made to the land; (b) to harvest, collect, take-in and remove from the land or any part thereof, any crops, plants, trees, shrubs or other matter which he may have sown, planted or cultivated on the land during his occupation thereof; and (c) to remove from the land any chattels belonging to him.
Electricity Act, 2004	Section 40	40. (1) Any member, or staff or agent of the licensee, duly authorised in that behalf by the licensee, and any contractor executing any work for the licensee together with its agent and staff may, on giving to the occupier such notice as, having regard to all the circumstances of the case, is reasonable, enter upon land at any time between the hours of six o'clock in the forenoon and six o'clock in the evening for the purpose of surveying, setting out and marking the line of any intended transmission line or distribution line, water pipe line or other equipment.
	Section 41	41. (4) Except with the permission of the licensee, no person shall erect any building or structure in the wayleave or in such a position or in such a manner as to be likely to interfere with the supply of electricity through any transmission line or distribution line and, if, after a transmission line or distribution line has been constructed, any person erects any building or structure in the wayleave or in such a position or in such a manner as to be likely to interfere with the supply of electricity through such transmission line or distribution line, the licensee may request such a person to remove or adjust such a building or structure as may be necessary.
	Section 42	42. (1) Subject to subsection (2), where the licensee has acquired the right to place the transmission line or distribution line across, under or along any street either in accordance with the Act or any other written law, the licensee may breakup any street in which such right has been acquired and may from time to time as may be necessary repair, alter or remove any such lines.

Legal Basis

Step 3: Construction

Applicable Law	Detailed Sections	
	Section Nr.	Text
Occupational Health and Safety Act, 1997	Section 44	44. (1) The licensee shall make good to the reasonable satisfaction of caused by licensee the local or other authority, or the owner, as the case may be, of all public and private roads, streets and paths opened or broken up by the licensee in the course of its operations and shall also pay fair and reasonable compensation or rent or both for all losses or damage caused in the execution of any of its powers conferred by this Act.
	Section 6	6. The Director shall keep a register of workplaces in which he shall cause to be entered such particulars in relation to every workplace required to be registered under this Act as he may consider necessary or desirable.
	Section 7	7. (1) No person shall occupy or use a workplace unless he is the holder of: (a) a registration certificate issued in respect of such premises under section 9 (2); (b) a current provisional registration permit issued in respect of such workplace under section 9 (3). (2) The occupier of a registered workplace shall not carry on therein any activity referred to in section 3 other than that specified in the registration certificate or provisional registration permit, as the case may be.
	Section 8	8. (1) Every person who intends to: (a) erect or cause to be erected any building for use as a workplace; or (b) effect any structural or other alteration to any premises registered as a workplace under this Act; or (c) alter or add to any existing building not registered as a workplace under this Act with the intention of using such building or a portion thereof as a workplace, shall submit to the Director, in duplicate in the prescribed form, plans of the site, and of the proposed building, alterations or additions, together with the prescribed particulars.
	Section 22	22. (1) Every person who intends to: (a) erect or cause to be erected any building for use as a workplace; or (b) effect any structural or other alteration to any premises registered as a workplace under this Act; or (c) alter or add to any existing building not registered as a workplace under this Act with the intention of using such building or a portion thereof as a workplace, shall submit to the Director, in duplicate in the prescribed form, plans of the site, and of the proposed building, alterations or additions, together with the prescribed particulars. 22. (2) If the Director considers that: (a) the proposed structural or other alterations to any premises registered as a workplace under this Act would result in such a workplace unsuitable in terms of the regulations for use as a workplace in respect of the activity which is specified in the registration certificate for such a workplace; or (b) the proposed building or additions or the building altered in the manner proposed would not be suitable in terms of the regulations for use as a workplace of the nature proposed, he shall disapprove such plans and particulars and shall give reasons for his disapproval. (3) Where, in accordance with any written law, application is made to a local authority or a town planning committee for the approval of any plans for the erection, rebuilding or alteration of any building used or intended to be used for a workplace, such local authority or town planning committee, as the case may be, shall submit such plans to the Director for examination by him, and shall not approve such plans unless the Director has notified the local authority or town planning committee, as the case may be, in writing that he considers the building will be suitable for use as workplace of the nature proposed.

Legal Basis

Step 3: Construction			
Legal Basis	Applicable Law	Detailed Sections	
Legal Basis	Occupational Health and Safety Act, 1997	Section Nr.	Text
		Section 40	40. (1) All parts and working gear whether fixed or movable, including the anchorage and fixing appliances, of every crane or other lifting machine shall be of good construction, sound material, adequate strength and free from patent defect, and shall be properly maintained. (3) No lifting machine shall be taken into use in any workplace for the first time in that workplace unless it has been tested, and all such parts and working gear of the machine as are specified in subsection (1) have been thoroughly examined by a competent person, and that person has issued a signed certificate specifying the safe working load or loads of the machine. (6) No lifting machine shall, except for the purpose of a test, be loaded beyond the safe working load as marked or indicated in accordance with this section.
		Section 56	56. (1) There shall be provided and maintained in every workplace, adequate and suitable means for extinguishing fire, which shall be readily accessible. (2) Chemical fire-extinguishers shall be freshly charged at intervals not greater than those specified by the manufacturers, or otherwise once annually, and tested by the application of such hydraulic pressure thereto as shall be suited to the type of extinguisher tested, at intervals of not more than four years; and the dates of recharging the extinguisher and the last hydraulic test shall be clearly marked on the body of the extinguisher or on a tab securely attached thereto. (5) No person shall smoke in any part of a workplace where volatile and inflammable substances are used, and a notice prohibiting smoking shall be posted in a conspicuous place in every such part of the workplace.
		Section 73	73. (1) An inspector shall, for the purpose of administering, monitoring, and enforcing the provisions of this Act, have power: (a) to enter, inspect and examine without prior notice, at all reasonable times a workplace, and every part thereof, when he has reasonable cause to believe that any person is employed therein.
	Section 76	76. (1) If an inspector is of the opinion that a person: (a) is contravening any provision of this Act or regulations made thereunder; or (b) has contravened one or more of the provisions of this Act or regulations made thereunder in circumstances that make it likely that the contravention will continue or be repeated, the inspector may serve on any such person a notice (in this Part referred to as an "improvement notice").	
	National Construction Industry Act, 1996	Section 20	20. (1) No person shall carry on business in the construction industry in Malawi unless he is registered under this Act. (2) No person being registered under this Act shall carry on business of a category in respect of which he is not registered.
	National Construction Industry (Application Fees) Regulations	Section 2	2. A non-refundable fee of one hundred and fifty kwacha shall be paid by each applicant to the Council upon application for registration.
National Construction Industry (Fees and Forms) Regulations	Section 3	3. The forms set out in the Second Schedule shall be used for the purpose of the Act, and such particulars are contained in these forms and not particularly prescribed by the Act are hereby prescribed as particulars required under the Act.	

Step 3: Construction		
Legal Basis	Applicable Law	Detailed Sections
	Monuments and Relics Act, 1991	Section 56 56. Any person guilty of an offence under this Act shall be liable to a fine of K10,000 and to imprisonment for three years.
	Bylaws of Building Standards, 1961	Section 6 6. A person (hereinafter in this Bylaw called “the builder”) carrying out, or intending to carry out, any operation which is by virtue of Bylaw 2, 3, or 4 an operation to which any of these bylaws apply, shall furnish the Council with not less than twenty-four hours’ notice in writing: (a) Of the date and time at Which the operation will be commenced, and (b) Before the covering- up of any drain, private sewer, concrete or other material laid over a site, foundation, or damp-proof courses.
	Physical Planning Act, 2016	Section 51 51. (1) A development permission shall lapse and shall cease to have any effect if the development to which it relates has not been commenced within two years of the date of the grant of that development permission.
		Section 52 52. (1) A responsible authority may, or on the directions of the Minister shall, by written notice served on a person who has obtained a grant of development permission, revoke in whole or in part that grant of development permission.
		Section 54 54. (1) A person shall not commence the development of any subdivision of any land or display any advertisement on any land or building to which this Part applies unless he has first obtained a grant of development permission or except where the development, subdivision or display of advertisement is permitted development under this Act.
		Section 55 55. (1) A responsible authority may, in any case where it considers that unauthorised development has taken place, by written notice a copy of which shall be served on the owner and occupier of the land or building to which the notice relates, require that person or those persons to take such action within such time, being not less than thirty days from the date of the service of a copy of the enforcement notice, in relation to that development as may be specified in that notice.
		Section 56 56. (1) At any time within thirty days of the service of an enforcement notice, a person on whom such a notice has been served may by giving reasons in writing request the responsible authority to reconsider the enforcement notice.

Step 3: Construction			
Legal Basis	Applicable Law	Detailed Sections	
Legal Basis	Physical Planning Act, 2016	Section Nr.	Text
		Section 57	57. (1) A responsible authority shall, in considering whether to serve or in reconsidering an enforcement notice, take such of the following matters into account as it may consider necessary to determine the question before it satisfactorily: (a) the nature and extent of the unauthorised development; (b) the harm to the natural and built environment and the degree of nuisance caused to adjacent development; (c) the length of time the unauthorised development has existed; (d) the likely expense to the person or persons who may have been served with an enforcement notice and their capacity to meet that expense; (e) the benefits of the unauthorised development; (f) the possible alternative measures which could be taken to rectify or regularise the unauthorised development; (g) whether it is necessary, desirable or convenient, having regard to the public interest to serve or confirm an enforcement notice; (h) any other material consideration; and (j) any consideration which the responsible authority is directed by the Minister to take into account.
		Section 58	58. (1) The action which a responsible authority may require to be taken by a person on whom an enforcement notice has been served to rectify the unauthorised development to which the enforcement notice relates may be the following: (a) to pull down or remove a structure in whole or in part; (b) to erect or re-erect a structure in whole or in part; (c) to restore land as near as may be to the appearance and state which it had before the unauthorised development took place including the replanting of any vegetation; (d) to display an advertisement in the place permitted by a development permission; (e) to cease any use of land or buildings; and (f) to do or take any action which in the opinion of the responsible authority will assist in the ending of the unauthorised development.
		Section 59	59. (1) Where a responsible authority is of the opinion that a person is carrying out unauthorised development, the responsible authority may serve a stop notice requiring that person to cease the activity or such portion of it as may be specified in the stop notice.
Section 60	60. (1) A responsible authority may in any case where it considers that unauthorised development has taken place, by written notice served on the owner and occupier of the land or building in respect of which the unauthorised development has taken place, require that person or those persons to apply for a grant of development permission.		

Step 4: Overview of Laws Governing Building Use and Maintenance

Step 4: Use and Maintenance		
	Applicable Law	Detailed Sections
Legal Basis	Public Health (Minimum Buildings Standards for Traditional Housing Areas) rules, 1971	S.19 Restriction on right to occupy, S.20 Restriction of numbers.
	Occupational Health and Safety Act, 1997	S.9 Application for registration of workplaces, S.10 Notification of change, S.13 Duties of employers, S.14 General duties of employers and self-employed persons to persons other than their employees, S.15 Duties of person, S.16 General duties of persons in control of workplaces in relations to harmful emissions, S.18 General duties of employees at workplaces, S.38 (2) Hoist and lifts, S.39 Escalators, S.56 Prevention of fire.
	Disaster Risk Management Act, 2017	S.26 Education and training, S.27 (4) Disaster Risk Reduction, S.28 Disaster Risk Assessment, S.291(c) Awareness and preparedness, S.30 Establishment of an integrated early warning system.
	Electricity Act, 2004	S.39 Wayleaves over land.
	Tourism and Hotels (Minimum Standards) Regulations, 2005	S.25 Fire-fighting equipment.
	Environmental Management Act, 1996	S.27 Environmental audits, S.28 Monitoring existing projects.
Relevant Institutions	Institutions Involved	
	(Activity 01) Register the Workplace	
	<i>Occupational Health and Safety Department</i>	
	Directorate of Occupational Safety and Health	Register the Workplace.

Step 4: Detailed Provisions of Laws Governing Building Use and Maintenance

Step 4: Use and Maintenance		
Applicable Law	Detailed Sections	
	Section Nr.	Text
Public health (Minimum buildings standards for traditional housing areas) rules, 1971	Section 19	19. No person shall occupy or permit the occupation of any dwelling house to which these Rules apply until he has obtained from the controlling authority a permit in writing authorising occupation of such premises, which permit shall not be issued unless the controlling authority is satisfied that the construction of the dwelling house is to a standard not lower than is required by these Rules.
	Section 20	20. Where rooms are used for the housing of employees without their families, no more than eight persons shall be permitted to sleep in any one room without the permission in writing of the controlling authority.
Occupational Health and Safety Act, 1997	Section 9	9. (1) Application for registration of any premises as a workplace under this Act shall be made to the Director in the prescribed form by the person occupying or intending to occupy such premises as a workplace.
	Section 10	10. If, at any time after an application has been submitted to the Director in accordance with section 7 or section 8, any substantial change occurs with respect to the particulars set out in the application, the occupier of the premises to which the application relates shall forthwith inform the Director in writing of such change, and every applicant who fails to do so shall be guilty of an offence.
	Section 13	13. (1) It shall be the duty of every employer to ensure the safety, health and welfare at work of all his employees.
	Section 14	General duties of employers and self-employed persons to persons other than their employees: (1) It shall be the duty of every employer to conduct his undertaking in such a way as to ensure that persons not in his employment who may be affected by the undertaking are not thereby exposed to risks to their safety or health. (2) It shall be the duty of every self-employed person to conduct his undertaking in such a way as to ensure that other persons (not being his employees) who may be affected by the undertaking are not thereby exposed to risks to their safety or health.
	Section 15	15. (2) It shall be the duty of every person who has, to any extent, control of premises to which this section applies, or of the means of access thereto or egress therefrom, or of any plant, equipment or substance in such premises, to take such measures as are reasonable for a person in his position to take to ensure that the premises, or means of access thereto or egress therefrom available for use by persons using the premises, and any plant, equipment or substance on the premises or provided for use thereon, is safe and without risks to health.
	Section 16	16. General duties of persons in control of workplaces in relation to harmful emissions: (1) It shall be the duty of every person having control of any premises to use the best practicable means for preventing the emission into the atmosphere from the premises of noxious or offensive substances, and for rendering harmless and inoffensive such substances as may be so emitted.
	Section 18	18. It shall be the duty of every employee while at a workplace: (a) to take reasonable care for the safety and health of himself and that of other persons who may be affected by his acts or omissions
Section 38	38. (2) Every hoist or lift shall be thoroughly examined at least once in every period of six months by a competent person, and a report of the result of every such examination, in the prescribed form and containing the prescribed particulars, shall be signed by the person making the examination, and shall within fourteen days be entered in or attached to the general register and a copy sent to the Director.	

Legal Basis

Step 4: Use and Maintenance		
Applicable Law	Detailed Sections	
	Section Nr.	Text
Occupational Health and Safety Act, 1997	Section 39	39. Every escalator in a workplace shall be examined by a competent person after every period of six months, and a report of the result of every such examination in the prescribed form and containing the prescribed particulars shall be signed by the person making the examination and shall be submitted to the Director within fourteen days of the date of examination.
	Section 56	56. (2) Chemical fire-extinguishers shall be freshly charged at intervals not greater than those specified by the manufacturers, or otherwise once annually, and tested by the application of such hydraulic pressure thereto as shall be suited to the type of extinguisher tested, at intervals of not more than four years; and the dates of recharging the extinguisher and the last hydraulic test shall be clearly marked on the body of the extinguisher or on a tab securely attached thereto.
Disaster Risk Management Act, 2017	Section 26	26. (1) The Commissioner, in coordination with the Ministries responsible for education and information, shall promote a culture of safety and resilience amongst disaster risk management stakeholders, including communities, by promoting public awareness, education, training and research.
Disaster Risk Management Act, 2017		
Legal Basis	Section 27	27. (1) The Commissioner shall, in collaboration with relevant Lead Agencies, civil society organisations, and such other bodies or persons as he or she thinks necessary: (a) conduct comprehensive vulnerability and risk assessments; (b) encourage and support the development of community based sustainable development programs and interventions aimed at reducing the risk and impact of disasters; (c) promote hazard mitigation measures to reduce losses from disasters including development of land-use and construction regulations, standards and guidelines; (d) encourage and support the establishment of resilient critical infrastructures. (4) Notwithstanding anything contained in the National Construction Industry Act, the National Construction Industry Council shall develop and enforce appropriate building codes and safety measures to enhance resilience to prevailing hazards and improve the safety of dwellings, critical infrastructure and public buildings such as hospitals, schools, bridges and market places.
	Section 28	28. (1) The Commissioner, in coordination with Local Authorities, shall periodically undertake or cause to be undertaken comprehensive hazard, vulnerability and capacity assessments and mapping at national, local authority and community level covering all sectors.
	Section 29	29. (1) It shall be the responsibility of every Government ministry, department and agency, Local Authority, Disaster Risk Management Committee and civil society organisation to take disaster preparedness measures designed to afford adequate protection of life and property including: (c) conducting community meetings and involving communities in exploring and mapping risks and planning their responses.
	Section 30	30. (1) The Commissioner shall ensure that an effective and integrated early warning system for all hazards is established and functional.

Step 4: Use and Maintenance		
Legal Basis	Applicable Law	Detailed Sections
		Section Nr. Text
Legal Basis	Electricity Act, 2004	Section 39 39. (1) Subject to the Public Roads Act, a licensee may, for the purpose of the construction, maintenance, carrying on or extension of any of its works, place, lay down or carry any transmission line or distribution line or water pipe line or other equipment through, over or under any land whatsoever.
	Tourism and Hotels (Minimum Standards) Regulations, 2005	Section 25 25. (1) Adequate and appropriate fire-fighting equipment to the satisfaction of the Board shall be provided in conspicuous places on hotel premises and such equipment shall be at all-time be maintained in good and working order carrying the current inspection tag. (2) Staff shall be trained to operate the firefighting equipment and techniques.
	Environmental Management Act, 1996	Section 27 27. The Director shall, in consultation with such lead agency as he may consider appropriate, carry out or cause to be carried out periodic environmental audits of any project for purposes of enforcing the provisions of this Act. For purposes of subsection (1), the Director may require a developer to keep such records and submit to the Director such reports as the Director may deem necessary. A developer shall take all reasonable measures for mitigating any undesirable effects on the environment arising from the implementation of a project which could not reasonably be foreseen in the process of conducting an environmental impact assessment and shall-, within a reasonable time, report to the Director such effects and measures.
		Section 28 28. The Director shall take such measures as are necessary for ensuring that the implementation of any project commenced before the coming into force of this Act complies with the provisions of this Act.

Step 5: Overview of Laws Governing Building Modifications and Change of Use

Step 5: Modifications and Change of Use		
	Applicable Law	Detailed Sections
Legal Basis	Bylaws of Building Standards of Lilongwe, 1961	S.3 Alterations and Extensions, S.5 Material change of use.
	Occupational Health, Safety and Welfare Act, 1997	S.8 Application for erection or alteration of workplaces, S.82 Offences.
	Monuments and Relics Act, 1991	S.24 Demolition or alteration,.
	The Physical Planning Act, 2016	S.43 Exempted development permission, S.44 Permitted development, S.45 Types of permitted development, S.46 Application for development permission, S.47. Power to obtain information concerning application, S.48 Power of the minister concerning applications, S.49 Consultations in relation to applications, S.50 Consideration of applications, S.53 Development permission personal to applicant, S.71 Appeals, First Schedule. Permitted development.
	Environmental Management Act, 1996	Part V - Environment Impact Assessment, Audits and Monitoring (S.25).

Institutions Involved	
(Activity 01) Obtain the Location Plan	
<i>Ministry of Lands, Housing and Urban Development (MoLHUD, City Council, Malawi Housing Corporation, Airport Limited, etc.)</i>	
Department in charge of the location plan.	
(Activity 02) Obtain the Environmental Impact Assessment	
<i>Department of Environmental Affairs (Ministry of Natural Resources, Energy and Environment)</i>	
Department in charge of the EIA.	
(Activity 03) Obtain the Development Approval	
<i>Lilongwe City Council</i>	
Building control section	1. Submit the application file to the Development Control Section, 2. Inspect the plot, 3. Perform a preliminary check, 4. Calculate the fees, 5. Calculate the fees, 6. The user pay the fees and the project is registered, 7. The user receive an application number, 8. Obtain architectural plans approval notification through the review of the Town and Planning Technical sub-committee (Building Department of LCC, Institute of Architects of Malawi, Institute of engineers of Malawi, the Roads Authority, the Physical Planning Institute of Malawi, Department of Health of the City Council, the Fire section, others Governmental agencies), 9. Formulate recommendations, 10. Decision of the Town and Planning Committee, 11. Sign the development approval.

Step 5: Detailed Provisions of Laws Governing Building Modification/ Change of Use

Step 5: Modification/ Change of Use			
Legal Basis	Applicable Law	Detailed Sections	
		Section Nr. Text	
	Bylaws of Building Standards, 1961	Section 3	3. (1) Part II to V of these bylaws except by laws 77 to 81 (space about buildings) shall apply to structural alterations or extensions of a building, whether the building has been or is erected before or after the date of the operation of these bylaws, and a person making any such structural alterations shall comply with the requirements of these parts of bylaws accordingly.
		Section 5	5. All the section is relevant.
	Occupational Health, Safety and Welfare Act, 1997	Section 8	8. (1) Every person who intends to: (a) erect or cause to be erected any building for use as a workplace; or (b) effect any structural or other alteration to any premises registered as a workplace under this Act; or (c) alter or add to any existing building not registered as a workplace under this Act with the intention of using such building or a portion thereof as a workplace, shall submit to the Director, in duplicate in the prescribed form, plans of the site, and of the proposed building, alterations or additions, together with the prescribed particulars.
		Section 82	82. (1) Every occupier or owner of a workplace who contravenes or fails to comply with any provision of this Act or regulations made hereunder shall be guilty of an offence.
	Monuments and Relics Act, 1991	Section 24	24. (1) Any demolition, alteration or extension of a listed monument shall be undertaken only with the written consent of the Minister which may be granted subject to such conditions as the Minister may impose.
	Physical Planning Act, 2016	Section 43	43. (1) Nothing in this Part shall affect the mandate of a customary land committee under the Customary Land Act, 2016 to authorise the use and occupation of any customary land or customary estate within its area in accordance with the Customary Land Act, 2016, but where such land is in a land development control area, such authorisation shall not operate as a development permission and it shall be the duty of the occupant of the customary land or customary estate to apply for development permission unless the proposed development is an exempted development under this Act.
		Section 44	44. (1) The types and classes of development set out in the First Schedule hereto shall, to the extent provided, be permitted development under this Act and shall be exempt from development permission under this Act.
		Section 45	45. The types of development permission that may be granted under this Part are as follows: (a) an outline development permission and development permission for development anywhere in Malawi including within a land development control area; (b) an advertisement permission for the display of advertisements anywhere in Malawi; or (c) a subdivision permission for the subdivision of land within a subdivision control area.

Step 5: Modification/ Change of Use		
Applicable Law	Detailed Sections	
	Section Nr.	Text
Physical Planning Act, 2016	Section 46	46. (1) An application for development permission under this Part shall be: (a) made to:(i) a local Government authority, in case of any development within the area of its jurisdiction; or (ii) the Commissioner, in every other case; (b) in a prescribed form; and (c) accompanied by a prescribed fee payable to Government and shall include such other information as the local Government authority or the Commissioner may require. (2) An application for development permission shall be submitted by a registered physical planner being an agent of the applicant. (3) Where the development permission applied for is of national interest, the local Government authority or the Commissioner, as the case may be, shall forward the application to the Council for approval. (4) The responsible authority may, by written notice served on an applicant for the grant of a development permission require the applicant to do either or both of the following: (a) publish details of his application at a time or times in a place or places and in a manner specified in the notice; or (b) give details of his application to the persons and authorities and in a manner specified in the notice. (5) Pursuant to the notice given in subsection (3), a person with an interest in the published notice may make a submission outlining his interest in the publication, to the responsible authority. (6) In making its decision on an application for a grant of development permission, the responsible authority shall take into account any submission made under subsection (4). (7) A responsible authority shall in writing notify the applicant for a development permission of its decision on the application, giving, where it grants the permission, the conditions, if any, upon which it is granted and, where it refuses the permission, a brief of reasons for the refusal. (8) The responsible authority shall, within thirty days of the receipt of an application for development permission, inform the applicant of the decision on the application, or where no decision has been taken, of the progress on the application, and the likely date by which a decision will be taken.
	Section 47	47. (3) The responsible authority may defer a decision on an application for the grant of development permission until the responsible authority is satisfied on the matters in respect of which it requires information or permission to enter on the land to which the application relates has been granted, provided that any deferment to make a decision under this subsection shall not exceed a period of sixty days.
	Section 48	48. The Minister may from time to time, by order published in the Gazette, or in any individual case, by directions or instructions in writing under his hand, withdraw an application or class of applications for development permission from the jurisdiction of the responsible authority and reserve the power to make a decision on that application or class of applications to himself.
	Section 49	49. (1) A responsible authority may, on receipt of an application for development permission, consult with and seek information from any of the following persons and authorities as may be necessary for the satisfactory disposal of the application.

Step 6: Overview of Laws Governing Building Demolition

Step 6: Demolition		
Legal Basis	Applicable Law	Detailed Sections
		Monuments and Relics Act, 1991
	The Physical Planning Act, 2016	S.61 Cleaning up land and buildings and demolition of unfit buildings.

Relevant Institutions	Institutions Involved	
		(Activity 01) Obtain the Survey Plan
	<i>Ministry of Lands, Housing and Urban Development</i>	
	Department of Surveys	1. Request for Folio Registry number search, 2. Pay for Folio Registry number search, 3. Submit search payment receipt. 4. Confirm availability of survey plan, 5. Pay for survey plan, 6. Obtain survey plan.
	(Activity 02) Obtain the Approval for Demolition	
	Lilongwe City Council	
	Building Control Section	1. Submit the application file to the Development Control Section, 2. Inspect the plot, 3. Perform a preliminary check, 4. Calculate the fees, 5. Calculate the fees, 6. The user pay the fees and the project is registered, 7. The user receive an application number, 8. Obtain architectural plans approval notification through the scrutinising of the Town and Planning Technical sub-committee (Building Department of LCC, Institute of Architects of Malawi, Institute of engineers of Malawi, the Roads Authority, the Physical Planning Institute of Malawi, Department of Health of the City Council, the Fire section, others Governmental agencies), 9. Formulate recommendations, 10. Decision of the Town and Planning Committee, 11. Sign the development approval.

Step 6: Detailed Provisions of Laws Governing Building Demolition

Step 6: Demolition			
Legal Bases	Applicable Law	Detailed Sections	
		Section Nr.	Text
	Monuments and Relics Act, 1991	Section 24	24. (2) In the case of demolition, the owner or occupier of the listed monument shall give two months' notice in writing to the minister of his intention and, upon receipt of such notice, the Minister may arrange for a record of the listed monument concerned to be made.
	Physical Planning Act, 2016	Section 61	61. (1) A responsible authority may, in any case where it considers that: (b) a building is defectively constructed or has become dilapidated, is run down or is in need of repair so that it detracts from the built environment, by written notice served on the owner of land or building, require the owner to take such action within such time, being not less than thirty days from the date of the notice, as may be specified in the notice, to clean up and thereafter maintain in a clean state the land or building or commence to demolish the building.

Annex 2

Malawi Polytechnic Department of Civil Engineering Materials Testing Facilities and Rates



THE POLYTECHNIC DEPARTMENT OF CIVIL ENGINEERING

TESTING CHARGES OF ENGINEERING MATERIALS EFFECTIVE 01st January 2018

CONCRETE TESTS	RATE (MK)
Compressive Strength of Concrete Cubes (per cube)	1,500.00
Compressive Strength of Cylinder (per cylinder)	2,000.00
Compressive Strength of Bricks (set of 12 bricks)	4,000.00
Compressive Strength of Building Blocks (SSBs, Hollow, etc.)	1500.00
Aggregate Flakiness Index	2,700.00
Schmidt Hammer Test (set of 10 points)	2,500.00
Aggregate Bulk Density (Loose or Vibrated)	2,750.00
Aggregate Crushing Value (ACV) - Screened/Unscreened	3,950.00
Aggregate Impact Value (AIV)	3,950.00
Aggregate Elongation Index	2,800.00
Average Least Dimension	2,850.00
10% Fines Aggregate Crushing Test (TFV)	3,500.00
Concrete Mix Design (Client to Supply Materials) - (set of 6)	15,000.00
Organic Content Determination on Sand	10,500.00
Aggregate Soundness Test per cycle (MgSO ₄ or NaSO ₄)	10,500.00
Relative Density Determination Test	2,650.00
Slump Test	7,500.00
Sieve Analysis (Grading)	3,500.00
Water Absorption	7,500.00
Chemical Analysis	35,000.00
Tensile Strength of Steel (set of 3 bars)	6,500.00

SOIL TESTS	
Determination of Natural Moisture Content (NMC)	3,500.00
Determination of Atterberg Limits (Plasticity Index)	4,750.00
Determination of Linear Shrinkage	3,500.00
Determination of Specific Gravity	4,500.00
Particle Size Distribution by Sieve Analysis	4,950.00
Particle Size Distribution by Hydrometer Analysis	10,500.00
Maximum Dry Density (MDD)/Optimum Moisture Content (OMC)	4,500.00
California Bearing Ratio Test (CBR) - Soaked or Unsoaked	6,500.00
Triaxial Test with Pore Water Measurement – set of 3 specimen	5,750.00
Triaxial Test without Pore Water Measurement – set of 3	5,750.00
Unconfined Compression Test	10,500.00
Field Percolation Test	5,000.00
Organic Content	15,000.00
Specific Density	4,500.00
Permeability in Falling Head and Constant Head	7,500.00
pH Determination	4,750.00
Direct Shear	12,500.00
One Dimensional Consolidation	15,000.00
Sedimentation	9,500.00
Field Density (Sand Replacement) - set of 3 holes	7,500.00
Dynamic Cone Penetrometer (DCP) Test - 1.0m depth	7,500.00
Trial Pit (0 – 2m) in Soft Material	7,500.00
Trial Pit (0 – 2m) in Hard Material	10,000.00
CEMENT TESTS	
Determination of Density of Cement	10,500.00
Determination of Compressive Strength of Cement	15,000.00
Determination of Setting Time of Cement (Initial/Final)	7,500.00
Determination of Soundness of Cement	7,500.00
Sulphate Content (SO ₃)	12,500.00
Chloride Content (Cl ⁻)	12,500.00
Loss of Ignition	10,500.00
Insoluble Residue	7,500.00
Determination of Fineness of Cement	6,000.00
Chemical Analyses of Cement	25,000.00

BITUMEN TESTS	
Tray Test	10,000.00
Marshal Stability and Flow Test (3 × 100mm diameter)	10,500.00
Binder Content and Grading of Hot Mix Asphalt	10,500.00
Penetration Test for Bitumen	8,500.00
Viscosity of Bitumen	7,500.00
Ring and Ball Softening Point of Bitumen	9,500.00
Marshal Mix Design for Hot Mix Asphalt	75,000.00
Fire Flashing Point	5,500.00
Ductility Test	8,500.00
Compaction of Briquettes (3 × 100mm diameter)	7,500.00
Bulk Density of Briquettes (3 × 100mm diameter)	6,000.00
Hot Mix Asphalt Cores (set of 10 cores)	12,500.00

Annex 3

Details of Good Practices Included in the 1961 Building Bylaws of Lilongwe

1961 BUILDING BYLAWS LILONGWE		
Chapter	Elements that are Fully or Partially Covered	Commentary
PART II Materials Short-lived Materials	<p>The section concerning structural materials classifies them in two categories: Materials and Short-lived Materials. The latter category can be useful in special cases, such as emergency housing and temporary constructions (e.g. transitory structures with a reduced lifespan). Design and general specifications for materials are based on the British Standard for: aluminium, steel, reinforced concrete, masonry, and timber. Short-lived materials are not accepted for permanent buildings.</p>	<p>The inclusion of a broader spectrum of materials is positive to avoid the proliferation of buildings with materials outside from the building code. It is advisable that the British Standard be reviewed, updated or replaced in case of being withdrawn in the new regulatory framework.</p>
SECOND SCHEDULE Calculation of Loading	<p>The bylaws define live loads¹ by considering the future use of the building under study. Loads are defined for floors and roofs. Furthermore, the regulations include reduction factors for these loads, which is common in regulations for building design that are considered as best practices.</p>	<p>Defining live loads is fundamental for design under gravity loads, in order to avoid undervaluation and diminish the risk of collapse. It is recommended that load values and reduction factors should be reviewed and updated according to British Standards regulations.</p>
FOURTH SCHEDULE Provisions prescribing notional periods of fire resistance for certain elements of construction	<p>The bylaws incorporate mandatory fire resistance durations for different materials and structural elements, taking into account the thickness requirements for reinforced concrete, masonry walls, and steel elements.</p>	<p>Including regulations with fire provisions for materials is important to guarantee fire resistance and safe evacuation in case of emergency.</p>
PART III-BUILDINGS FIRE RESISTANCE Fire resistance - small houses Fire resistance of buildings other than small houses Fire resistance – miscellaneous provisions applying to all buildings	<p>The regulations partially consider fire protection for buildings by establishing specific regulations for materials and structural elements. This includes housing buildings and other structures, such as covers on roofs to avoid fire spread, and fire resistance for staircases.</p>	<p>Including regulations to avoid fire spread and provisions for fire resistance is crucial to limit casualties, economic losses and to ease the evacuation process.</p> <p>Nevertheless, it is advisable that existing regulations be complemented with the following aspects: fire detection, life safety provisions, fire alarm requirements, provisions for evacuation routes, and smoke control and evacuation for stairs shafts.</p>
VENTILATION OF BUILDINGS Windows Windows opening to Courts Ventilation of ladders Ventilation of staircase in buildings divided into tenements SANITARY CONVENIENCES	<p>Regulation takes into account requirements for lighting and ventilation for habitable rooms and toilets.</p>	<p>These provisions are important for the welfare of the community.</p>

¹ Live Load: load that is not permanently applied to a structure but is likely to occur during the service life of the structure (excluding environmental loads).

Annex 4

Detailed Analysis of 1961 Building Bylaws of Lilongwe and Recommendations

1961 BUILDING BYLAWS LILONGWE		
Chapter	Problem	Recommendation
SPACE ABOUT BUILDINGS 75-79	The bylaws do not consider zoning, nor height and area limitation of buildings; furthermore, these regulations do not take into account the classification of the use of the buildings. The lack of these regulations risks the possibility of buildings being designed without the appropriate vertical and lateral loads according to its use, thus increasing the vulnerability of new buildings in the city.	Include a complete classification of the use of buildings. This is important in order to protect the welfare and public health of users, as well as reducing the vulnerability of new buildings in general.
PART I, PART III and PART IV FIRE RESISTANCE - SMALL HOUSES Drainage	Occasionally, some chapters of the bylaws include definitions and technical terms. However, the lack of definition for the terms and symbols being used in the general notation of formulas may lead to inadequate interpretations and miscalculations.	Include definitions of technical terms across the full document. This item is important because it generates a common language for the document and clarifies the meaning of symbols, terms and general notation.
PART I	Regulations don't consider building categories related to lateral load design (wind, and seismic loads), which can be essential for design that incorporates appropriate building measures and effective emergency response. This void can increase the general vulnerability of new and existing buildings and increase the risk of casualties.	Include "importance factors" according to the use of the building to consider building categories for lateral load design. These factors have been adopted by several international building codes to "improve the capability of essential facilities and structures containing substantial quantities of hazardous materials to function during and after design earthquakes", ² which can reduce the vulnerability of buildings under wind, and seismic loads.
PART I Alterations and Extensions Material change of User	The bylaws of building standards do not clearly mention the consequences of a change of use ³ upon the gravitational and lateral loads system. The lack of technical specifications related to the change of use can increase the building's vulnerability due to the risk of overloading.	Include a validation procedure for a building's change of use. The procedure encompasses a verification of the original and the proposed use of the building under lateral and gravitational loads. This is important to verify the adequacy of the structure for its new use and to assess its current condition, guaranteeing improved safety protocols.
-----	The bylaws of building standards do not include procedures to validate alternative materials, design methods and alternative analysis methodologies, which can hamper the introduction of new materials and practices. The dearth of these procedures may lead to the proliferation of buildings with materials and analysis methods outside from regulated frameworks, increasing their vulnerability.	Include a clear procedure for the validation of alternative materials, design methods, and analysis methodologies, including specific cases. These regulations would avert the proliferation of building materials and procedures outside the building code while bringing the opportunity for local industries to innovate under this rule.

² Taken from ASCE7-16. Chapter C11, Seismic Design Criteria.

³ A change of use is required when the original use or occupancy of the building or a land changes, e.g. when a domestic or housing building changes partially or totally to a commercial use.

1961 BUILDING BYLAWS LILONGWE		
Chapter	Problem	Recommendation
PART III- BUILDINGS GENERAL LOAD BEARING REQUIREMENTS	Design methods are not clearly described, considered limit states are not stated, and stress and deflection limits are not established. It is assumed that each material should be designed according to the corresponding British Standards and Codes of Practice. This absence of crucial information may result in undefined design conditions that could generate inadequate building designs.	Establish a comprehensive design philosophy that includes limit states, load combinations, and safety or reduction factors depending on the design methodology. This is important to generate appropriate building designs.
SECOND SCHEDULE Calculation of Loading	The bylaws do not provide weights for the most common structural and non-structural components, nor the density of materials commonly used in the local building industry. This is crucial for the adequate evaluation of dead loads, ⁴ affecting the calculation of gravitational and seismic loads, which depend on the mass of the structure.	Include information about the density of structural and non-structural components for most common elements and materials used in local construction. Establish the real values for the weight of structural and non-structural elements of a building and provide minimum loads for the structural design of gravitational loads. This is important to limit uncertainty on load calculation.
SECOND SCHEDULE Calculation of Loading	The code has no provision to evaluate lateral soil pressure, hail and ponding. An inadequate evaluation of these loads may lead t the structure's total failure or partial collapse. Underestimating lateral soil pressure can cause, for example, the failure of a of a retaining wall. ⁵ The omission of the effects of accumulated frozen hail on roof design can cause excessive deflections or even the collapse of the structure.	Include provisions to evaluate lateral soil pressures, hail and ponding. Considering these loads in design reduces the risk of collapse of several components in the structure.
-----	The bylaws do not include wind, earthquake and flooding maps; furthermore, there is no provision to evaluate lateral loads for buildings. As a whole, disaster risk management is not considered in the regulations. This lack of information may lead to the construction of buildings in areas with uncertain seismic, wind and flood hazard conditions, which increases their vulnerability.	Include wind, earthquake, and flooding maps in future technical regulations in order to understand this type of hazards and help the development of urban development policies. Building regulations should also include the calculation of lateral loads (wind and seismic) to diminish vulnerability and mitigate the risk related to lateral loads.
-----	The code has no provisions to establish the structural systems needed in the design of a y building. ⁶	Establish structural systems categories that must be used for the design of buildings. These categories must be defined based on structural systems that have performed properly under real conditions and tested under lateral loads to properly understand their behavior. This measure will greatly increase the safety and reduce the vulnerability of new buildings.

⁴ Dead Load: A non-varying load which is permanently applied to a structure and acting always as opposed to imposed load.

⁵ Retaining Wall: Wall providing lateral support to the ground or to resist pressure from a mass of other material e.g. earth or water.

⁶ Structural System: The system of constructional elements and components of any building which is provided to resist the loads acting upon it and to transfer such loads to the ground upon which the foundation of the building rests.

1961 BUILDING BYLAWS LILONGWE		
Chapter	Problem	Recommendation
-----	The bylaws do not include the geometry and the number of steps needed in flight of stairs. This increases the risk of casualties and injuries during the evacuation process.	Establish regulations regarding the design of the staircases based on occupancy type, such as housing, residential buildings, etc. Furthermore, geometrical and safety requirements should be included for its components, such as balustrades, handrails and details for escape staircases and ventilation requirements. This reduces the risk of casualties and injuries during the evacuation process.
-----	The regulation does not present provisions for escalators. Aside from increasing the risk of casualties and injuries during the evacuation process, it does not guarantee safe accessibility for people with disabilities.	Include provisions for escalators. These provisions should include the design of connections, non-structural elements, and auxiliary stairs for evacuation. Furthermore, it is crucial to guarantee accessibility, safety, and an efficient evacuation process during extraordinary events, such as fires or earthquakes.
-----	The bylaws do not include design specification for elevators and requirements for fire-proofing confined spaces and service shafts. This lack of provisions may affect the functionality and maintenance of the equipment, as well as the safety of users during an emergency evacuation.	Include regulations concerning the design of access and evacuation of elevators. The provisions should consider accessibility, dimensions, provisions to avoid smoke propagation through lift-wells, mechanical ventilation, roof ventilators or openable windows. This is important to guarantee the comfort of the users, the functionality and maintenance of the equipment, the safety during an emergency evacuation, to avoid fire and smoke spread, and to diminish casualties for smoke inhalation.
-----	The bylaws do not include provisions regarding the accessibility for people with disabilities, which compromises their safe access to evacuation routes during emergencies.	Develop specific regulations regarding the accessibility of people with disabilities in order to guarantee an adequate access in ordinary conditions as well as an appropriate evacuation in case of emergency.

Annex 5

Details of Good Practices Included in the 2018 Building Bylaws of Blantyre

2018 BUILDING BYLAWS BLANTYRE		
Chapter	Elements that are Fully or Partially Covered	Commentary
Sections 01-50 Administrative processes	The section provides a requirement framework for the approval of plans, specifications, fees and inspections. The section also provides guidelines about building material use and criteria, as well as recognising the importance of standards for structural design.	The inclusion of a clearer administrative process ensures a gradual turn towards regulated practices in the built environment. Including provisions on building material standards promotes safer practices.
Sections 52-58 Building siting, treatment and hygiene	The bylaws provide general parameters for the size of plots and basic measures of site treatment.	Site management and hygiene measures are important for the welfare of the community.
Sections 59-63 Fire protection, means of escape, and precautions	The bylaws incorporate a classification of public building occupancy to establish fire protection parameters and means of egress during emergencies.	Including fire regulations and fire provisions is important to guarantee fire resistance and safe evacuation in case of emergency .
Sections 66-104 Water supply, drainage and septic tanks	Regulations consider detailed examples of sanitary convenience and includes fixture unit ratings of sanitary fixtures for different types of use. The bylaws provide good practices for water use, including storage from main supplies or rain, in order to ensure rationed use of water.	The inclusion of extensive water supply regulations, that combine good practices with detailed technical information, is a fundamental step towards an adequate use of water infrastructure and to promote a regulated use of the resource.
Sections 224-231 Facilities for people with disabilities	Regulation considers minimum access standards, including regulations for access to water and sanitation facilities, as well as public transport. The bylaws also include guidelines for people with visual impairment.	These provisions are important for the welfare of the community and establish universal access design parameters into the built environment.

Annex 6

Detailed Analysis of 2018 Building Bylaws of Blantyre and Recommendations

BLANTYRE BUILDING BYLAWS - 2018		
Chapter	Problem	Recommendation
Sections 01-50 Administrative processes	Regulations are not detailed regarding the procedure of approval and no distinction is made regarding the category of risk that could apply to a project.	Include more thorough regulations on approval processes, including phasing and timing. Risk categories should be included as part of a project's description. Additionally, it may be suitable that regulations concerning administrative matters (process, file requirements, etc.) could be aligned with national regulations contained in the Physical Planning Act and/or grouped in a separated set of regulations.
Sections 23-30 Building materials	The bylaws are too restrictive about the use of second-hand material, which requires approvals by the Council and the MBS. This could interfere with low cost material that are often used in peripheral zones of the urban centers. No reference is made to the Safer Housing Guidelines published in 2014.	Consider more thoroughly in the regulatory system building materials which are used by the population. Rather than fully restrict their use, the regulations can allow a regulated flexibility on low-cost materials, supporting their use through adequate building techniques. The "safer house guidelines" can provide additional context for this task and could/should be referenced in any building bylaws.
Section 10 Structural design calculations	The bylaws do not mention the MS standard 820:2010 (Code of Practice for Design Loadings for Buildings). Nonetheless it mentions the "Malawi Standard on 'General procedures and loadings to be adopted in the design of buildings'" without mentioning the number of this standard.	Include more details and references in this section should in order to guide adequately the user about these matters. The bylaws should rely and refer to existing standards whenever possible, to ensure regulatory consistency across codes and laws.
Sections 52-58 Building siting, treatment and hygiene	Regulations make no reference to a general master plan nor a zoning plan, as every setback is made in function of the size of the plot. This ignores the existing environment and future possible developments of the city, as well as a long-term vision of development.	Extract from the building bylaws and integrate siting regulations concerning the size of the plot and the building lines, in a specific set of regulations integrated in specific bylaws that would deal with master planning, zoning, land use, etc.)
Sections 59-63 Fire protection, means of escape, and precautions	There is no integral categorisation system part of the bylaws. The bylaws do not mention neither an occupant load table (as the one contained in the international building code – table 1004-5) in order to calculate appropriately the number of persons that can occupy a place at the same time. It only integrates a categorisation of public buildings without enlarging the field of view to other types of building.	Develop a broader categorisation system in order to define more accurately the type of use or occupancy ⁷ of buildings including the occupancy load. This type of categorisation is usually the base in order to define rules and regulations to apply to a certain type of buildings when dealing with fire safety and protection.

⁷ See Chapter 3 of the International Building Code as a reference: <https://codes.iccsafe.org/content/IBC2018/chapter-3-occupancy-classification-and-use>.

BLANTYRE BUILDING BYLAWS - 2018		
Chapter	Problem	Recommendation
<p>Sections 224-231</p> <p>Facilities for people with disabilities</p>	<p>Rules regarding the design of the accessibility to buildings are defined to briefly in order to guarantee the respect of international standards regarding that matter. No graphic can assist the reader in order to understand easily how to design an “accessible” building.</p>	<p>Develop more deeply this section with sufficiently detailed technical considerations that guarantee the full respect of international standards regarding the “accessibility” outside and inside buildings, accompanying these regulations with appropriate graphics in order to explain concretely the rules and standards that govern accessibility to the person with incapacity or reduced mobility. Actually, no reference is made to any standards for that matter (except for the lifts).</p>
<p>Section 64</p> <p>Structural design</p>	<p>Bylaws refer to building loads the “General procedures and loadings to be adopted in the design of buildings” without mentioning the reference to the MS 820:2010 (Code of Practice for Design Loadings for Buildings). The user could assume that the bylaws refer to that document.</p>	<p>Bylaws should be clearer and include references to the Code of Practice for Design Loadings for Buildings (MS 820:2010) whenever possible to avoid confusions.</p>
<p>-----</p>	<p>Planning and administrative rules should be part of another type of bylaws, as they are not strictly related to the constructive and building process. In fact, these two matters should be separate as they could evolve separately one from another.</p>	<p>Distinguish and extract from “building” bylaws rules and regulations that have more something to do with planning and territorial development and that would though belong to other type of bylaws.</p>

Annex 7

Review of the 2017 Building Bylaws of Mzuzu

MZUZU BUILDING BYLAWS - 2017	
Chapter	Comentary
Sections 01-04	Definition of the terms that are used in the bylaws as well as terms associated with the requirements for building plans. Sections do not specify that plans have to be signed by a registered architect or engineer.
Section 06	Mention of the grounds for disapproval, making reference to different rules without mentioning the detailed regulations that apply to these rules in the place (i.e. space for parking, fire-fighting system and sanitary purpose) creating possible discretion in the decision-making process of the Local Council.
Sections 07-09	Focus on inspections and demolitions. The building shall be inspected at the foundation and excavation stages before construction can continue. Section 9 mentions the period of validity of a construction permit (two years).
Section 10	Construction parameters detailing the use of bricks, stones or other materials approved by the Council.
Section 11	Basic rules for habitability (i.e. minimum size of the rooms, minimum height and minimum requirements for ventilations).
Sections 12-13	Requirements for anyone who wants to occupy a building to ask for an occupation permit certified by the Council. Sections also mention that sections 3-12 shall not apply to temporary building or traditional houses, without mentioning the reference to the "Safer Housing Guidelines" published in 2014.
Section 14-16	Stipulations for minimum distances and recesses for buildings.
Section 17	Brief mention of regulations that deal with different aspects of construction (i.e. design of new streets, drainage erection of traditional houses, erection of walls, hoarding and protection of the public and removal of dilapidated buildings). In general, these regulations lack a level of detail which can give way to excessive discretion in the decision-making process of the Local Council regarding several checks for new construction.
First Schedule	Notice of decision that integrate 40 conditions of development (post-approval conditions). More details could be added to implement major objectives (i.e. condition 40 mentions that "Wheelchair access shall be provided for disabled persons"). This condition is the only related aspect to persons with reduced mobility in the bylaws, but it does not prescribe a particular path to achieve this standard.
Second Schedule	Detail of the penalties mentioned in sections 7, 12 and 23 of the bylaws that can be applied to a person who contravenes any provisions contained in the bylaws. The third schedule mention the fees and charges applicable to the project.
General	The bylaws could be improved to include more prescriptive measures to achieve a particular objective. There could be an explicit reference to existing standards in Malawi (i.e. MS standard 820:2010: Code of Practice for Design Loadings for Buildings). Similar observations apply to fire prevention aspects, accessibility requirements, structural design, mechanical and electrical engineering services and the role, responsibilities and liability of registered architects and engineers.

Annex 8

Details of Good Practices Included in the 1997 Draft National Building Regulations of Malawi

1997 MALAW NATIONAL BUILDING REGULATIONS		
Chapter	Elements that are Fully or Partially Covered	Commentary
2.0 Town planning requirements 2.01-2.171	The Malawi Building Regulations of 1997 require that a building proposal should be presented according to town planning requirements, to respect the established building lines and heights. The regulations consider the existing zoning, the existing building heights, and area limitations.	This is important to improve the welfare, public health and sustainable economic development of the community. These provisions bolster the division of industrial zones from housing building zones; furthermore, they limit the concentration of population and avoid health issues as well as traffic difficulties by promoting the organised growth of the city.
Volume 1 to 5	The Malawi Building Regulations of 1997 include definitions of technical terms for each volume of the document.	This generates a common language for the document. It also clarifies the meaning of general and technical terms.
4.22 Classification of buildings	The regulations include provisions to classify the buildings in relation to fire resistance. Additionally, they contain provisions for buildings containing multiple activities and/or uses.	This classification of components according to risk is essential for prevention and an overall good practice. The classification for fire design aims to diminish the casualties under fire and guarantee adequate conditions for a safe evacuation.
1.04 General principles and requirements	The Malawi Building Regulations of 1997 include provisions for the change of use of the building. "The consent of the approving authority must be obtained prior to effecting any change of use of land and/or buildings or the undertaking of any building work."	Aside from supporting planning control in general, the implementation of these regulations is helpful to diminish the risk of collapse. For example, when a housing building changes to a commercial or industrial use both requirements become fundamental to avoid the risk of collapse due to structural overloading, as well as avoiding unplanned development.
Volume 4 Section 5. 5.57 to 5.61	The regulations includes specific structural materials for buildings with corresponding British Standard (BS) and CP (Codes of Practice) for the design, analysis and construction. The structural materials accepted by these regulations are concrete, bricks, timber, steel and aluminum.	This is necessary to establish the basic rules for design and adequate construction requirements. This is a significant part of any given structural safety framework.
Section 4 4.12 4.57	The Malawi Building Regulations of 1997 consider alternatives for building materials. Nevertheless, the procedure of approval is not established. "The approving authority may, at its discretion, which should not be unreasonably withheld, approve the use of any materials, methods or (form/unreadable) of construction."	These regulations protect the community from the proliferation of building materials and procedures outside of the building code and bring the opportunity for the local industry to innovate under this rule.

1997 MALAW NATIONAL BUILDING REGULATIONS		
Chapter	Elements that are Fully or Partially Covered	Commentary
Section 5 5.52	The Malawi Building Regulations of 1997 indicate that the design should be performed for the most critical load combination according to British Standards. These regulations indicate that “every building or part of a building shall be: designed and constructed in accordance with structural mechanics and capable of sustaining the most adverse combination of loads it will be subjected (...)” Furthermore, each material should be designed according to the corresponding British Standards and Codes of Practice.	These regulations are critical to guarantee structural safety, at least under failure conditions.
Section 4	The Malawi Building Regulations of 1997 include fire provisions for materials, including fire-resistance durations for each. The provisions also establish the thickness requirements for reinforced concrete, prestressed and masonry walls under fire.	This is essential to guarantee the adequate evacuation times and reduce the risk of casualties under fire conditions.
Section 4 4.12	The Malawi Building Regulations of 1997 include procedures to test materials for buildings, test their strength, their durability, their fire resistance and any other structural issue applicable to any structural material.	These requirements are critical to establish the framework regarding the approval process of materials for buildings. These tests are important to determine their quality and consistency.
Means of Escape 3.24 to 3.38 Fire Spread and Fire Resistance 4.21 to 4.25 Mechanical and Electrical Design 8	The Malawi Building Regulations of 1997 consider fire protection for buildings. The regulation includes provisions for fire prevention and fire detection systems such as fire alarms and provisions for evacuation routes.	This is important to guarantee the safety under fire conditions. The requirements facilitate evacuation, early detection and improve fire resistance. These regulations are critical to guarantee the welfare and safety of the community when facing fire conditions.
Section 4 4.57	The Malawi Building Regulations of 1997 include materials and construction methods for the structure, different from the ones included in the regulations. Nevertheless, the procedure for the validation of these methods and procedures is not clearly established. In this case, the regulation indicates that “the approving authority may, at its discretion, which should not be unreasonably withheld, approve the use of any materials, methods or (form/unreadable) of construction.”	These regulations protect the community from the proliferation of materials and constructions methods for the structure outside of the building code and bring the opportunity for the local industry to innovate under this rule.
Section 4 Section 5	The Malawi Building Regulations of 1997 consider the design of masonry walls according to BS and the design of the foundations based on Code of Practice 2004 Standards. Furthermore, the regulation considers the empirical design of walls and shows details of adequate construction practices as well as the strength of materials. In addition, the regulation includes stability requirements for accidental lateral loads and numerous fire provisions.	This is fundamental for the basic design of non-structural components such as partition and cladding walls, ensuring an added degree of safety for users.

1997 MALAWI NATIONAL BUILDING REGULATIONS		
Chapter	Elements that are Fully or Partially Covered	Commentary
Section 1 1.15	The Malawi Building Regulations of 1997 require a geotechnical inspection during construction. This inspection should be made by the Authority before the start of the building. The regulation specifies that “no additional building operation shall be commenced until the foundation excavation has been inspected and approved by the approving authority”.	This measure monitors control of the construction process. Inadequate practices and mistakes on the excavation as well as the foundation level can be detected and solved before casting the foundation elements.
Section 1 1.17	The Malawi Building Regulations of 1997 establish the procedure for issuing the permit of occupation.	
Section 3 3.09 to 3.16	The Malawi Building Regulations of 1997 defines the requirements regarding the lighting and ventilation of the building.	These regulations guarantee the wellbeing of the occupants as well as the health of building users. The requirements also improve energy consumption by promoting the use of natural light and natural ventilation.
Section 4	The Malawi Building Regulations of 1997 provide measures for fire safety doors and fireproof design are established in this section. This chapter includes requirements for openings in walls and provisions for fire breaking doors.	These provisions guarantee the accessibility, the security, and limit smoke and fire propagation.
Section 3 3.21	The Malawi Building Regulations of 1997 consider maximum and minimum dimensions for the design of stairs related to different types of occupancy, such as dwelling houses, residential buildings, and buildings of warehouses. Geometrical requirements are complemented with rules for the rise, tread and going. Finally, the regulation includes provisions for balustrades and handrails as well as details for escape staircases and ventilation requirements.	Geometrical requirements are crucial to assure the safe evacuation of buildings under extraordinary events such as fire, earthquake or blasts. Furthermore, these provisions are fundamental to guarantee accessibility on average conditions of use and transit.
Section 3 3.23 3.33 Section 8	The Malawi Building Regulations of 1997 describe a complete set of provisions regarding elevators including dimensions for the clear space on the bottom, emergency uses, and ventilation.	Dimension requirements are fundamental to guarantee the adequate service of the elevators under ordinary conditions. Furthermore, these provisions are important to assure the safe evacuation of buildings and avoid smoke propagation during emergencies.
Section 4 4.26 4.40	The Malawi Building Regulations of 1997 provide regulations to guarantee fire resistance and safety, including different types of insulation permitted for external walls and roofs.	This is essential to guarantee the adequate evacuation, avoid fire proliferation and reduce the risk of casualties under fire conditions.
Section 7	The Malawi Building Regulations of 1997 include provisions regarding sprinklers and the design of the water-providing system. Provisions include design factors regarding water supply elements, such pipes, connections, storage tanks, installation of service, hot water cylinders and supply to firefights.	This is fundamental to the safety and welfare of the users. These regulations assure the supply of water under ordinary conditions as well as extreme events such as fire.

Annex 9

Detailed Analysis of 1997 National Building Regulations of Malawi and Recommendations

1997 MALAWI NATIONAL BUILDING REGULATIONS		
Chapter	Problem	Recommendation
Section 4 Section 5	The Malawi National Building Regulations of 1997 do not directly define service loads. ⁸ This is crucial for the adequate evaluation of the vertical (dead ⁹ and live ¹⁰ loads), lateral, static, and dynamic loads. This lack of definition can cause uncertainty on the estimation and definition of the building loads, which comprises gravitational and lateral load design.	Establish and describe the minimum values for gravitational loads and the methods to estimate lateral loads related to lateral soil pressure, wind and earthquake. These values are important to guarantee the structural stability and general safety of the structural components. Furthermore, it is fundamental to account for minimum values of resistance and understand the risk for lateral loads, mainly for wind and earthquake.
Section 5	The Malawi National Building Regulations of 1997 do not have local seismic provisions, instead adopting the KBS (Kenya Bureau of Standards) standard for seismic design. Malawi has experienced earthquakes with magnitudes between 6 and 7 in the last 100 years, thus local hazard must be studied, and adequate regulations are required. The lack of seismic provisions increases the vulnerability of new and existing buildings.	Consider and integrate into the regulations aspects related to local seismic loads in order to understand and properly mitigate seismic hazard. Furthermore, develop disaster risk management guidelines across the code as a factor of planning to diminish vulnerability, mitigating the risk of lateral loads. Finally, it must include design alternatives for new and existing structures to increase safety and reduce the vulnerability of new, and existing buildings.
-----	The Malawi National Building Regulations of 1997 do not clearly establish the conditions to evaluate overturning. ¹¹ This must be considered for seismic and wind loads with adequate safety factors and load combinations. Adequate evaluation of overturning aims to guarantee the stability of the building.	Define conditions to evaluate overturning, including load combinations, safety factors according to load combinations, seismic, and wind loads. Overturning verification is important to prevent instability.
-----	The Malawi National Building Regulations of 1997 do not have design requirements regarding the ductility ¹² of structural elements of the Lateral Force Resisting System (LFRS). These requirements aim to guarantee the performance of the building under large deformations caused by lateral loads, but without the rupture or collapse of the building. Building without these considerations can affect drastically the structure and lead to sudden and brittle failures under lateral (seismic) loads.	Include design requirements that provide a ductile behaviour on the elements of the LFRS. This aspect is important because regular seismic design should focus on preventing the damage and displacement of the structure under lateral loads. Considering these regulations increases safety and reduces the vulnerability of new buildings.

⁸ Service Load: all loads, static or dynamic, imposed on a structure, or element thereof, during operation of a building.

⁹ Dead load: the weights of the structural members, supported structure, and permanent attachments or accessories that are likely to be present on a structure in service.

¹⁰ live load: load that is not permanently applied to a structure but is likely to occur during the service life of the structure (excluding environmental loads).

¹¹ Overturning: Failure of a building cause by the soil pressure, which overcomes the general stability of the building.

¹² Ductility: the ability of a material to undergo large permanent deformations without rupture.

1997 MALAWI NATIONAL BUILDING REGULATIONS		
Chapter	Problem	Recommendation
-----	The Malawi National Building Regulations of 1997 do not have provisions to mitigate seismic risk. This increases the vulnerability of new and existing buildings.	Establish provisions to mitigate risk for lateral loads in general. This includes providing alternatives for existing structures under wind and seismic forces.
-----	The Malawi National Building Regulations of 1997 do not have provision to evaluate lateral soil pressure, hail and ponding. An inadequate evaluation of the lateral soil pressure of a retaining wall ¹³ or the omission in the design of the effects of the accumulation of frozen hail on roofs can cause total or partial collapse of a structure.	Include a provision to evaluate lateral soil pressure and hail loads. Considering these loads in design reduces the risk of collapse of some parts of the structure.
-----	The Malawi National Building Regulations of 1997 do not have provisions for factored loads. ¹⁴ This is an important guideline to guarantee safety factors in the design process.	Incorporate provisions for factored loads, or at least include provisions corresponding to the British Standard for each structural material to avoid missing information. Factored loads must be consistent with design methodologies accepted by the building code, based on statistical procedures, considering acceptable failure criteria, and with the aim of reducing the probability of failure to adequate values. These regulations are critical to guarantee the safety of the community.
-----	The Malawi National Building Regulations of 1997 do not present the requirements or an acceptable method to perform a complete structural analysis. The lack of these requirements does not guarantee the overall safety of the building and its users.	Include criteria for acceptance of exact and approximate methods. Regulating analysis methods are a basic tool for structural designers to establish the framework of an adequate structural analysis. Approximate methods are useful to verify the results of the calculations of the structural designer. These requirements aim to guarantee the safety of the community.
Section 5 5.35 to 5.37	The Malawi National Building Regulations of 1997 do not provide charts determining wall thicknesses according to their height and support condition, in order to guarantee their stability in case of accidental lateral loads. Inadequate design of cladding and partition walls generates damages and victims after earthquakes due to the combination of in-plane and out-of-plane effects.	Include design procedures for lateral loads, such as wind and earthquake, for partition and facade walls, including methods for the calculation of applied loads, load combinations and design methods according to the structural materials. This is critical to avoid the failure of non-structural components, which usually cause a significant number of victims during earthquakes.
Section 5	The Malawi National Building Regulations of 1997 do not have specific requirements regarding the minimum geotechnical subsoil exploration. This may cause foundations to be designed without an appropriate knowledge of its surrounding soil. Lack of technical knowledge increases the risk for a building to settle, rotate or even liquify.	Include requirements for minimum geotechnical subsoil explorations, such as the number of perforations and their depths according to the importance of the building and the magnitude of the loads on each support.

¹³ Retaining Wall: Wall providing lateral support to the ground or to resist pressure from a mass of other material e.g. earth or water.

¹⁴ Factored load: load, multiplied by appropriate load factors, used to proportion members by the strength-design method.

1997 MALAWI NATIONAL BUILDING REGULATIONS		
Chapter	Problem	Recommendation
Section 5	The Malawi National Building Regulations of 1997 do not include any procedures for the design of foundations. The code has a table (5.11, which is not in the document) with maximum permissible bearing capacities for different types of soils, as well as different conditions (firm, loose or wet, normal, dry, etc.). The standard for foundation design is CP2004. This condition increases the risk for a building to settle, rotate or even liquify.	Include procedures for the design of foundations in order to define the limit states for the design, the depth of the foundations and establish a framework to determine the parameters of soil for the foundation.
-----	The Malawi National Building Regulations of 1997 do not have design provisions related to excavations. This is critical to guarantee the stability during the construction process.	Incorporate design procedures for excavations, including theories of failure, stability analysis, and safety factors for different load combinations and limit states. This guarantees the stability of the excavation during the construction process.
-----	The Malawi National Building Regulations of 1997 do not include any other type of inspections aside from the geotechnical inspection. This could lead to repeated violations of building code requirements for structural, fire, mechanical and electrical aspects during the construction process.	Include technical inspections (structural, fire, mechanical and electrical) requirements. These must be defined based on the size of the project, the number of housing units, or the use of the building. The activities of the inspection and the characteristic of the professional developing the inspection must be included in the regulations. This is fundamental to guarantee adequate construction practices.
-----	The Malawi National Building Regulations do not include provisions for escalators. This increases the risk for people during the evacuation process.	Include provisions for escalators, such as the design of the connections as non-structural elements, as well as auxiliary stairs for evacuation. This guarantees the accessibility, safety, and adequate evacuation during extraordinary events such as fires and earthquake.
-----	The Malawi National Building Regulations of 1997 do not show provisions for heating systems. This increases the risk of the building during fire events.	Include provisions for heating systems that oversee an adequate design, efficient energy consumption regulations, and fire provisions to avoid the spread of fire.
Section 3.16	The Malawi National Building Regulations of 1997 do not consider specific provisions for electric lighting in order to determine the capacity and characteristics of the system, as well as the seismic design of the non-structural elements related to the system. This condition increases the risk of electrical system malfunctions, and its vulnerability under earthquake conditions.	Include a reference to specific documents for electric lighting to determine the capacity and characteristics of the system. The seismic design of the non-structural elements related to the system should be considered to increase the reliability of the electrical system during the lifespan of the building.
-----	The Malawi National Building Regulations of 1997 do not provide regulations regarding sprinklers, increasing the vulnerability of new and existing buildings under fire events.	Incorporate documents for the design of fire extinguishing systems such as sprinklers. This includes position, characteristics, and water supply of the sprinklers system. This is fundamental to prevent the spread of fire and ensure an early extinguishing.

1997 MALAWI NATIONAL BUILDING REGULATIONS		
Chapter	Problem	Recommendation
-----	The Malawi National Building Regulations of 1997 do not consider provisions for aspects related to acoustics and noise pollution.	Include provisions for acoustic design, determining acceptable noise levels, the characteristics of cladding, partition walls, and insulations required to guarantee adequate acoustic performance.
-----	The Malawi National Building Regulations of 1997 do not consider specific provisions regarding accessibility for people with disabilities, which seriously hampers their evacuation means.	Develop specific regulations regarding the accessibility of people with disabilities in order to guarantee the access and evacuation for all building users.
-----	The Malawi National Building Regulations of 1997 do not include provisions for the health and safety of workers. The absence of this regulation increases potential risks in the construction process for both workers and construction sites.	Incorporate health and safety provisions for workers. In this case, the regulation should include at least a reference to OSHA ¹⁵ regulations to guarantee safe conditions on the environment of construction workers. Furthermore, the regulation should include requirements for a permanent assessment of working site conditions and accident reports and requirements when working above certain heights.
-----	The Malawi National Building Regulations of 1997 do not consider integrated water-cycle management for potable water, stormwater, and wastewater in the buildings. ¹⁶ The implementation of integrated water-cycle management reduces carbon footprint.	Include integrated water-cycle management as a chapter of technical regulations for potable water, stormwater, and wastewater for buildings. This chapter should consider water supply, distribution, collection, treatment, reuse, and adequate disposal after a new treatment. This aspect is important to achieve sustainable buildings and reduce water consumption.
-----	The Malawi National Building Regulations of 1997 do not have provisions regarding structural retrofit and/or maintenance processes of historical buildings. The lack of specific provisions increases the vulnerability of these buildings in case of earthquake, fire or any other unfortunate event. This could lead to serious damages and a significant loss of Malawi's historic heritage.	Provide specific provisions for the maintenance and/or retrofit process of historical buildings (including retrofit analysis, seismic design considerations, etc.) considering some potential hazards such as fire and earthquakes.
Approved Standards Corrugated Sheets/ Asbestos Cement/	The Malawi National Building Regulations of 1997 allow the use of corrugated sheets and cement made with asbestos. Exposure to asbestos causes serious respiratory diseases.	Exclude products made of asbestos in any future technical regulations related to the construction industry. This is important to reduce risks during handling, installation, maintenance, as well as disposal after a building's demolition.

¹⁵ Occupational Safety and Health Administration.

¹⁶ See Annex 1 – Integrated Water-Cycle Management.

Annex 10

Details of Good Practices Incorporated in the 2010 Code of Practice for Design Loadings for Building Evaluation

MALAWI STANDARD OF 2010 - CODE OF PRACTICE FOR DESIGN LOADINGS FOR BUILDINGS		
Chapter	Elements that are Fully or Partially Covered	Comments
Section 3 Page 2	Malawi 2010 Standard - Code of Practice for Design Loadings for Buildings (Malawi Standard of 2010 – COPB) ¹⁷ includes building requirements for stability ¹⁸ against overturning, Integrity, ¹⁹ and robustness. ²⁰	It is very positive that the code has already included these three concepts, that are fundamental as they form part of the design basis for lateral loads for buildings.
Section 3 Page 4 – 35 and Fig 4 Table 4 to Table 25B	Malawi Standard of 2010 – COPB defines the wind loads considering the following aspects: Malawi wind velocities map, exposure categories, internal and external wind forces, locations and heights of building, and, wind load evaluation tables for a wide variety of structural shapes, structural and nonstructural components.	The Country's wind hazard is presented in the document This is fundamental to determine the loads for the wind-load resisting system for buildings.
Section 4 Page 2 – 4 and Table 1	Malawi Standard of 2010 – COPB establishes the ultimate limit state (Load and Resistance Factor Design) as its building design approach, loads, combinations, and, in the same manner, it defines structural elements requirements under service and ultimate conditions, and, their serviceability limits.	This is important to have the same procedures and methodologies for each building material. Furthermore, this item guarantees the behavior of the structural elements under service and ultimate conditions.
Section 7 Page 4 – 35 and Fig 4 Table 4 to Table 25B	Malawi Standard of 2010 – COPB defines the wind loads considering the following aspects: Malawi wind velocities map, exposure categories, internal and external wind forces, locations and heights of building, and, wind load evaluation tables for a wide variety of structural shapes, structural and nonstructural components.	The Country's wind hazard is presented in the document. This is fundamental to determine the loads for the wind-load resisting system for buildings.
Section 8 Page 35 – 45 and Fig 6 to Fig 9 Table 27 to 28	Malawi Standard of 2010 – COPB defines the seismic loads considering the following aspects: seismicity of Malawi, active seismic sources, Malawi peak ground acceleration map having 10% probability of exceedance in 50 years (return period of 475 years), Malawi peak ground acceleration map having 10 percent probability exceedance in 100 years (return period of 950 years), calculation of seismic forces, base shear, soils profiles, elastic response spectrum, building fundamental period of vibration, behavior factor (K) (response modification factors R), and, earthquake load combinations.	The Country's seismic hazard is presented in the building code. This is fundamental to determine the loads for the lateral load resisting system for buildings and reduce the vulnerability of new buildings.

¹⁷ Draft Malawi 2010 Standard, Code of Practice for Design Loadings for Buildings, National Construction Industry Council, Malawi 2010.

¹⁸ Stability: Ensure lateral stability in two orthogonal directions by the introduction of braces or shear walls. In such a braced structure, the columns will not be subject to sway moments.

¹⁹ Integrity: The structure can withstand local damage without it causing widespread damage.

²⁰ Robustness: The structure is effectively tied together longitudinally, transversely and vertically.

MALAWI STANDARD OF 2010 - CODE OF PRACTICE FOR DESIGN LOADINGS FOR BUILDINGS		
Chapter	Elements that are Fully or Partially Covered	Comments
Section 8.2 Page 36	Malawi Standard of 2010 – COPB presents in this section the concepts for the structural configuration of the buildings that encourage the use of plants with rectangular shape using joints, to look for redundant structures vertically and horizontally and to ensure that there are shear walls in both continuous directions vertically and not produce twists.	These concepts are very important to be able to configure a building structurally and to reduce the vulnerability of new buildings in the country.
Section 8.5.1.4 Page 44 Table 16 missing	Malawi Standard of 2010 – COPB defines three (3) structural systems, they have specifications for their vertical load system, and, their lateral resistant system. The systems should be selected to satisfy the project's needs.	This is important because these structural systems had performed properly after real earthquakes and had been tested under lateral loads to understand their behavior. Through this requirement, the building code aims to guarantee the adequate performance of the buildings.
Section 9.1 Page 45 - 46 and Table 29, 30, 31, 36, and, 37	Malawi Standard of 2010 – COPB defines the density of some structural and nonstructural components - dead loads, ²¹ the building must be designed for the full dead load as a minimum. The most common elements and materials used in the local construction are presented.	Defining dead loads is fundamental for the design under gravity loads to avoid undervalue and diminish the risk of collapse.

²¹ Dead Load: load from self-weight of structure including finishes and partitions.

Annex 11

Detailed Analysis of the 2010 Code of Practice for Design Loadings for Building Evaluation and Recommendations

MALAWI STANDARD OF 2010 - CODE OF PRACTICE FOR DESIGN LOADINGS FOR BUILDING EVALUATION		
Chapter	Problem	Recommendation
Section 2	Malawi 2010 Standard - Code of Practice for Design Loadings for Buildings (Malawi Standard of 2010 – COPB) ²² does not have definitions for the buildings' use, buildings' multiple uses, and buildings' change of use.	Establishes the purpose for which the building, or part of it, is used or intended to use and how to proceed when multiple uses are combined in one project. Establishes the procedure when the original use or occupancy of the building changes, e.g. when a domestic or housing building changes partially or totally to a commercial use.
Section 3.1 Page 2	Malawi Standard of 2010 – COPB does not consider the protection for human life safety.	Include protection for human life safety within the scope of the code. It is included in the scope of many codes around the world.
Section 3.2 Page 2	Malawi Standard of 2010 – COPB does not define the safety factors to evaluate foundation overturning, ²³ uplift, ²⁴ and sliding ²⁵ failures. Adequate evaluation of overturning aims to guarantee the stability of the building.	Define safety factors according to load combinations to evaluate overturning, uplift, and sliding failures. This is important to prevent overturning failures of buildings, which might turn over their base as a rigid body in case of wind or earthquake loads.
Section 4 Page 3	Malawi Standard of 2010 – COPB does not have a provision to evaluate lateral soil and liquid pressures, hail, and ponding. An inadequate evaluation of lateral soil pressure of a retaining wall ²⁶ or the omission in the design of the effects of the accumulation of frozen hail on roofs can cause total or partial collapse of a structure.	Include a provision to evaluate lateral soil and liquid pressures and hail loads. Considering these loads in design reduces the risk of collapse of some parts of the structure.
Section 4.2 Page 4	Malawi Standard of 2010 – COPB does not consider a guideline limit for lateral loads deflection, a limitation on story drift value particularly on tall structures. To prevent damage to building components that could affect life safety, many building codes place limits on the amount of story drift permissible.	Add a limitation on lateral story drift value to evaluate structural building lateral behaviour. It can be a floor to floor lateral structural displacement limit. This is important to protect non-structural systems such as partition walls, ceilings, fire piping and ducts from excessive deformations of the main structure. This requirement aims to reduce economic losses and maintain continued functionality.
Section 5 Page 5	Malawi Standard of 2010 – COPB does not define, for parking areas, the minimum uniformly distributed imposed floor load, and the minimum concentrated imposed floor load. It is important for aerial slabs above or below ground. Building codes should include provisions for parking areas.	Establish and determine for parking areas the minimum values for uniformly distributed imposed floor load, and the minimum concentrated imposed floor loads.

²² Draft Malawi 2010 Standard, Code of Practice for Design Loadings for Buildings, National Construction Industry Council, Malawi 2010.

²³ Overturning: Failure of a building cause by the soil pressure, which overcomes the general stability of the building

²⁴ Uplift: Failure of a building cause by uplifting it with a vertical loading.

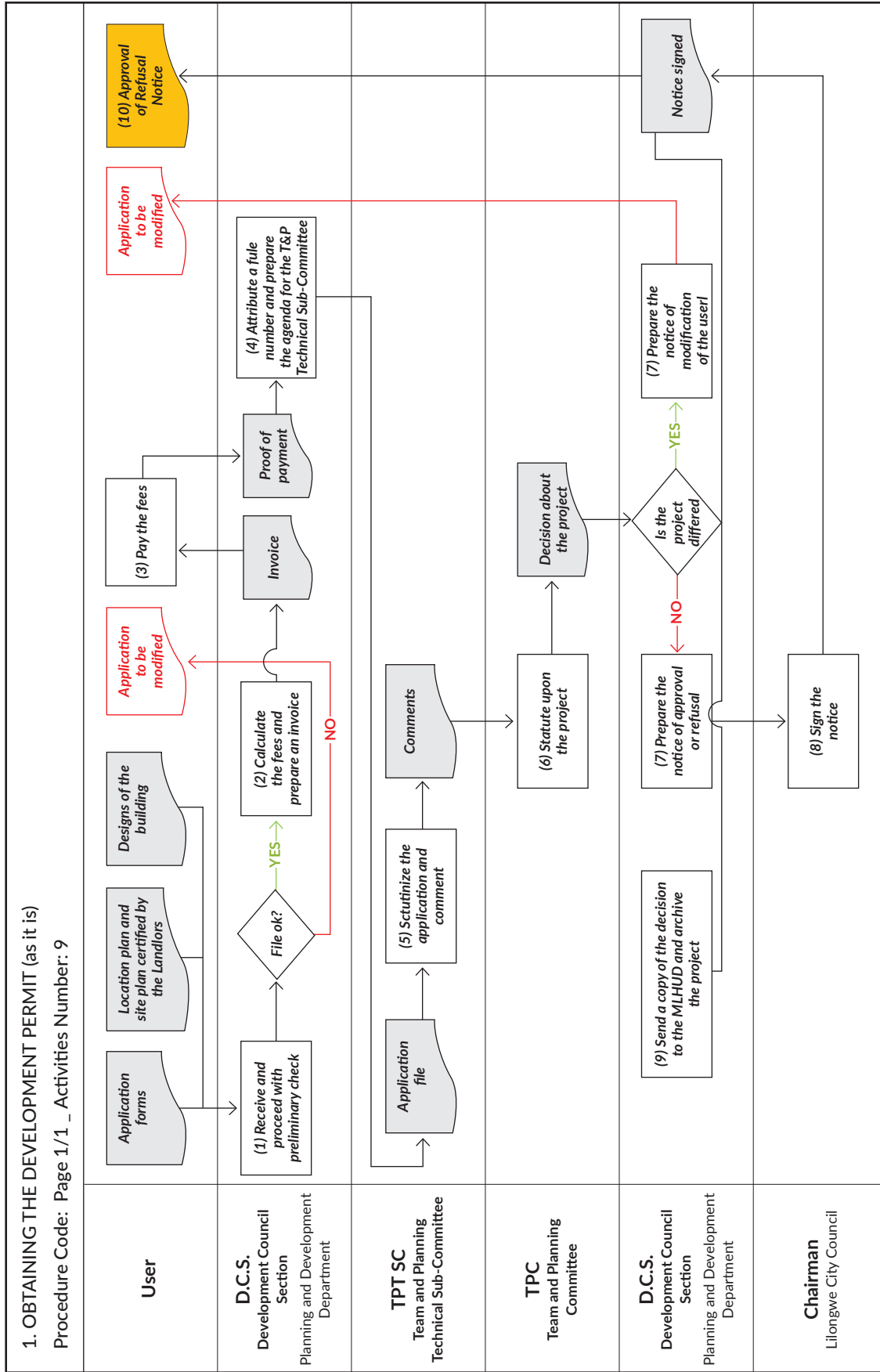
²⁵ Sliding: Failure of a building by moving it with a lateral load along a surface.

²⁶ Retaining Wall: Wall providing lateral support to the ground or to resist pressure from a mass of other material e.g. earth or water.

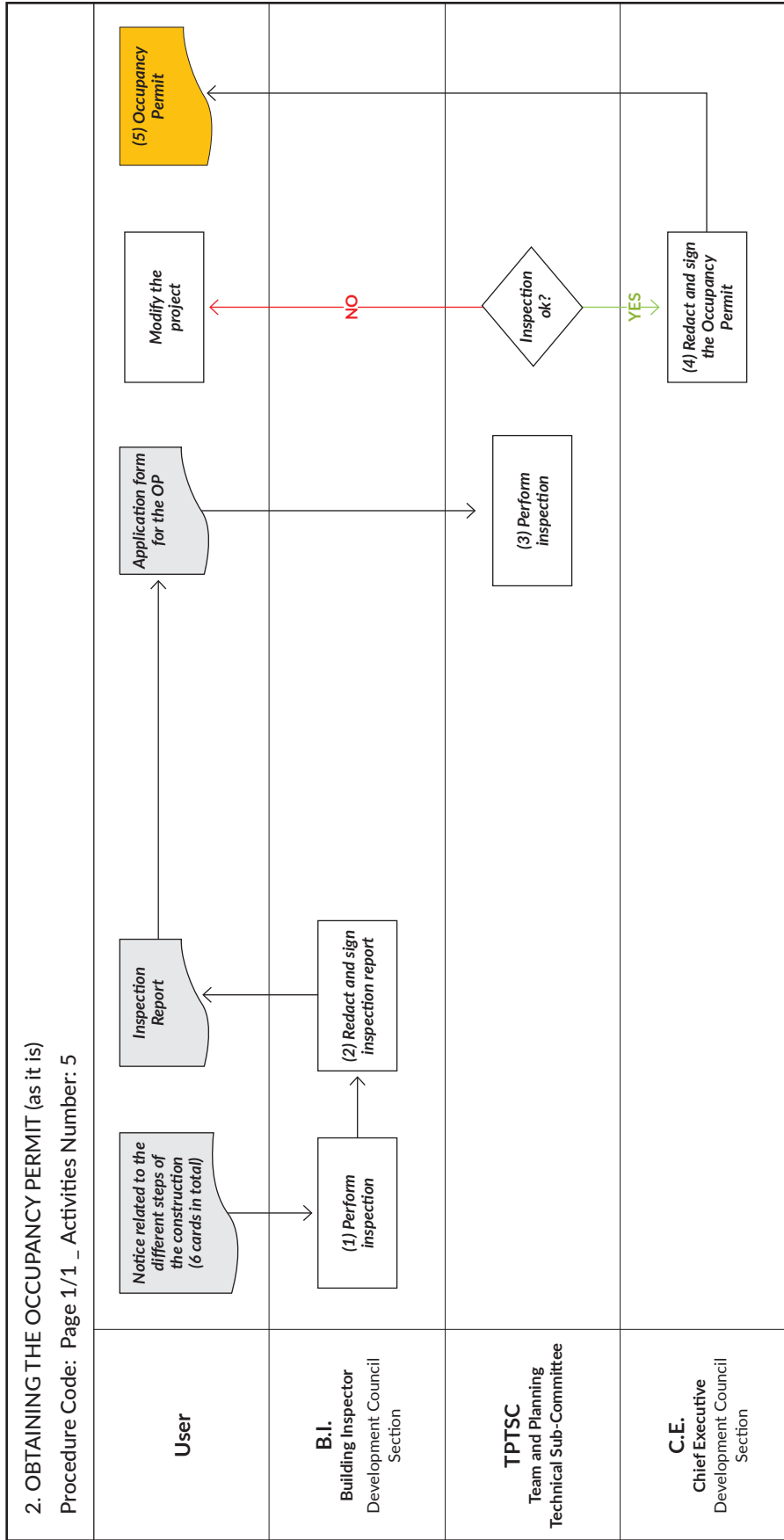
MALAWI STANDARD OF 2010 - CODE OF PRACTICE FOR DESIGN LOADINGS FOR BUILDING EVALUATION		
Chapter	Problem	Recommendation
Section 8.5.1 Page 36	Malawi Standard of 2010 – COPB considered the following: “For single story brick buildings, provide a reinforced concrete ring beam around the perimeter”. Only one ring beam increases the vulnerability of the building.	Consider the change as follows: “For single story brick buildings, provide a reinforced concrete ring beams below and above of the wall and around each rectangular perimeter of the house”. Ring beams above and below the wall reduce the vulnerability of the structure.
Section 8.5.1.4 Page 44	Malawi Standard of 2010 – COPB does not have a provision to proper structural detailing. Proper detailing is of paramount importance in the design and construction of seismic-resistant structures. This fact is confirmed in every recent major earthquake. The lack of these provisions increases the vulnerability of new buildings.	Includes provisions for the structural systems according to the materials proper detailing for lateral loads. This is important to guarantee the seismic performance of buildings.
Section 8.5.1.4 Page 44	Malawi Standard of 2010 – COPB does not have a provision to limit the use of some structural systems as a function of the height of the structure and the seismic design category. The lack of these provisions increases the vulnerability of new buildings.	Includes provisions for the structural systems for gravitational and lateral loads, for their configuration, and, acceptable heights according to the project use. Building codes should consider this for the selection of the structural system.
-----	Malawi Standard of 2010 – COPB does not show the requirements or an acceptable method to perform a complete structural analysis. The lack of these requirements do not guarantee the safety of the community.	Determine the criteria for acceptance of exact and approximate methods. Regulating analysis methods is a basic tool for the structural designer to establish the framework of an adequate structural analysis. Approximate methods are useful to verify the results of the calculations of the structural designer. These requirements aim to guarantee the safety of the community.
	Malawi Standard of 2010 – COPB does not have specific requirements regarding the minimum geotechnical subsoil exploration. This is an issue because foundations could be designed without the appropriate knowledge of the foundation soil. This situation could increase the risks for a building to settle, rotate or even liquify.	Include requirements for the minimum geotechnical subsoil exploration, such as the number of perforations, and their depths according to the importance of the building and the magnitude of the loads on each support. This is important to guarantee the stability of the building and the safety of the community.
	Malawi Standard of 2010 – COPB does not include any procedures for the design of the foundations. This situation could increase the risks for a building to settle and rotate.	Include procedures for the design of the foundation in order to define the limit states for the design, the depth of the foundations and establish a framework to determine the parameters of the soil for the foundation. This is important to guarantee the stability of the building and the safety of the community.
-----	Malawi Standard of 2010 – COPB does not have design provisions related to excavations. This is critical to guarantee the stability during the construction process.	Introduce design procedures for excavations including, theories of failure, stability analysis and safety factors for the different load combinations and limit states. This topic guarantees the stability of the excavation during the construction process.

MALAWI STANDARD OF 2010 - CODE OF PRACTICE FOR DESIGN LOADINGS FOR BUILDING EVALUATION		
Chapter	Problem	Recommendation
-----	Malawi Standard of 2010 – COPB does not show provisions for escalators. It is increasing the risk for people during the evacuation process.	Include provisions for escalators. This includes the design of the connections, including non-structural elements as well as the auxiliary stairs for the evacuation. It is crucial to guarantee the accessibility, the safety, and the evacuation during extraordinary events such as fire and earthquake.
-----	The Malawi Standard of 2010 – COPB does not provide regulations regarding sprinklers. This increases the vulnerability of new and existing buildings under fire events.	Incorporate documents for the design of fire extinguishing systems such as sprinklers. This includes position, characteristics, and water supply of the system, for the sprinklers system. This is fundamental to prevent the spread of fire and early extinguishing.
-----	Malawi Standard of 2010 – COPB does not show specific provisions regarding the accessibility for people with disabilities. The absence of such provisions does not guarantee a good accessibility and evacuation means for people with disabilities	Develop specific regulations regarding the accessibility of people with disabilities in order to guarantee the access and evacuation for all the people.
-----	Malawi Standard of 2010 – COPB does not have provisions regarding to structural retrofit and/or maintenance process of historical buildings. The lack of specific provisions increases the vulnerability of these buildings in case of earthquake, fire or any other unfortunate event. This could lead to serious damages and/or total loss of the historic heritage of Malawi.	Provide specific provisions for the maintenance and/or retrofit process of historical buildings (including retrofit analysis, seismic design considerations, etc.) considering some potential hazards such as fire and earthquake to preserve the historic heritage of Malawi.

Annex 12 Process Map for Obtaining a Development Permit in Lilongwe City Council

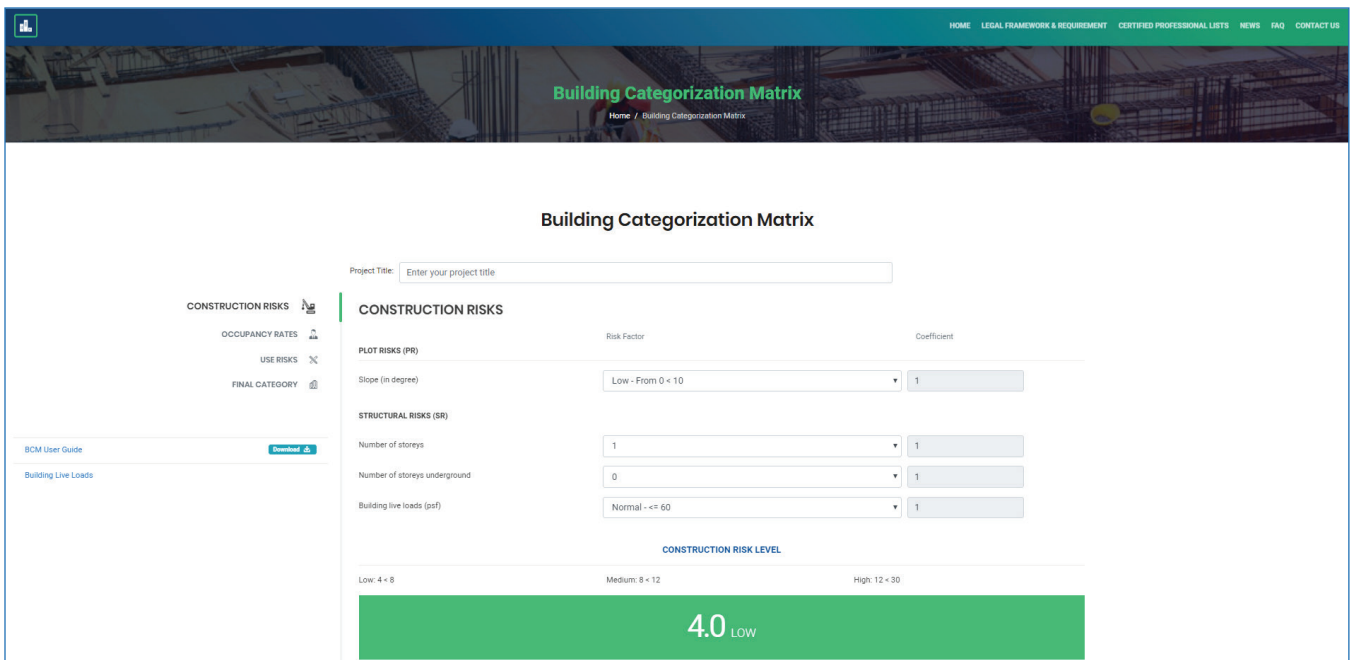
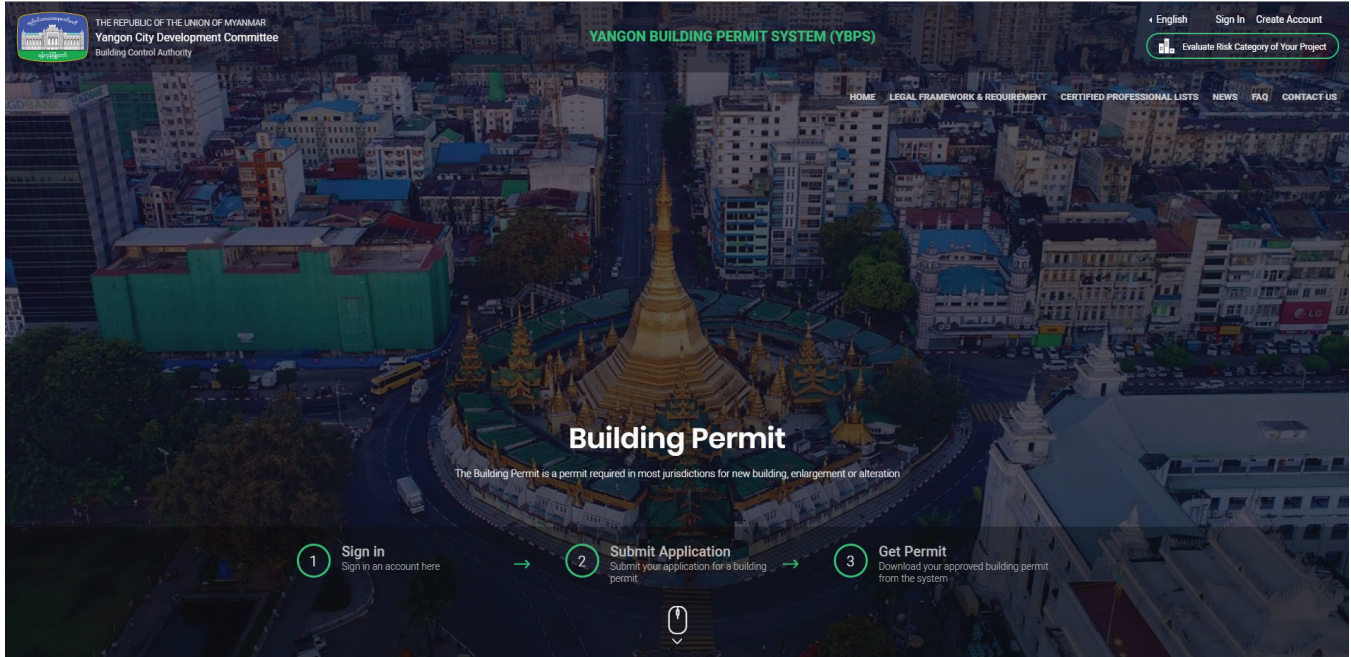


Annex 13 Process Map for Obtaining an Occupancy Permit in Lilongwe City Council



Annex 14

Example of Construction Risk Matrices Used in Yangon, Myanmar



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Building Categorization Matrix

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Building Categorization Matrix

Project Title:

CONSTRUCTION RISKS

OCCUPANCY RATES

USE RISKS

FINAL CATEGORY

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OCCUPANT LOAD CALCULATION SHEET

Reference: Table 2.6.1. of the National Myanmar Building Code

	OCCUPANCY TYPE	FLOOR AREA IN SQ-FEET PER PERSON	TYPE OF AREA	TOTAL AREA (IN SQF)	TOTAL NUMBER OF OCCUPANTS
1	Accessory storage areas, mechanical ,equipment room	<input style="width: 80px;" type="text" value="300"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
2	Agricultural building	<input style="width: 80px;" type="text" value="300"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
3	Aircraft Hangars	<input style="width: 80px;" type="text" value="500"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
4	Airport Terminal				
4.1	Baggage claim	<input style="width: 80px;" type="text" value="20"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>

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Building Categorization Matrix

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Building Categorization Matrix

Project Title:

CONSTRUCTION RISKS

OCCUPANCY RATES

USE RISKS

FINAL CATEGORY

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2	Agricultural building	<input style="width: 80px;" type="text" value="300"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
3	Aircraft Hangars	<input style="width: 80px;" type="text" value="500"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
4	Airport Terminal				
4.1	Baggage claim	<input style="width: 80px;" type="text" value="20"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>
4.2	Baggage handling	<input style="width: 80px;" type="text" value="300"/>	Gross	<input style="width: 80px;" type="text" value="0"/>	<input style="width: 80px;" type="text" value="0"/>

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DEFINITION OF THE FINAL CATEGORY

		CONSTRUCTION RISK LEVEL		
		L	M	H
USE RISK LEVEL	L	1	2	2
	M	2	2	3
	H	3	3	3

BUILDING PERMIT CATEGORY

 LOW

DOCUMENTATION TO PREPARE FOR THE APPLICATION

<p>CONSTRUCTION RISK</p> <p>LOW</p> <p>USE RISK</p> <p>LOW</p>	<p>Base documentation common to all categories</p> <ul style="list-style-type: none"> Application form for building permit Power of attorney (if needed) Declaration of responsibility of the applicant Declaration of responsibility from the certified professional in charge of the architectural design Copy of the National Registration Card of the applicant (NRC) Copy of the D-Map and grant or evidence of Land Ownership Suggestion letter of the Street and Bridges Task Force (if needed) Architectural drawings Photo report of the existing environment of the projected building Suggestion letter of the Fire Service Department (if building concerned by the section 17 of the Myanmar Fire Force law) <p style="text-align: center; font-weight: bold; margin-top: 10px;">Additional documentation</p> <div style="background-color: #e0e0e0; padding: 10px; text-align: center; font-weight: bold; margin-top: 5px;"> NO ADDITIONAL DOCUMENTATION REQUIRED </div>
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This report provides an assessment of the building regulatory framework in Malawi. Research and recommendations were developed by the World Bank with the strategic objective of improving building safety and resilience across the country.

The analysis and recommendations outlined in the report provide inputs with which the Government of Malawi can launch a comprehensive process of building regulatory reform. The recommendations proposed build on the existing efforts the Government has made to promote this agenda.

As part of the Global Facility for Disaster Risk Reduction (GFDRR), the Building Regulation for Resilience Program develops and promotes activities to increase regulatory capacity to promote a healthier, safer and more sustainable built environment. By leveraging good practice in building regulation as part of a strategy to reduce both chronic risk and disaster risk, it sets low and middle income countries on the path to effective reform and long-term resilience.

The GFDRR is a global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. Working with over 400 local, national, regional, and international partners, GFDRR provides grant financing, technical assistance, training and knowledge sharing activities to mainstream disaster and climate risk management in policies and strategies. Managed by the World Bank, GFDRR is supported by 34 countries and 9 international organizations.